

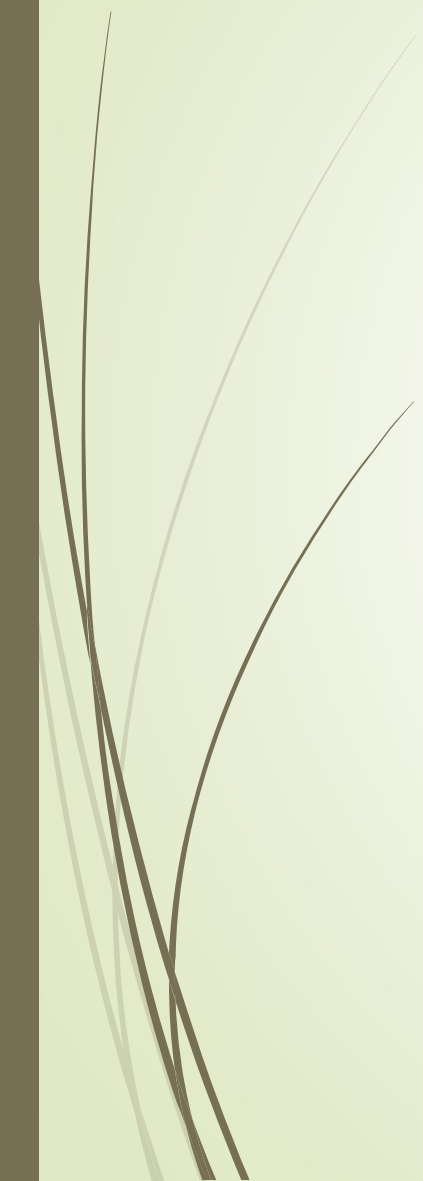
DATA ANALYSIS and WRITING UP



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This session

- Qualitative data analysis & presentation
 - Quantitative data analysis & presentation
 - Recommendations and conclusions
 - Hints and tips for writing up
 - Q & A
- 

You have done your qualitative research – now what?

- Transcribe
- Analyse
- Discuss





Transcription

- Raw transcription – all material needs to be transcribed, as accurately as possible. Include all hesitations, repetitions etc.
- If not in English, translate the raw translation. Ensure that this translation is checked by a very competent speaker of both languages.
- Refine transcription – remove extraneous material but keep a copy
- Allow 8 hours transcription time for 1 hour fieldwork



Analysis - Coding

- Read through all of your material. Identify **themes** in your data. They may (or may not) reflect your questions.
- Develop a coding system for your themes
 - e.g. ‘digital marketing’ = 1
- Allocate codes to all chunks of your data which you think are relevant.. New themes/codes may emerge in the process.
- Always note the respondent ID with any data that you code.



Analysis cont

- Group themes together into **categories** (groups of related themes)
- Create a spreadsheet that contains your categories and themes, together with the appropriate data sections. This spreadsheet is a working document and should only be displayed as an Appendix or not at all.




Category “Marketing Strategies”	Theme 1 “Use of email as a marketing tool”	Theme 2 “Social media marketing”	Theme 3 “Vouchers and discounts”	Theme 4 “Posters and outdoor advertising”
Interview 1	<i>Comments & key points made</i>	<i>Comments & key points made</i>	<i>Comments & key points made</i>	<i>Comments & key points made</i>
Interview 2 And so on	<i>Comments & key points made</i>	<i>Comments & key points made</i>	<i>Comments & key points made</i>	<i>Comments & key points made</i>
	Summarise the most common points made, compare and contrast viewpoints	Summarise the most common points made, compare and contrast viewpoints	Summarise the most common points made, compare and contrast viewpoints	Summarise the most common points made, compare and contrast viewpoints



Discuss and interpret

- Use your summary section from each theme to discuss and interpret the data.
- The discussion of qualitative data should 'tell a story' – match your discussion with your research objectives. Which findings were expected? Did they confirm existing literature? Or not? Are they entirely new? Refer back to the literature.
- If appropriate, develop a framework out of your categories and themes that reflects the relationships of themes in your data.



Formalities of qualitative data analysis

- The findings should include the presentation of selected interview excerpts – presented indented and single spaced.
- All interview excerpts need to be identified by respondent (R1, R2, etc.)
- There should be a table with demographic information of the respondents. This can be included in an Appendix.
- A copy of the research instrument needs to be provided in an Appendix. If another language was used, both the original and the English versions need to be provided

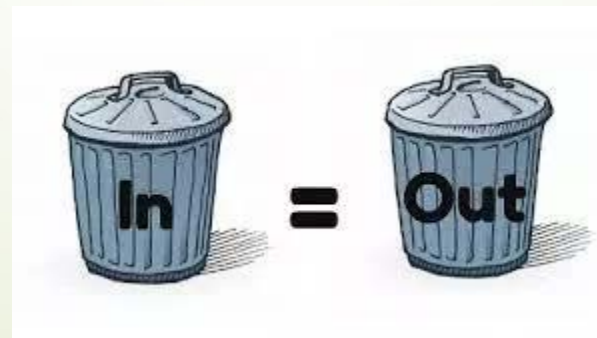
Quantitative Analysis



You have done your survey – now what?

