



Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

Researching Crime and Justice

Session 12: Descriptives Stats and Graphs

Tutorial

Jose Pina-Sánchez



Tutorial Goals

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Univariate Analysis in SPSS

Bivariate Analysis in SPSS

Graphs in SPSS

Recap

- We are going to practice data analysis using SPSS
 - We will explore real research questions
 - Using real data, the teaching version of the CSEW
- We will practice using simple descriptive stats and tables
 - Univariate stats such as the mean, range and frequency tables
 - Bivariate analyses such as crosstabs and correlation coefficients
- And graphs too (briefly)
 - Univariate and bivariate



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 - Univariate stats such as the mean, range and frequency tables
 - Bivariate analyses such as crosstabs and correlation coefficients
- And graphs too (briefly)
 - Univariate and bivariate
- I am going to go over different procedures in SPSS
 - But it is really important that you replicate these procedures yourselves
 - And to make sure you understand what we are doing



Getting Started with SPSS

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Recap

- First, we need to install SPSS
 - Which can be accessed from the IT Store (see announcement)
 - Make sure you download the right version (Windows/Apple)
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- We also need to download the teaching version of the CSEW
 - You learnt how to do so using the UK Data Service with Kisby
 - To save time we are just going to get it from Minerva
 - Go to ‘Learning Resources’, open the folder ‘Session 12: Descriptive Statistics’
 - Download the dataset (the ‘.sav’ file)

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 - You learnt how to do so using the UK Data Service with Kisby
 - To save time we are just going to get it from Minerva
 - Go to ‘Learning Resources’, open the folder ‘Session 12: Descriptive Statistics’
 - Download the dataset (the ‘.sav’ file)
- Once saved you can open the dataset
 - Either from SPSS: Click on *File* (at the top-left corner) → *Open* → *Data*
 - Or simply by double-clicking on the dataset file



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Recap

Univariate Analysis

- Let's practice running some univariate analyses
 - The simplest way to start exploring the content of a dataset
 - Remember, the first step to secondary data analysis is familiarising ourselves with the data
- We can use the CSEW and univariate stats to explore the following research questions
 - RQ1: What is the ethnic distribution of the CSEW sample?
 - RQ2: What is the proportion of people who experienced a crime in the last 12 months?
 - RQ3: How safe do people feel walking alone after dark?

Univariate Analysis

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- First we need to find the variables providing information on those three questions
- To do so the *Variable View* in SPSS is really useful
 - In SPSS click on *Variable View*, on the bottom-left corner
 - We are mostly interested in the variables' *Name*, *Label*, *Values*, and *Measure* (see next slide)
 - You can expand the *Label* and *Values* columns to read them more clearly
- Once you have identified the three variables to explore the research questions consider their level of measurement
 - Remember, this is a key consideration in choosing the right technique
 - However, this version of the CSEW does not differentiate between *Nominal* and *Ordinal* variables
 - We can change this ourselves
 - Look at the *Values* used to code each of the three variables
 - If it says *Nominal* but should be *Ordinal* go ahead and change it

The Variable View Display

Tutorial Goals

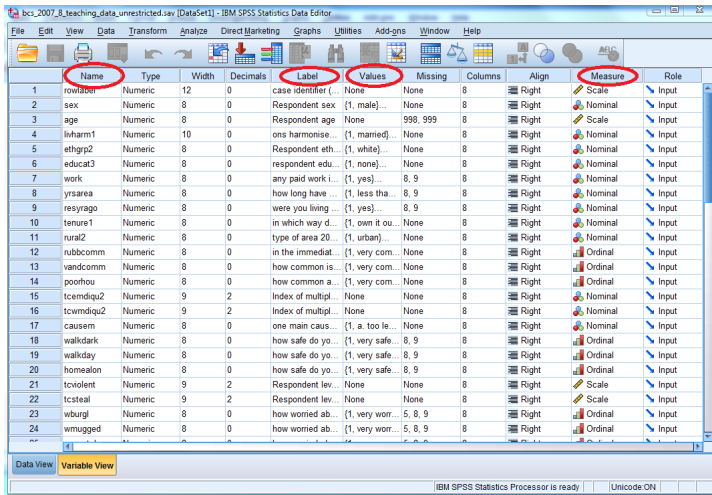
Accessing SPSS

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Variable View

| | Name | Type | Width | Decimals | Label | Values | Missing | Columns | Align | Measure | Role |
|----|-----------|---------|-------|----------|-----------------------|------------------|----------|---------|-------|---------|-------|
| 1 | rowlabel | Numeric | 12 | 0 | case identifier (...) | None | None | 8 | Right | Scale | Input |
| 2 | sex | Numeric | 8 | 0 | Respondent sex | {1, male}... | None | 8 | Right | Nominal | Input |
| 3 | age | Numeric | 8 | 0 | Respondent age | None | 998, 999 | 8 | Right | Scale | Input |
| 4 | lvharm1 | Numeric | 10 | 0 | ons harmonise... | {1, married}... | None | 8 | Right | Nominal | Input |
| 5 | ethgrp2 | Numeric | 8 | 0 | Respondent eth... | {1, white}... | None | 8 | Right | Nominal | Input |
| 6 | educat3 | Numeric | 8 | 0 | respondent edu... | {1, none}... | None | 8 | Right | Nominal | Input |
| 7 | work | Numeric | 8 | 0 | any paid work i... | {1, yes}... | 8, 9 | 8 | Right | Nominal | Input |
| 8 | ysarea | Numeric | 8 | 0 | how long have ... | {1, less tha... | 8, 9 | 8 | Right | Nominal | Input |
| 9 | resyrago | Numeric | 8 | 0 | were you living ... | {1, yes}... | 8, 9 | 8 | Right | Nominal | Input |
| 10 | tenure1 | Numeric | 8 | 0 | in which way d... | {1, own it ou... | None | 8 | Right | Nominal | Input |
| 11 | rural2 | Numeric | 8 | 0 | type of area 20... | {1, urban}... | None | 8 | Right | Nominal | Input |
| 12 | rubcomm | Numeric | 8 | 0 | in the immediat... | {1, very com... | None | 8 | Right | Ordinal | Input |
| 13 | vandcomm | Numeric | 8 | 0 | how common is... | {1, very com... | None | 8 | Right | Ordinal | Input |
| 14 | poorhou | Numeric | 8 | 0 | how common a a... | {1, very com... | None | 8 | Right | Ordinal | Input |
| 15 | tcemdiq2 | Numeric | 9 | 2 | Index of multipl... | None | None | 8 | Right | Nominal | Input |
| 16 | tcwmdiq2 | Numeric | 9 | 2 | Index of multipl... | None | None | 8 | Right | Nominal | Input |
| 17 | causem | Numeric | 8 | 0 | one main caus... | {1, a, too le... | None | 8 | Right | Nominal | Input |
| 18 | walkdark | Numeric | 8 | 0 | how safe do yo... | {1, very safe... | 8, 9 | 8 | Right | Ordinal | Input |
| 19 | walkday | Numeric | 8 | 0 | how safe do yo... | {1, very safe... | 8, 9 | 8 | Right | Ordinal | Input |
| 20 | homealon | Numeric | 8 | 0 | how safe do yo... | {1, very safe... | 8, 9 | 8 | Right | Ordinal | Input |
| 21 | tcviolent | Numeric | 9 | 2 | Respondent lev... | None | None | 8 | Right | Scale | Input |
| 22 | tcsteal | Numeric | 9 | 2 | Respondent lev... | None | None | 8 | Right | Scale | Input |
| 23 | wburgl | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right | Ordinal | Input |
| 24 | wmugged | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right | Ordinal | Input |

