Analysing Quantitative Data
Computer Lab 4

Welcome to the final quantitative data analysis lab for Social Research Methods. In this session you will bring together the skills you have developed in quantitative data analysis to undertake your own piece of research. This can form the basis of your quantitative data analysis assessment (see the VLE for more details). This workbook guides you through the process of undertaking all of the data analysis elements required for your research report. If any of these stages are unclear you should return to the relevant lecture, workbook and readings for further details.

This workbook outlines the tasks you will need to complete to prepare your analysis. Guidance on how to write up the report will be provided during the lecture on 'Writing a Quantitative Research Report' in week seven. Please make use of office hours in the coming weeks and the additional drop in computer lab session in week nine to access further support (see the VLE and your timetable for more details).

You can download SPSS to use on your own computer here. If you have any difficulty downloading SPSS you should seek assistance from the IT Services Help Desk.

You should read through this whole workbook before you begin working on your analysis, this will remind you of all the steps required. You may wish to run your chi-square analysis and test the assumptions before you begin making your tables.

- Open SPSS.
- Open the 'Module Survey' data set. The data is available under the 'Assessments' tab on the VLE.
- Open a new Syntax File.

Save your Syntax File regularly and make comments in your Syntax File to help you remember what you have done. As this is an important piece of analysis, you should also save the contents of your Output Viewer window as you will want to return to these tables when writing up your report.

You may find it useful to have the Syntax Files from the previous labs open so you can copy and paste the relevant code required to complete each task.

Task 1: Devise a Research Question

This report requires you to undertake a chi-square test using data from the 'module survey' data set. Your research question should seek to investigate the association between two categorical variables.

State your research question. You may wish to spend a little time searching for previous research on this topic. You will be required to write a little about your topic and previous research in the introduction to your report. Try to think of the wider social science value of your question (i.e. the 'so what'). If you are in any doubt over the suitability of your research question, check with a member of teaching staff.

State your null and alternative hypothesis. The null hypothesis is the default position that there is no relationship between the two variables. The alternative hypothesis is the statement contrary to the null hypothesis (i.e. that the two variables are related).

Task 2: Recode your variables (if required)

A chi-square test can be used to analyse two categorical variables with any number of categories.

- If your variable is currently a scale variable (e.g. age), you will need to recode it into categories.
- You may choose to group together categories where there are a small number of responses. For example if only very few people said 'Strongly Disagree' it would make sense to group this category with 'Disagree'.
- You might consider whether it would make sense to code any of the categories as 'missing' (e.g. don't know responses).

Task 3: Produce your descriptive Statistics

You should describe the two variables you are analysing (i.e. make a table which shows how many and what percentage of people are in each category).

You should also note how much missing data you have (if any).

Do not cut and paste tables directly from SPSS into the main body of your report. You should create tables in word that effectively present only the required information.

Guidance on how to create tables in word is available here. Guidance on how to format tables in word is available here.

There are example tables shown in a word template which is available on the VLE.

Table 1: Example Descriptive Statistics Table.

Variable	Category	n (%)
Sex	Male	5,307 (46%)
	Female	6,369 (55%)
	Total	11,676 (100%)
Discrimination	Often	1,271 (11%)
	Sometimes	2,724 (23%)
	Rarely	7,659 (66%)
	Total	11,654 (100%)

Task 4: Produce your Contingency Table and Chi-Square Test.

You should examine the relationship between the two variables by inspecting a contingency table.

You should undertake your chi-square test. You can add your chi-square test results to your contingency table (see below), you will also want to describe the results in your text (see examples from lab workbook 3).