Successful quantitative analysis is based on good survey design

Rubbish in – > rubbish out !





This means...

- Your questions need to capture what you want to know
- They need to be carefully worded, free from bias, not leading to an answer, unambiguous.
- You need to decide on your analysis **before** you design your survey
- For example: What type of questions do you need if you want to run ANOVA tests?



Presenting quantitative findings

- Start this chapter with a repetition of your research objectives and the hypotheses that are associated with each objective. Then present your findings
- Begin with a table of the demographics of the respondents with frequencies and percentages



More on quantitative findings

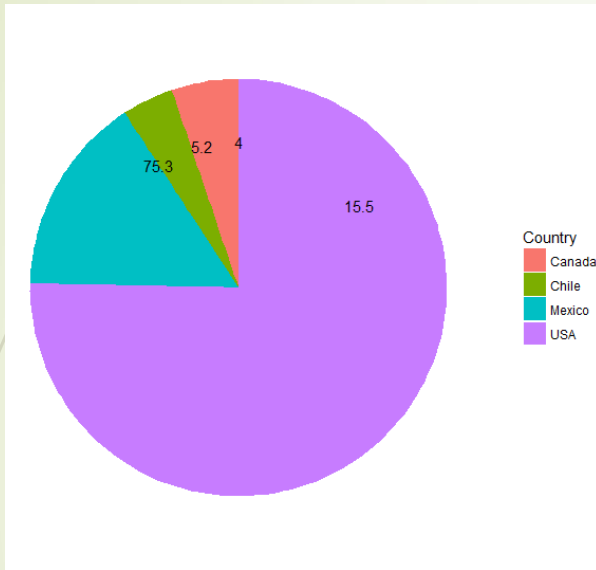
- Data analysis that only includes frequencies and percentages is not at PG level.
- At the bare minimum, significant differences between different respondent groups and any questions with multiple answer possibilities should be analysed by using cross tabulations and chi-square analysis
- You can use SPSS, Excel or any other programme for your analysis.
- To establish significant differences you can also use online chi square calculators such as <http://www.socscistatistics.com/tests/chisquare2/Default2.aspx>



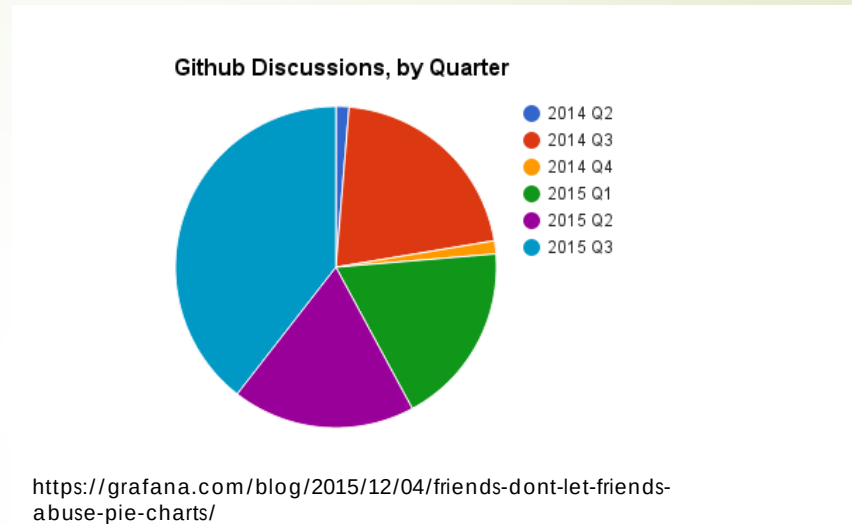
Graphs and Tables

- Use tables and graphs, quantitative data as text is very difficult to read.
- Use your common sense – which type of graph adds value?
- Don't forget to label your graphs!
- Ensure your graph or table fits onto one page
- Only include key data in the main body of your text, put extra tables into the Appendix

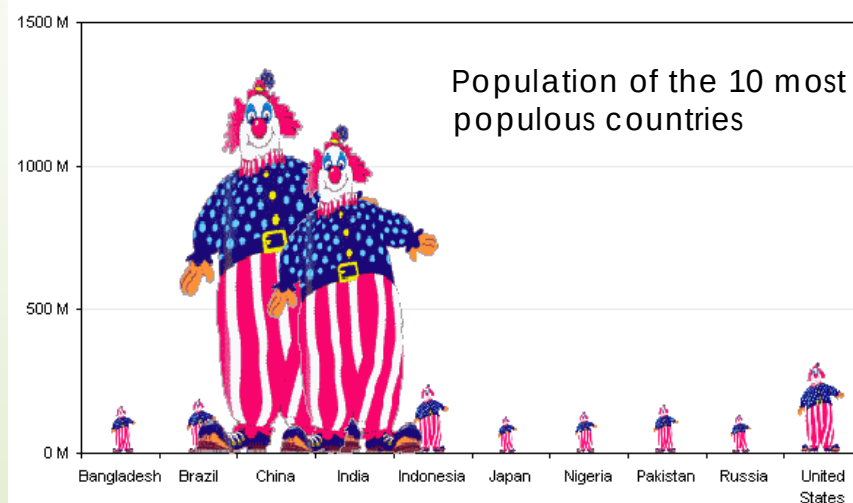
Issues with graphs



<https://stackoverflow.com/questions/47635919/ggplot2-pie-chart-bad-position-of-labels>