IBM SPSS Statistics Processor is ready | Unicode ON



Univariate Analysis: RQ1

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's explore the first research question
 - What is the ethnic distribution of the CSEW sample?
 - Let's try two approaches, one requesting SPSS to produce a frequency table, another based on the calculation of some descriptive stats
- Let's try calculating some descriptive stats first
 - Click on *Analyze* at the top menu → *Descriptive Statistics* → *Descriptives*
 - In the menu that opens up, double click on *ethgrp2a* then *OK*
 - Interpret the output; does it make sense?
 - See the next three slides for a visual description of this process
 - Let's try a different technique; close the output window (no need to save it)

Univariate Analysis: RQ1

Tutorial Goals

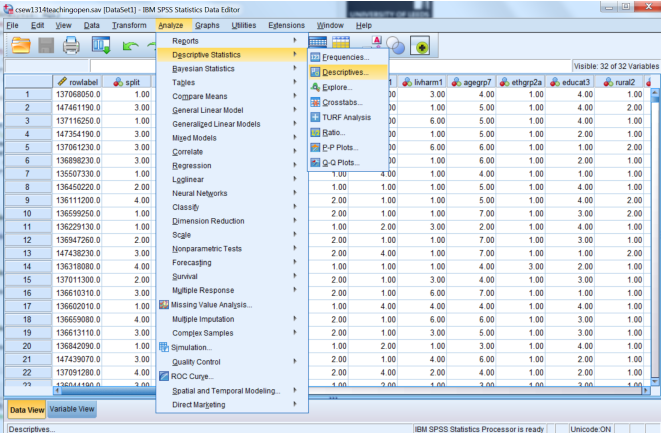
Accessing SPSS

Univariate
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Recap



The screenshot shows the IBM SPSS Statistics Data Editor interface. The 'Reports' menu is open, highlighting 'Descriptive Statistics'. The main window displays a data table with the following data:

| rowlabel | split |
|----------|-------|
| 1 | 1.00 |
| 2 | 3.00 |
| 3 | 1.00 |
| 4 | 3.00 |
| 5 | 3.00 |
| 6 | 3.00 |
| 7 | 1.00 |
| 8 | 2.00 |
| 9 | 4.00 |
| 10 | 1.00 |
| 11 | 1.00 |
| 12 | 2.00 |
| 13 | 3.00 |
| 14 | 4.00 |
| 15 | 2.00 |
| 16 | 3.00 |
| 17 | 1.00 |
| 18 | 4.00 |
| 19 | 3.00 |
| 20 | 1.00 |
| 21 | 3.00 |
| 22 | 4.00 |
| ?? | 3.00 |

The 'Reports' menu includes the following options:

- Descriptive Statistics (selected)
- Bayesian Statistics
- Tables
- Compare Means
- General Linear Model
- Generalized Linear Models
- Mixed Models
- Correlate
- Regression
- Lglinear
- Neural Networks
- Classify
- Dimension Reduction
- Scale
- Nonparametric Tests
- Forecasting
- Survival
- Multiple Response
- Missing Value Analysis...
- Multiple Imputation
- Complex Samples
- Simulation...
- Quality Control
- ROC Curve...
- Spatial and Temporal Modeling...
- Direct Marketing

The main window also shows a list of variables: linharm1, agegrp7, ethgrp2a, educat3, rural2. The status bar at the bottom indicates 'IBM SPSS Statistics Processor is ready' and 'Unicode ON'.



Univariate Analysis: RQ1

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Recap

The screenshot shows the IBM SPSS Statistics Data Editor window. The main window displays a data table with 24 rows and 15 columns. The columns are labeled: rowlabel, split, sex, yrsarea, resyrago, work2, tenure1, lnharm1, agegrp7, ethgrp2a, educat3, rural2, and e. The data values are numerical, ranging from 0 to 4.00. A 'Descriptives' dialog box is open in the foreground, showing a list of variables on the left and a 'Variable(s)' box containing 'Ethnic Group (5 cate...'. The dialog box has buttons for 'Options...', 'Style', 'Bootstrap', 'OK', 'Paste', 'Reset', 'Cancel', and 'Help'. The status bar at the bottom indicates 'IBM SPSS Statistics Processor is ready' and 'Unicode ON'.

| rowlabel | split | sex | yrsarea | resyrago | work2 | tenure1 | lnharm1 | agegrp7 | ethgrp2a | educat3 | rural2 | e |
|----------|-------------|------|---------|----------|-------|---------|---------|---------|----------|---------|--------|------|
| 1 | 137068050.0 | 1.00 | 2.00 | 7.00 | - | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 4.00 | 1.00 |
| 2 | 147461190.0 | 3.00 | 2.00 | 6.00 | - | 2.00 | 1.00 | 1.00 | 5.00 | 1.00 | 4.00 | 2.00 |
| 3 | 137116250.0 | 1.00 | 2.00 | 7.00 | 2.00 | 2.00 | 4.00 | 6.00 | 6.00 | 1.00 | 4.00 | 1.00 |
| 4 | 147354190.0 | 3.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 2.00 | 1.00 |
| 5 | 137061230.0 | 3.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 1.00 | 2.00 |
| 6 | 136898230.0 | 3.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 2.00 | 1.00 |
| 7 | 135507330.0 | 1.00 | 1.00 | - | - | - | - | - | 0.00 | 1.00 | 1.00 | 1.00 |
| 8 | 136450220.0 | 2.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 4.00 | 1.00 |
| 9 | 136111200.0 | 4.00 | 1.00 | - | - | - | - | - | 0.00 | 1.00 | 4.00 | 2.00 |
| 10 | 136599250.0 | 1.00 | 1.00 | - | - | - | - | - | 0.00 | 1.00 | 3.00 | 2.00 |
| 11 | 136229130.0 | 1.00 | 1.00 | - | - | - | - | - | 0.00 | 1.00 | 4.00 | 1.00 |
| 12 | 136947260.0 | 2.00 | 1.00 | - | - | - | - | - | 0.00 | 1.00 | 3.00 | 1.00 |
| 13 | 147438230.0 | 3.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 1.00 | 2.00 |
| 14 | 136318080.0 | 4.00 | 1.00 | - | - | - | - | - | 0.00 | 3.00 | 2.00 | 1.00 |
| 15 | 137011300.0 | 2.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 3.00 | 1.00 |
| 16 | 136610310.0 | 3.00 | 2.00 | - | - | - | - | - | 0.00 | 1.00 | 1.00 | 1.00 |
| 17 | 136602010.0 | 1.00 | 1.00 | 3.00 | - | 1.00 | 4.00 | 4.00 | 4.00 | 1.00 | 4.00 | 1.00 |
| 18 | 136659080.0 | 4.00 | 1.00 | 7.00 | - | 2.00 | 1.00 | 6.00 | 6.00 | 1.00 | 3.00 | 1.00 |
| 19 | 136613110.0 | 3.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.00 | 3.00 | 5.00 | 1.00 | 3.00 | 1.00 |
| 20 | 136842090.0 | 1.00 | 2.00 | 7.00 | - | 1.00 | 2.00 | 1.00 | 3.00 | 1.00 | 4.00 | 1.00 |
| 21 | 147439070.0 | 3.00 | 2.00 | 7.00 | - | 2.00 | 1.00 | 4.00 | 6.00 | 1.00 | 2.00 | 1.00 |
| 22 | 137091280.0 | 4.00 | 2.00 | 5.00 | - | 2.00 | 4.00 | 2.00 | 4.00 | 1.00 | 2.00 | 1.00 |
| 23 | 136044190.0 | 3.00 | 2.00 | 6.00 | - | 1.00 | 2.00 | 1.00 | 3.00 | 1.00 | 3.00 | 1.00 |
| 24 | 147591040.0 | 4.00 | 2.00 | 6.00 | - | 1.00 | 2.00 | 1.00 | 4.00 | 1.00 | 4.00 | 1.00 |