Table 2: Example Contingency Table.

	n (%) Discrimination			
	Agree	Neutral	Disagree	Total
Male	327 (6%)	1081 (20%)	3894 (73%)	5,302 (100%)
Female	944 (15%)	1643 (26%)	3765 (59%)	6352 (100%)
Total	1271 (11%)	2724 (23%)	7659 (66%)	11,654 (100%)
				$\chi^2 = 325.682$, df = 2
				$p < 0.05$
				Cramer's V = 0.167

Remember you must ensure your chi-square test satisfies the required assumptions:

- The groups must be independent (i.e. a respondent cannot appear in more than one cell of the table). An example of violating this assumption would be if a respondent was allowed to give two answers to one your questions (i.e. multiple choice).
- You should check that the **expected** cell count for your contingency table should not be less than 5 for more than 20% of your cells. Return to the materials from lab 3 if you cannot remember how to check this assumption, and what to do if you violate it.

Effect size (i.e. Cramer's V) will only be relevant if your result is significant. If your result is not significant you can leave this out.

Remember that non-significant results, which tell you that there is unlikely to be a relationship between the two variables, are equally as important as significant results and warrant discussion (i.e. do not change your research question if your result is not significant).

Task 5: Produce a Graph of your Contingency Table

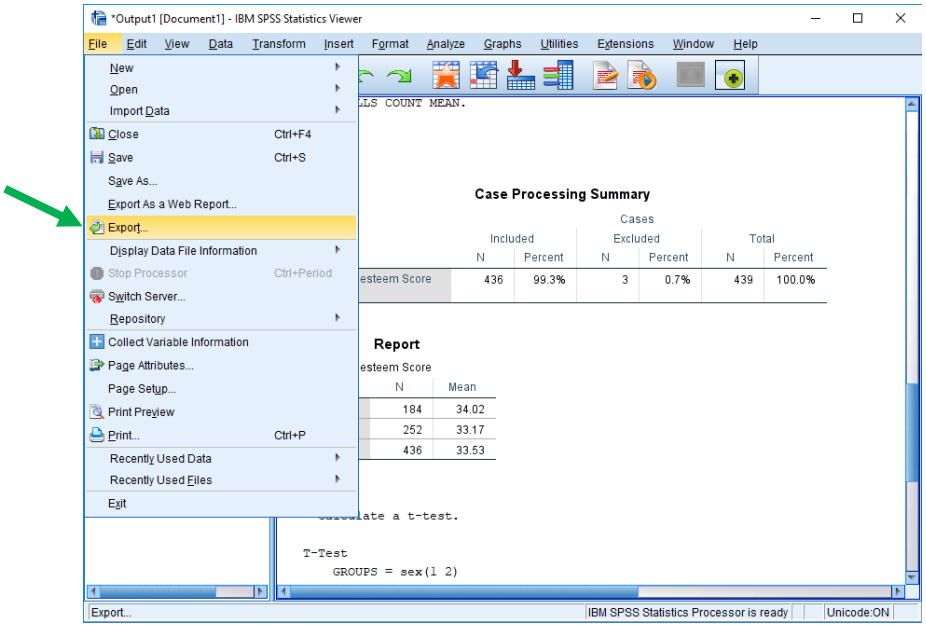
Visual displays can allow us to interpret patterns more readily. You should also prepare a graph of your contingency table (see lab workbook 2).

You can copy your graph by right clicking on it in the Output Viewer window and clicking on **COPY**, you can then paste the graph into your word document.