<https://grafana.com/blog/2015/12/04/friends-dont-let-friends-abuse-pie-charts/>



<https://peltiertech.com/bad-bar-chart-practices-or-send-in-the-clowns/>

Types of Statistical Tests:

Brief e.g.s

When running a multivariate tests such as ANOVA or Regression, the means between groups and/or variables are compared.

■ We assume

- random sampling
- the groups are homogeneous
- distribution is normal
- samples are large enough to represent population (>30)
- DV Data: represented on an **interval or ratio** scale

These are Parametric tests!

Types of Tests

When the assumptions are violated:

- Subjects were not randomly sampled
- If variables are:
 - Ordinal (ranked)
 - Nominal (categorized: brands of organic foods, types of rock, levels of education, learning styles)
 - The scores are greatly skewed or we have no knowledge of the distribution

Non-Parametric Test!

If in doubt – use non parametric tests

Chi Square

used when assumptions are violated e.g. data are nominal (both IV and DV)

- Comparing frequencies of distributions occurring in different categories or groups
- Tests whether group distributions are different
 - *Customer preference of 3 brands of nuts*
- determines the association between IV and DV by counting the frequencies of distribution
 - *Gender relative to study preference (alone or in group)*

Statistical Significance

- Significance level in inferential statistical tests is measured by a “***p***” **value**, which is the probability that the findings are due to chance.
- The *p*-value is the probability that your null hypothesis is correct.
- Prior to the analysis, select a “**level of significance**”. If the “*p*” value falls at or below the prescribed level, then we say that our results are statistically significant.
- Commonly used significance levels in social science research are .05 and .001. A .05 *p* value means that we would expect to get the same results 95 times out of a hundred.



p-value interpretation

- The interpretation of a p-value is a little tricky
- Make sure you look closely at your hypothesis and check what your data means – a significant p-value means usually that you need to reject the null hypothesis but it does not necessarily mean that your theory is correct.
- We can usually say that a value is statistically significant if it is below 0.05 and it is highly significant if it is below 0.001
- The p-value represents the chance that we would see a difference as big as we saw (or bigger) if there were really nothing happening other than chance variability



Discuss and interpret

- In quantitative projects the 'Discussion' is usually a separate chapter.
- In this chapter you need to interpret the analysis you have done previously. What does it mean? Are your hypotheses confirmed? Which findings were expected? Did they confirm existing literature? Or not? Are they entirely new? Refer back to the literature.
- If appropriate, develop a model out of your findings that reflects the relationships of variables in your data.

Recommendations and Conclusions

The order of these two elements can vary, sometimes people prefer recommendations followed by conclusions; other people prefer them the other way around. It is not important which order is chosen.

The following elements should be included,

Recommendations for managerial practice

- Contributions to theory
- Managerial implications
- Limitations of the study leading to areas of further research
- Conclusions

This is the most important chapter of your dissertation! (This means you need to spend time on it!)



What makes a good dissertation...

- Always be critical and avoid description (of the literature, background, findings)
- Link chapters and paragraphs
- Use critical language
- Allow enough time for editing and proof reading
- Reference, reference, reference!

Linkage examples

- Before proceeding to examine X, it will be necessary to ...
- Before employing these theories to examine X, it is necessary to ...
- So far this paper/chapter has focussed on X. The following section will discuss ...
- This chapter follows on from the previous chapter, which (examined/laid out/outlined) X.
- This chapter has demonstrated that ... It is now necessary to explain the course of ...
- Having discussed how to construct X, the final section of this paper addresses ways of ...
- This section has analysed the causes of X and has argued that ... The next part of this paper ... In addition, it is important to ask ...
- However, this system also has a number of serious drawbacks.
- Despite this, little progress has been made in the ...

Use critical language

Good practice (samples)	Not as strong/descriptive
In comparison to Jones (2008), Smith (2009) ...	Jones (2008) says ... and Smith (2009) tells us ...
Jones (2008) agrees with Smith (2009) on...	Jones (2008) states ...
In contrast to Jones (2008), Smith (2009) maintains...	Jones (2008) maintains that ... and Smith (2009) states..
Smith (2009) supports Jones (2008) earlier work by also finding...	Jones (2008) says ... and Smith (2009) tells us ...
The literature remains ambiguous in this area, Smith (2009) and Jones (2008) come to different conclusions	Jones (2008) maintains that ... and Smith (2009) states..
Jones (2008) comes to the conclusion that ... which has been expanded by Smith (2009) to include...	Jones (2008) claims that ... and Smith (2009) states..



Any questions?