Univariate Analysis: RQ1

Tutorial Goals

Accessing SPSS

Univariate
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Bivariate
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Graphs in SPSS

Recap

```
DESCRIPTIVES VARIABLES=ethgrp2a  
/STATISTICS=MEAN STDDEV MIN MAX.
```

→ Descriptives

[DataSet1] C:\Users\lawjpi\Dropbox\Leeds\LAW5022M Researching Crime

Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|-----------------------------|------|---------|---------|--------|----------------|
| Ethnic Group (5 categories) | 8833 | 1.00 | 5.00 | 1.2443 | .77937 |
| Valid N (listwise) | 8833 | | | | |

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  /STATISTICS=MEAN STDDEV MIN MAX.
```

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[DataSet1] C:\Users\lawjpi\Dropbox\Leeds\LAW5022M Researching Crime

| Descriptive Statistics | | | | | |
|-----------------------------|------|---------|---------|--------|----------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Ethnic Group (5 categories) | 8833 | 1.00 | 5.00 | 1.2443 | .77937 |
| Valid N (listwise) | 8833 | | | | |

- Ethnicity is an example of a categorical/nominal variable
 - I.e. the different categories that compose it cannot be ranked
 - As such it only makes sense to describe it using tables

Univariate Analysis: RQ1

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Recap

- Let's now use a frequency table to explore how is *ethgrp2a* distributed
 - Click on *Analyze* → *Descriptive Statistics* → *Frequencies*
 - Double click on *ethgrp2a* then *OK*
 - Notice how this process is identical to what we did before only selecting *Frequencies* rather than *Descriptives*
 - Interpret the output; does it make sense? Can you answer RQ1? Can you say something about the quality of the sample? Is it representative of the UK population?
 - In the table you have produced, can you see what is the difference between *Percent* and *Valid Percent*?



Univariate Analysis: RQ1

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Recap

The screenshot shows the IBM SPSS Statistics Data Editor interface. The 'Analyze' menu is open, displaying various statistical analysis options. The 'Frequencies...' option is selected, and a sub-menu is visible showing options like 'Descriptives...', 'Explore...', 'Crosstabs...', 'TURF Analysis', 'Ratio...', 'P-P Plots...', and 'Q-Q Plots...'. The main data table is visible in the background, showing variables like 'rowlabel', 'split', and several numerical variables.

| rowlabel | split | livharm1 | agegrp7 | ethgrp2a | educat3 | rural2 | e |
|----------|-------|----------|---------|----------|---------|--------|---|
| 1 | 1.00 | 3.00 | 4.00 | 1.00 | 4.00 | 1.00 | |
| 2 | 3.00 | 1.00 | 5.00 | 1.00 | 4.00 | 2.00 | |
| 3 | 1.00 | 6.00 | 5.00 | 1.00 | 4.00 | 1.00 | |
| 4 | 3.00 | 1.00 | 5.00 | 1.00 | 2.00 | 1.00 | |
| 5 | 3.00 | 6.00 | 6.00 | 1.00 | 1.00 | 2.00 | |
| 6 | 3.00 | 1.00 | 6.00 | 1.00 | 2.00 | 1.00 | |
| 7 | 1.00 | 4.00 | 1.00 | 4.00 | 1.00 | 1.00 | |
| 8 | 2.00 | 1.00 | 1.00 | 5.00 | 1.00 | 4.00 | |
| 9 | 4.00 | 1.00 | 1.00 | 5.00 | 1.00 | 4.00 | |
| 10 | 1.00 | 2.00 | 1.00 | 7.00 | 1.00 | 3.00 | |
| 11 | 1.00 | 2.00 | 3.00 | 2.00 | 1.00 | 4.00 | |
| 12 | 2.00 | 1.00 | 1.00 | 7.00 | 1.00 | 3.00 | |
| 13 | 3.00 | 2.00 | 4.00 | 1.00 | 1.00 | 2.00 | |
| 14 | 4.00 | 1.00 | 1.00 | 4.00 | 3.00 | 2.00 | |
| 15 | 2.00 | 2.00 | 1.00 | 3.00 | 4.00 | 1.00 | |
| 16 | 3.00 | 2.00 | 1.00 | 6.00 | 7.00 | 1.00 | |
| 17 | 1.00 | 1.00 | 4.00 | 4.00 | 1.00 | 4.00 | |
| 18 | 4.00 | 2.00 | 1.00 | 6.00 | 6.00 | 1.00 | |
| 19 | 3.00 | 2.00 | 1.00 | 3.00 | 5.00 | 1.00 | |
| 20 | 1.00 | 1.00 | 2.00 | 1.00 | 3.00 | 1.00 | |
| 21 | 3.00 | 2.00 | 1.00 | 4.00 | 6.00 | 1.00 | |
| 22 | 4.00 | 2.00 | 4.00 | 2.00 | 4.00 | 1.00 | |
| 23 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 3.00 | |
| 24 | 4.00 | 1.00 | 2.00 | 1.00 | 4.00 | 1.00 | |



Univariate Analysis: RQ1

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The screenshot shows the IBM SPSS Statistics Data Editor window. The main window displays a data table with 22 rows and 14 columns. The columns are labeled: rowlabel, split, sex, yrsarea, resyrago, work2, tenure1, livharm1, agegrp7, ethgrp2a, educat3, and rural2. The data values are numerical, ranging from 0.0 to 7.00. A 'Frequencies' dialog box is open in the foreground, showing a list of variables on the left and a 'Variables:' box on the right containing 'Ethnic Group (5 categories) (ethgrp2a)'. The 'Display frequency tables' checkbox is checked. The dialog box has buttons for 'OK', 'Paste', 'Reset', 'Cancel', and 'Help'. The background data table is partially obscured by the dialog box.

| rowlabel | split | sex | yrsarea | resyrago | work2 | tenure1 | livharm1 | agegrp7 | ethgrp2a | educat3 | rural2 | |
|----------|-------------|------|---------|----------|-------|---------|----------|---------|----------|---------|--------|------|
| 1 | 137068050.0 | | | | | | | | | 1.00 | 4.00 | 1.00 |
| 2 | 147461190.0 | | | | | | | | | 1.00 | 4.00 | 2.00 |
| 3 | 137116250.0 | | | | | | | | | 1.00 | 4.00 | 1.00 |
| 4 | 147354190.0 | | | | | | | | | 1.00 | 2.00 | 1.00 |
| 5 | 137061230.0 | | | | | | | | | 1.00 | 1.00 | 2.00 |
| 6 | 136898230.0 | | | | | | | | | 1.00 | 2.00 | 1.00 |
| 7 | 135507330.0 | | | | | | | | | 1.00 | 1.00 | 1.00 |
| 8 | 136450220.0 | | | | | | | | | 1.00 | 4.00 | 1.00 |
| 9 | 136111200.0 | | | | | | | | | 1.00 | 4.00 | 2.00 |
| 10 | 136599250.0 | | | | | | | | | 1.00 | 3.00 | 2.00 |
| 11 | 136229130.0 | | | | | | | | | 1.00 | 4.00 | 1.00 |
| 12 | 136947260.0 | | | | | | | | | 1.00 | 3.00 | 1.00 |
| 13 | 147438230.0 | | | | | | | | | 1.00 | 1.00 | 2.00 |
| 14 | 136318080.0 | | | | | | | | | 3.00 | 2.00 | 1.00 |
| 15 | 137011300.0 | 2.00 | 2.00 | 7.00 | | 2.00 | 1.00 | 3.00 | 4.00 | 1.00 | 3.00 | 1.00 |
| 16 | 136610310.0 | 3.00 | 2.00 | 7.00 | | 2.00 | 1.00 | 6.00 | 7.00 | 1.00 | 1.00 | 1.00 |
| 17 | 136602010.0 | 1.00 | 1.00 | 3.00 | | 1.00 | 4.00 | 4.00 | 4.00 | 1.00 | 4.00 | 1.00 |
| 18 | 136659080.0 | 4.00 | 1.00 | 7.00 | | 2.00 | 1.00 | 6.00 | 6.00 | 1.00 | 3.00 | 1.00 |
| 19 | 136613110.0 | 3.00 | 1.00 | 2.00 | 1.00 | 2.00 | 1.00 | 3.00 | 5.00 | 1.00 | 3.00 | 1.00 |
| 20 | 136842090.0 | 1.00 | 2.00 | 7.00 | | 1.00 | 2.00 | 1.00 | 3.00 | 1.00 | 4.00 | 1.00 |
| 21 | 147439070.0 | 3.00 | 2.00 | 7.00 | | 2.00 | 1.00 | 4.00 | 6.00 | 1.00 | 2.00 | 1.00 |
| 22 | 137091280.0 | 4.00 | 2.00 | 5.00 | | 2.00 | 4.00 | 2.00 | 4.00 | 1.00 | 2.00 | 1.00 |
| ?? | 136044190.0 | 3.00 | 2.00 | 6.00 | | 1.00 | 2.00 | 1.00 | 3.00 | 1.00 | 3.00 | 1.00 |

Univariate Analysis: RQ1

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Recap