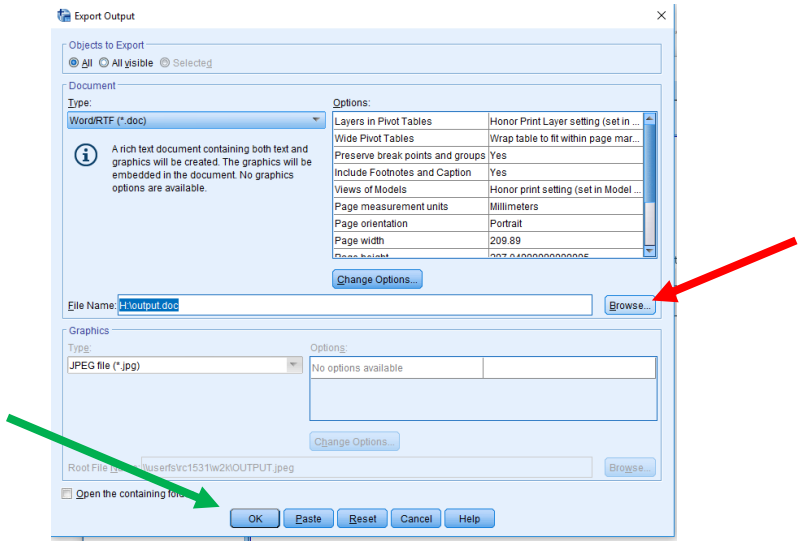
Task 6: Appendix

You should include your SPSS output as an appendix. This is NOT counted in the word limit. Follow the guidance below to prepare your appendix.

When you have completed your analysis, click on **FILE** in the top left hand side of your Output Viewer window. The click on **Export** (See below).



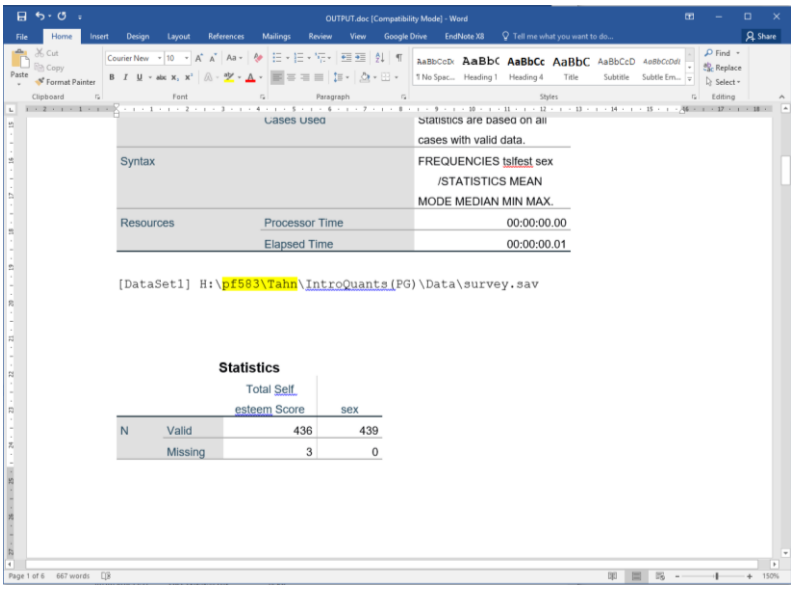
A dialog box will open. Leave all of the options unchanged. Click on **Browse** (see red arrow below) to select where you would like your file saved and enter what you would like to call the file. After you have done this click **OK** (see green arrow below).



Navigate to where you saved your file and you will have a word document containing all of your output. This file will also include the code (i.e. syntax) you wrote. Copy and paste the entire contents of this file into the appendix of your report.

It is possible that some identifying details are present in your output (e.g. your computer login id might appear, or your name might be attached to a folder where you have saved something). You should carefully go through your appendix and make sure any identifying information is deleted.

This will ensure that your submission is anonymous. For example the highlighted text below should be deleted.



	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES tslfest sex /STATISTICS MEAN MODE MEDIAN MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

[DataSet1] H:\pf583\Tahn\IntroQuants(PG)\Data\survey.sav

Statistics

		Total Self esteem Score	sex
N	Valid	436	439
	Missing	3	0

You have now completed the final SPSS computer lab, well done!

You should now have made a good start on your own piece of bivariate data analysis. This can form the basis of your quantitative research methods assessment.

Please remember that additional supporting resources are available on the VLE, and please do not hesitate to ask if you require any additional support or assistance. There is a drop-in computer lab session in week nine (see your timetable for more details), please come along to this session if you have any questions or require additional assistance to complete your analysis.