```
FREQUENCIES VARIABLES=ethgrp2a
/ORDER=ANALYSIS.
```

Frequencies

Statistics

Ethnic Group (5 categories)

| | | |
|---|---------|------|
| N | Valid | 8833 |
| | Missing | 10 |

Ethnic Group (5 categories)

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|------------------------|-----------|---------|---------------|--------------------|
| Valid | White | 7954 | 89.9 | 90.0 | 90.0 |
| | Mixed | 88 | 1.0 | 1.0 | 91.0 |
| | Asian or Asian British | 403 | 4.6 | 4.6 | 95.6 |
| | Black or Black British | 288 | 3.3 | 3.3 | 98.9 |
| | Chinese or Other | 100 | 1.1 | 1.1 | 100.0 |
| | Total | 8833 | 99.9 | 100.0 | |
| Missing | System | 10 | .1 | | |
| | Total | 8843 | 100.0 | | |

Univariate Analysis: RQ2

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Accessing SPSS

Univariate
Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's explore our second research question
 - What is the proportion of people who experienced a crime in the last 12 months?
- The target variable (*bcsvictim*) is a binary variable
 - I.e. a categorical/nominal variable with only two categories
- For these type of variables you can also use descriptive stats
 - If coded as a (0,1) variable, then the mean represents the proportions of 1s
- Which can be obtained both from the *Descriptives* and the *Frequencies* menu

Univariate Analysis: RQ2

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Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's explore this question using some of the options available in the *Frequencies* menu
 - Go to *Analyze* → *Descriptive Statistics* → *Frequencies*
 - Drag (*bcsvictim*) into the right box
 - Within the *Frequencies* menu click on *Statistics*
 - Click on the *Mean*, *Minimum*, and *Maximum*
 - Back in the *Frequencies* menu you can also click on *Charts* and request a *Bar-chart*
 - Click on *OK* and interpret your output
 - What is the proportion of people who experienced a crime in the last 12 months?
 - Can you find a way to use percentages in the y-axis of your bar-chart?

Univariate Analysis: RQ3

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's now look at the third research question:
 - How safe do people feel walking alone after dark?
 - Find the target variable
 - Identify its level of measurement
 - Decide whether you would use a frequency table or some descriptive stats, or both
 - You now know how to do this, so go ahead and give it a try
 - Interpret your results; can you answer RQ3?
 - If you used a frequency table, did you notice the difference between *Percent* and *Valid Percent*? Which one would you use to report your findings?
 - If you used descriptive statistics, what do you make of them? Can you use them to answer RQ3? It is possible but tricky to use descriptive statistics with ordinal variables, that is why we normally use tables instead

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Univariate analyses are straightforward and useful
 - But cannot tell us anything on the relationship between variables
 - E.g. Is crime victimisation associated with fear of crime?
 - To do so we need bivariate (and multivariate) techniques
- We are going to practice using three common bivariate analyses
 - Crosstabs: To be used with categorical and ordinal variables without too many categories
 - Comparison of means: Used to calculate the mean of a scale, ordinal, or binary variable for the different categories in another categorical/binary variable
 - Correlation coefficients: Normally used between scale variables (Pearson's), but there are other options available using ordinal (Spearman's) variables



Bivariate Analysis

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's use these three bivariate techniques to explore the following research questions
 - RQ4: Are there any gender differences in identifying 'the main cause of crime in Britain'?
 - RQ5: Which ethnic group is more likely to be victimised?
 - RQ6: Is fear of 'having your home broken into' associated with respondents' age?
- As before, identify first the variables that you will need to explore those questions
 - Look at the coding of their *Values*
 - And update the level of *Measurement* if necessary

Bivariate Analysis: RQ4

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Are there any gender differences in identifying ‘the main cause of crime in Britain’?
- We can explore that question using a crosstab
 - Go to *Analyze* → *Descriptive Statistics* → *Crosstabs*
 - Drag *cause2m* to the *Row* box, and *sex* to the *Column* box, click *OK*
 - Interpret the output; can you answer the research question?
 - Go back to *Analyze* → *Descriptive Statistics* → *Crosstabs*
 - Before pressing *OK* go to *Cells* on the right margin of the menu
 - Make sure you tick *Column - Percentages* before pressing *Continue* and *OK* again
 - See the next two slides for a visual description of this process
 - Is the output easier to interpret now? Can you answer the question now?

Bivariate Analysis: RQ4

Tutorial Goals

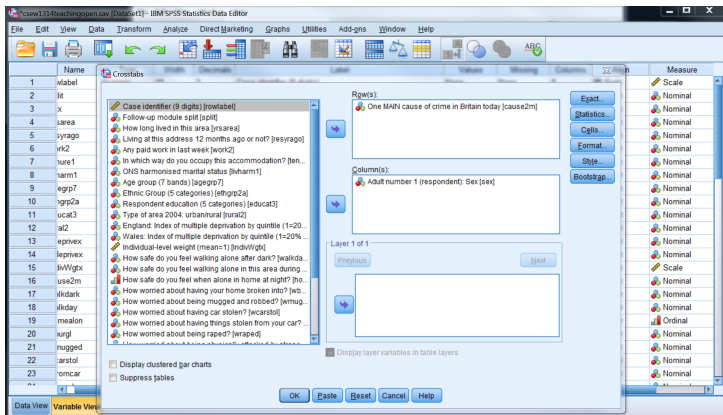
Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap



The screenshot shows the IBM SPSS Statistics Data Editor window with the 'Crosstabs' dialog box open. The dialog box is titled 'Crosstabs' and has several tabs: 'Display', 'Display', 'Display', 'Label', 'Values', 'Missing', 'Columns', and 'ΣΣ'. The 'RQ4(s):' tab is selected, showing the following configuration:

- Row(s):** One MAIN cause of crime in Britain today [cause2m]
- Column(s):** Adult number 1 (respondent): Sex [sex]
- Layer 1 of 1:** Previous, Next
- Display clustered bar charts:**
- Suppress tables:**
- Display layer variables in table layers:**

The 'OK' button is highlighted in yellow. The background shows a list of variables in the 'Variable View' tab, including 'label', 'lit', 'x', 'larea', 'yrago', 'rk2', 'ure1', 'harm1', 'egrp7', 'hgrp2a', 'ucat3', 'al2', 'eprive', 'leprive', 'livwtg', 'use2m', 'ilkdark', 'ilkday', 'mealon', 'urgl', 'nuged', 'arstol', 'omcar', and '4'.

Bivariate Analysis: RQ4

Tutorial Goals

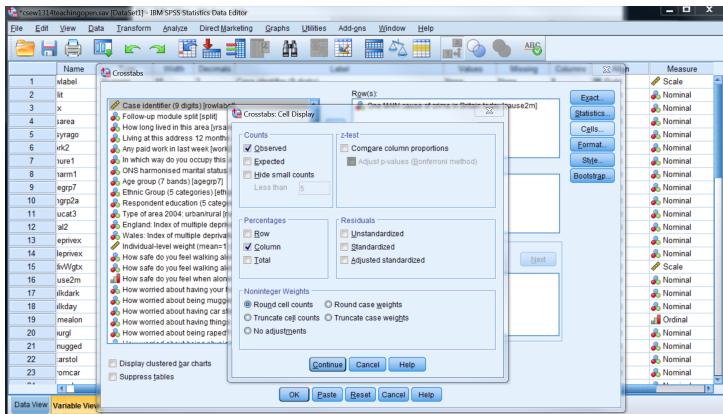
Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap



The screenshot shows the IBM SPSS Statistics Data Editor window with the 'Crosstabs' dialog box open. The dialog is configured as follows:

- Counts:**
 - Observed
 - Expected
 - Hide small counts (Less than 5)
- Percentages:**
 - Row
 - Column
 - Total
- Residuals:**
 - Unstandardized
 - Standardized
 - Adjusted standardized
- Noninteger Weights:**
 - Round cell counts
 - Round case weights
 - Truncate cell counts
 - Truncate case weights
 - No adjustments
- Display clustered bar charts
- Suppress tables

The 'Continue' button is highlighted in the dialog box. The background shows a list of variables in the Variable View, including 'mlabel', 'lit', 'x', 'larea', 'lryago', 'lwk2', 'lure1', 'larm1', 'legrp7', 'lgrp2a', 'lucat3', 'lal2', 'leprivex', 'livWgtx', 'luse2m', 'likdark', 'likday', 'lmealon', 'lurgl', 'lugged', 'larstol', and 'lrmcar'.



Bivariate Analysis: RQ5

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Which ethnic group is more likely to be victimised?
- We can explore this question using a crosstab (as before), but it might be neater to use a comparison of means
 - Go to *Analyze* → *Compare Means* → *Means*
 - Drag *bcsvictim* to the *Dependent List* box, and *ethgrp2a* to the *Layer* box, then click *OK*
 - See the next two slides for a visual description of this process
 - Interpret the output; can you answer the research question?

Bivariate Analysis: RQ5

Tutorial Goals

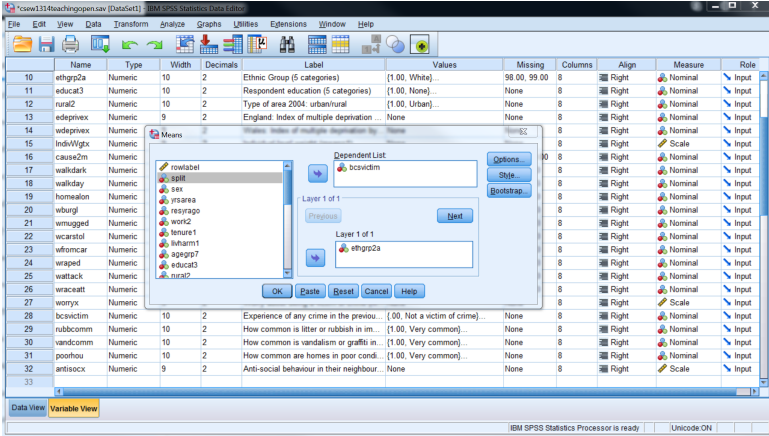
Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap



The screenshot shows the IBM SPSS Statistics Data Editor interface. The main window displays a list of variables with their properties. A dialog box titled "Meeus" is open, showing the "Dependent List" with "bcsvictim" and "Layer 1 of 1" with "ethgrp2a".

| Name | Type | Width | Decimals | Label | Values | Missing | Columns | Align | Measure | Role | |
|------|-----------|---------|----------|-------|--|----------------------------------|--------------|-------|---------|---------|-------|
| 10 | ethgrp2a | Numeric | 10 | 2 | Ethnic Group (5 categories) | (1.00, White)... | 98.00, 99.00 | 8 | Right | Nominal | Input |
| 11 | educat3 | Numeric | 10 | 2 | Respondent education (5 categories) | (1.00, None)... | None | 8 | Right | Nominal | Input |
| 12 | rural2 | Numeric | 10 | 2 | Type of area 2004: urban/rural | (1.00, Urban)... | None | 8 | Right | Nominal | Input |
| 13 | edeprivex | Numeric | 9 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 14 | wdeprivex | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 15 | indivWgtx | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Scale | Input |
| 16 | cause2m | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 17 | walkdark | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 18 | walkday | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 19 | homealon | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 20 | wburgl | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 21 | wmugged | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 22 | wcarstol | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 23 | wformcar | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 24 | wraped | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 25 | wattack | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 26 | wraceatt | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Nominal | Input |
| 27 | wworryx | Numeric | 10 | 2 | England: Index of multiple deprivation ... | None | None | 8 | Right | Scale | Input |
| 28 | bcsvictim | Numeric | 10 | 2 | Experience of any crime in the previous 12 months | (0.00, Not a victim of crime)... | None | 8 | Right | Nominal | Input |
| 29 | rubcomm | Numeric | 10 | 2 | How common is litter or rubbish in immediate surroundings | (1.00, Very common)... | None | 8 | Right | Nominal | Input |
| 30 | vandcomm | Numeric | 10 | 2 | How common is vandalism or graffiti in immediate surroundings | (1.00, Very common)... | None | 8 | Right | Nominal | Input |
| 31 | poorhou | Numeric | 10 | 2 | How common are homes in poor condition in immediate surroundings | (1.00, Very common)... | None | 8 | Right | Nominal | Input |
| 32 | antisocx | Numeric | 9 | 2 | Anti-social behaviour in their neighbourhood | None | None | 8 | Right | Scale | Input |
| 33 | | | | | | | | | | | |



Bivariate Analysis: RQ6

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Is fear of ‘having your home broken into’ associated with respondents’ age?
- Let’s explore this question using a crosstab first
 - You know how to do that, so go ahead and give it a try (see procedure in slide 20)
 - Depending on which variable is set to *Row* and which to *Column* you might need to change where you want your *Percentages* in the *Cells* menu
 - Can you answer the research question? Is it easy to interpret the output?

Bivariate Analysis: RQ6

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's try answering RQ6 using a correlation coefficient now
 - Go to *Analyze* → *Correlate* → *Bivariate*
 - Drag *agegrp7* and *wburgl* into the *Variables* box
 - Untick *Pearson* and tick *Spearman* instead (Do you know why we are doing this?), press *OK*
 - See the next two slides for a visual description of this process
 - Can you interpret this table? The key cell is the intersection of *Correlation Coefficient* across the two different variables
 - Is the coefficient pointing at a positive or negative association? Is it a strong or weak association?
 - Can you answer RQ6?
 - Can you see how this procedure provides a clearer answer than the exploration we undertook using a crosstab?



Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

Bivariate Analysis: RQ6

The screenshot shows the IBM SPSS Statistics Data Editor interface. The 'Analyze' menu is open, and the 'Bivariate' option is selected, opening a sub-menu. The main data table is visible in the background, showing variables like 'cause2m', 'walkdark', 'walkday', etc., and their corresponding values.

| Label | Values | Missing | Columns | Align | Meas |
|---|----------------------------------|--------------|---------|-------|-------|
| crime in Britain today | {1.00, A. Too lenient sentenc... | 98.00, 99.00 | 8 | Right | Nomin |
| si walking alone after dark? | {1.00, Very safe}... | 8.00, 9.00 | 8 | Right | Nomin |
| si walking alone in this area during th... | {1.00, Very safe}... | 8.00, 9.00 | 8 | Right | Nomin |
| si when alone in home at night? | {1.00, Very safe}... | 8.00, 9.00 | 8 | Right | Nomin |
| having your home broken into? | {1.00, Very worried}... | 8.00, 9.00 | 8 | Right | Nomin |
| have you used and added? | {1.00, Very worried}... | 8.00, 9.00 | 8 | Right | Nomin |
| car? | {1.00, Very worried}... | 8.00, 9.00 | 8 | Right | Nomin |
| Distances... | {1.00, Very worried}... | 8.00, 9.00 | 8 | Right | Nomin |
| strangers? | {1.00, Very worried}... | 8.00, 9.00 | 8 | Right | Nomin |
| being attacked because of skin colour... | {1.00, Very worried}... | 8.00, 9.00 | 8 | Right | Nomin |
| a victim of crime (high score = high le... | None | None | 8 | Right | Scale |
| crime in the previous 12 months | {0.00, Not a victim of crime}... | None | 8 | Right | Nomin |
| er or rubbish in immediate area? | {1.00, Very common}... | None | 8 | Right | Nomin |
| idalism or graffiti in immediate area? | {1.00, Very common}... | None | 8 | Right | Nomin |
| omes in poor condition/run down? | {1.00, Very common}... | None | 8 | Right | Nomin |
| er in their neighbourhood (high score = ... | None | None | 8 | Right | Scale |

Bivariate Analysis: RQ6

Tutorial Goals

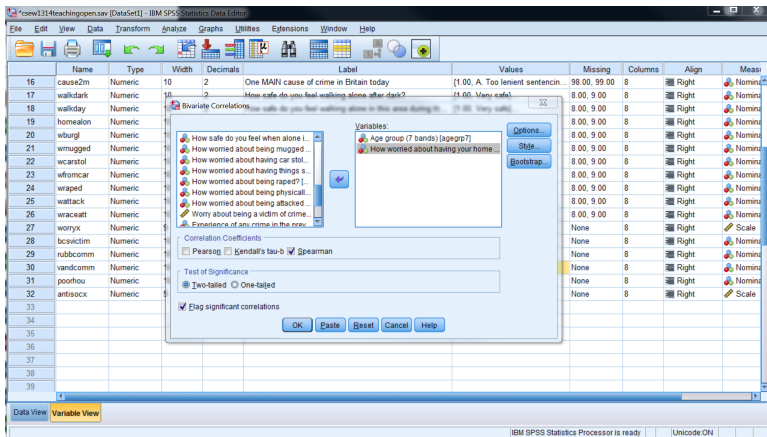
Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap



The screenshot shows the IBM SPSS Statistics Data Editor interface. The main window displays a data view with columns for Name, Type, Width, Decimals, Label, Values, Missing, Columns, Align, and Measure. A dialog box titled "Bivariate Correlations" is open, showing a list of variables on the left and a list of selected variables in the "Variables:" box. The dialog box includes options for Correlation Coefficients (Pearson, Kendall's tau-b, Spearman), Test of Significance (Two-tailed, One-tailed), and a checkbox for "Elag significant correlations". The "OK" button is highlighted.

| Name | Type | Width | Decimals | Label | Values | Missing | Columns | Align | Measure |
|------|-----------|---------|----------|-------|--|----------------------------------|---------|-------|---------|
| 16 | cause2m | Numeric | 10 | 2 | One MAIN cause of crime in Britain today | {1.00, A. Too lenient sentenc... | 8 | Right | Nominal |
| 17 | walkdark | Numeric | 10 | 2 | How safe do you feel walking alone after dark? | {1.00, Very safe} | 8 | Right | Nominal |
| 18 | walkday | Numeric | | | How safe do you feel walking alone in this area during th... | {1.00, Very safe} | 8 | Right | Nominal |
| 19 | homealon | Numeric | | | | | 8 | Right | Nominal |
| 20 | wburgl | Numeric | | | | | 8 | Right | Nominal |
| 21 | wmugged | Numeric | | | | | 8 | Right | Nominal |
| 22 | wcarstol | Numeric | | | | | 8 | Right | Nominal |
| 23 | wfromcar | Numeric | | | | | 8 | Right | Nominal |
| 24 | wraped | Numeric | | | | | 8 | Right | Nominal |
| 25 | wattack | Numeric | | | | | 8 | Right | Nominal |
| 26 | wraceatt | Numeric | | | | | 8 | Right | Nominal |
| 27 | worryx | Numeric | | | | | 8 | Right | Nominal |
| 28 | bcsvictim | Numeric | | | | | 8 | Right | Nominal |
| 29 | rubbcomm | Numeric | | | | | 8 | Right | Nominal |
| 30 | vandcomm | Numeric | | | | | 8 | Right | Nominal |
| 31 | poorhou | Numeric | | | | | 8 | Right | Nominal |
| 32 | antisocx | Numeric | | | | | 8 | Right | Nominal |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |
| 36 | | | | | | | | | |
| 37 | | | | | | | | | |
| 38 | | | | | | | | | |
| 39 | | | | | | | | | |



Bivariate Analysis: RQ6

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSSBivariate
Analysis in SPSS

Graphs in SPSS

Recap

```
NONPAR CORR
/VARIABLES=agegrp7 wburgl
/PRINT=SPEARMAN TWOTAIL NOSIG
/MISSING=PAIRWISE.
```

Nonparametric Correlations

Correlations

| | | Age group (7 bands) | | How worried about having your home broken into? |
|---|---|-------------------------|-------|---|
| Spearman's rho | Age group (7 bands) | Correlation Coefficient | 1.000 | .021 |
| | | Sig. (2-tailed) | . | .326 |
| | | N | 8843 | 2193 |
| How worried about having your home broken into? | How worried about having your home broken into? | Correlation Coefficient | .021 | 1.000 |
| | | Sig. (2-tailed) | .326 | . |
| | | N | 2193 | 2193 |

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- We are now going to practice how to build graphs in SPSS
- Remember that we still need to think about levels of measurement

One-Dimensional Figures

| Nominal | Ordinal | Scale |
|---------------|-----------------------|--------------------------|
| Bar/Piecharts | Bar/Piecharts & Hist. | Hist. & Density Function |

Two-Dimensional Figures

| | Nominal | Ordinal | Scale |
|---------|---------------|-----------------|-----------------|
| Nominal | Bar/Piecharts | Histograms | Boxplot |
| Ordinal | Histograms | | Box/Scatterplot |
| Scale | Boxplot | Box/Scatterplot | Scatterplot |

Graphs in SPSS: Using *Analyze*

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- There are different ways of drawing graphs in SPSS
- We can request them using some of the different options available as part of different *Analyze* commands
 - These are specific types of graphs available for specific commands
 - Piecharts, barplots and histograms are available under *Frequencies* (within *Descriptive Statistics*)
 - Give it a try, see whether you can represent respondents' level of education graphically
 - Hint: within the *Frequencies* menu click on *Charts*
 - Would you use a histogram or a barchart? Why? Try them both and compare
 - Get a piechart too, and compare it to your previous barchart; Which one takes you longer to interpret?



Graphs in SPSS: Using *Analyze*

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help

Visible: 32 of 32 Variables

| | rowlabel | split | sex | yrsarea | resyrago | work2 | tenure1 | livharm1 | agegrp7 | ethgrp2a | educat3 | rural2 |
|----|-------------|-------|------|---------|----------|-------|---------|----------|---------|----------|---------|--------|
| 10 | 136599250.0 | 1.00 | 1.00 | 7.00 | . | 2.00 | 1.00 | 1.00 | 7.00 | 1.00 | 3.00 | 2.00 |
| 11 | 136229130.0 | 1.00 | 1.00 | 4.00 | . | 1.00 | 2.00 | 3.00 | 2.00 | 1.00 | 4.00 | 1.00 |
| 12 | 136947260.0 | | | | | | | | | | | |
| 13 | 147438230.0 | | | | | | | | | | | |
| 14 | 136318080.0 | | | | | | | | | | | |
| 15 | 137011300.0 | | | | | | | | | | | |
| 16 | 136610310.0 | | | | | | | | | | | |
| 17 | 136602010.0 | | | | | | | | | | | |
| 18 | 136659080.0 | | | | | | | | | | | |
| 19 | 136613110.0 | | | | | | | | | | | |
| 20 | 136842090.0 | | | | | | | | | | | |
| 21 | 147439070.0 | | | | | | | | | | | |
| 22 | 137091280.0 | | | | | | | | | | | |
| 23 | 136044190.0 | | | | | | | | | | | |
| 24 | 147591040.0 | | | | | | | | | | | |
| 25 | 136941090.0 | | | | | | | | | | | |
| 26 | 147499200.0 | 4.00 | 1.00 | 5.00 | . | 1.00 | 1.00 | 2.00 | 4.00 | 1.00 | 3.00 | 1.00 |
| 27 | 137000320.0 | 4.00 | 2.00 | 6.00 | . | 2.00 | 4.00 | 5.00 | 5.00 | 1.00 | 2.00 | 1.00 |
| 28 | 136664450.0 | 3.00 | 1.00 | 6.00 | . | 1.00 | 1.00 | 3.00 | 2.00 | 1.00 | 1.00 | 1.00 |

Frequencies

Variable(s):

- Any paid work in last week [wor...
- In which way do you occupy this...
- ONS harmonised marital status...
- Age group (7 bands) [agegrp7]
- Ethnic Group (5 categories) [eth...
- Respondent education (5 categ...
- Type of area 2004: urban/rural [r...
- England: Index of multiple depr...

Display frequency tables

OK Paste Reset Cancel Help

Statistics... Charts... Format... Style... Bootstrap...

Data View Variable View

IBM SPSS Statistics Processor is ready Cases: 100 Unicode ON

Graphs in SPSS: the *Chart Builder*

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Let's now learn how to make graphs using the *Chart Builder*
 - This is a more complex path, but is also the most useful
 - Once you know how it works, you can use it for all kinds of graphs
- Let's get started by producing the same barchart that we obtained using *Analyze* \Rightarrow *DescriptiveStatistics* \Rightarrow *Frequency*
 - Go to *Graphs* \Rightarrow *ChartBuilder* \Rightarrow *Bar*
 - In the *Gallery* menu choose *Bar*
 - Double click on the first barchart template (the one with brown bars)
 - Then drag *educat3* to the *x-axis*

Chart Builder: Univariate Barcharts

Tutorial Goals

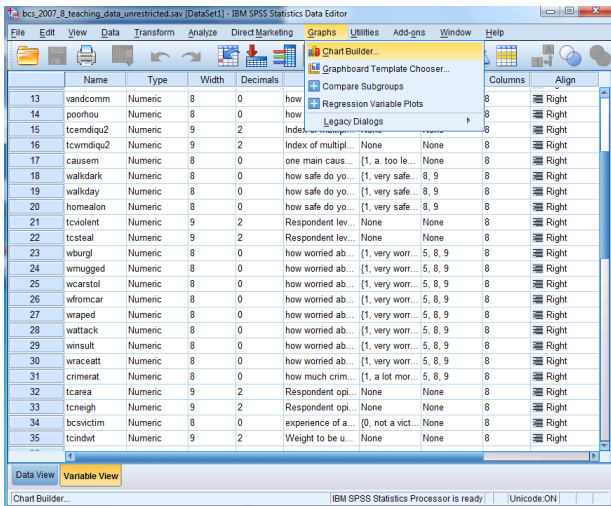
Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap



| Name | Type | Width | Decimals | Label | Measure | Scale | Columns | Align | |
|------|-----------|---------|----------|-------|---------------------|-------------------|---------|-------|-------|
| 13 | vandcomm | Numeric | 8 | 0 | how | | 8 | Right | |
| 14 | poorhou | Numeric | 8 | 0 | how | | 8 | Right | |
| 15 | tcemdiq2 | Numeric | 9 | 2 | Index | | 8 | Right | |
| 16 | tcvmdiq2 | Numeric | 9 | 2 | Index of multipl... | None | None | 8 | Right |
| 17 | causem | Numeric | 8 | 0 | one main caus... | {1, a. too le... | None | 8 | Right |
| 18 | walkdark | Numeric | 8 | 0 | how safe do yo... | {1, very safe... | 8, 9 | 8 | Right |
| 19 | walkday | Numeric | 8 | 0 | how safe do yo... | {1, very safe... | 8, 9 | 8 | Right |
| 20 | homealon | Numeric | 8 | 0 | how safe do yo... | {1, very safe... | 8, 9 | 8 | Right |
| 21 | tcviolent | Numeric | 9 | 2 | Respondent lev... | None | None | 8 | Right |
| 22 | tcsteal | Numeric | 9 | 2 | Respondent lev... | None | None | 8 | Right |
| 23 | wburgl | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 24 | wmugged | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 25 | wcarstol | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 26 | wfromcar | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 27 | wraped | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 28 | wattack | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 29 | winsult | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 30 | wraceatt | Numeric | 8 | 0 | how worried ab... | {1, very worr... | 5, 8, 9 | 8 | Right |
| 31 | crimerat | Numeric | 8 | 0 | how much crim... | {1, a lot mor... | 5, 8, 9 | 8 | Right |
| 32 | tcarea | Numeric | 9 | 2 | Respondent opi... | None | None | 8 | Right |
| 33 | tcneigh | Numeric | 9 | 2 | Respondent opi... | None | None | 8 | Right |
| 34 | bcsvctim | Numeric | 8 | 0 | experience of a... | {0, not a vict... | None | 8 | Right |
| 35 | tcindwt | Numeric | 9 | 2 | Weight to be u... | None | None | 8 | Right |



Chart Builder: Univariate Barcharts

Tutorial Goals

Accessing SPSS

Univariate Analysis in SPSS

Bivariate Analysis in SPSS

Graphs in SPSS

Recap

The screenshot shows the SPSS Chart Builder dialog box for creating a univariate bar chart. The 'Variables' list on the left includes 'white' and 'mixed'. The 'Chart preview' area shows a bar chart with three bars. The 'Gallery' tab is selected, showing various chart types. The 'Basic Elements' tab is also visible. The 'Options...' button is highlighted.

IBM SPSS Statistics Processor is ready | Unicode ON

Chart Builder: Univariate Barcharts

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

→ **GGraph**

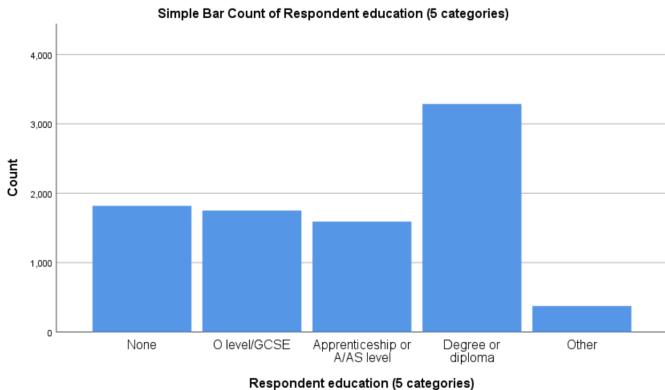


Chart Builder: Univariate Graphs

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- This version of the CSEW includes a couple of interesting scale variables, eg. *Worry about being a victim of crime*
 - This is an index aggregating a set of variables from the questionnaire tapping on different dimensions of the same concept
 - What type of graph would you use to look at the distribution of this variable?
 - There are two types of graphs within the eight choices available in the *Graph Builder* that would work equally well
 - Use the first table in slide 31 to inform your choice

Chart Builder: Bivariate Graphs

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Recap

- Let's now look at the relationship between two variables using graphs
- To do so let's explore the following research questions
 - RQ7: Are women more highly educated than men?
 - RQ8: Are women more worried about crime than men?
 - RQ9: Are perceptions of anti-social behaviour in their neighbourhood uniform across ethnic groups?
- As before, start by identifying the variables that you will need, and how they are measured



Bivariate Graphs: RQ7

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Recap

- How would you explore RQ7 (Are women more highly educated than men?) using graphs?
 - The following slide shows one way of doing so, see if you can replicate it using the *Chart Builder*
 - Make sure you place *educat3* in the x-axis
 - Figure out in which of the remaining empty boxes you need to place *sex*
 - Lastly consider whether you want to report absolute (*Counts*) or relative (*Percentages*) measures
 - This can be modified in the *Statistics* menu, on the right-hand side of the *Chart Builder*

Bivariate Graphs: RQ7

Tutorial Goals

Accessing SPSS

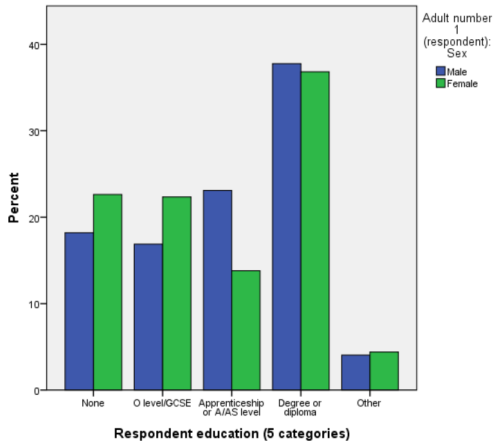
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Recap

➔ GGraph





Bivariate Graphs: RQ8

Tutorial Goals

Accessing SPSS

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Recap

- RQ8: Are women more worried about crime than men?
 - This is the relationship between a scale and a nominal (binary) variable
 - We then need a different type of graph to plot this relationship
 - The following slide shows one way of doing so using a bivariate histogram
 - See if you can replicate it using the *Chart Builder*
 - Can you answer RQ8?

Bivariate Graphs: RQ8

Tutorial Goals

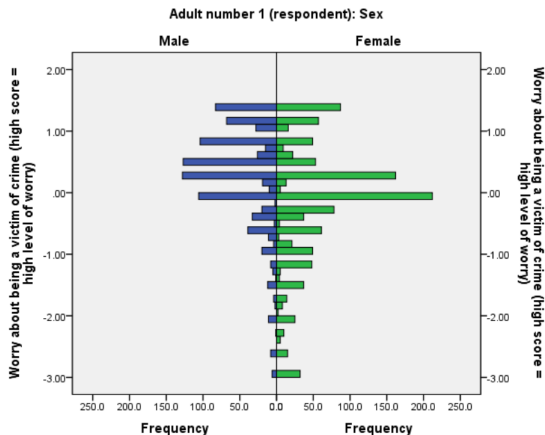
Accessing SPSS

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Recap





Bivariate Graphs: RQ9

Tutorial Goals

Accessing SPSS

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Recap

- RQ9: Are perceptions of anti-social behaviour in their neighbourhood uniform across ethnic groups?
 - This is the relationship between a scale and a nominal variable with more than two categories
 - Can you figure out what kind of graph could be use to look at that? (see slide 31)
 - You can see it plotted in the next slide
 - Try to replicate it using the *Chart Builder*
 - After that we will see how to interpret it

Bivariate Graphs: RQ9

Tutorial Goals

Accessing SPSS

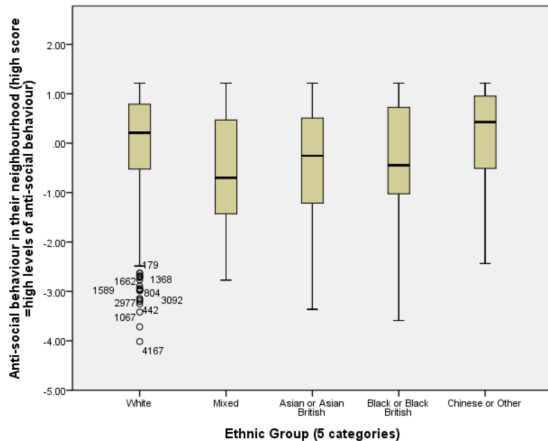
Univariate
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Recap

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Bivariate Graphs: Boxplots

Tutorial Goals

Accessing SPSS

Univariate
Analysis in SPSS

Bivariate
Analysis in SPSS

Graphs in SPSS

Recap

- Interpreting boxplots
 - The boxes and whiskers represent the distribution of the scale variable (*Anti-social behaviour in their neighbourhood*)
 - Separately for each of the categories of the nominal variable (*Ethnic group*)
 - The boxes represent the inter-quartile range (i.e. the range covered from the top 25% to 75% values in the distribution)
 - The line dividing the box is the median of the distribution
 - The dots represent outliers (i.e. extreme cases), defined as 1.5 of the box-length away or further from the interquartile range
 - and the length of the whiskers represents values higher than the 25% or lower than the 75% but not extreme enough to be considered outliers
- Can you answer RQ9?
 - Would you then say there is a relationship between ethnicity and perceived anti-social behaviour?



Tutorial Goals

Accessing SPSS

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Analysis in SPSS

Graphs in SPSS

Recap

Recap

- We have practised some key data analysis concepts and techniques
 - The different levels of measurement used in variables
 - Various univariate and bivariate statistics, tables and graphs
 - We have seen how easy is to use these in SPSS
 - And how with just some basic data analysis knowledge we can explore lots of important research questions
- To review and learn more about the content of today's workshop
 - See Bryman (2016) Chapter 16
 - Have a look as well at the several SPSS tutorials available online
 - I recommend particularly the set of videos uploaded on youtube by the LSE (see for example this one on how to describe and visualise a single continuous variable)
- You are now prepared for the quiz
 - You will have questions on the same concepts and techniques that we have practised today
 - Only using a different dataset (uploaded under 'Assessments')
 - Graphs are not part of the quiz