

Basics of Data Viz. and Presentation

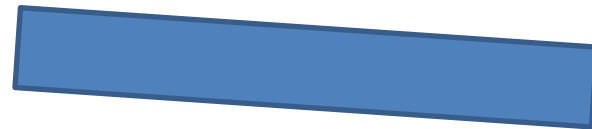
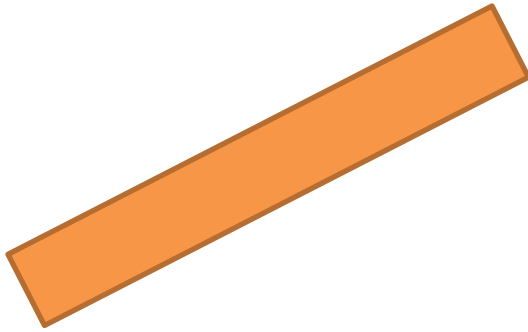
**SEMINAR IN CRIMINOLOGY, RESEARCH AND
ANALYSIS— CRIM 7301
WEEK 2, 9/1/16
ANDREW WHEELER**

Class Overview

- Comparing graph types
- Table making advice
- Presentation Advice

Graphs

- Which rectangle is longer?



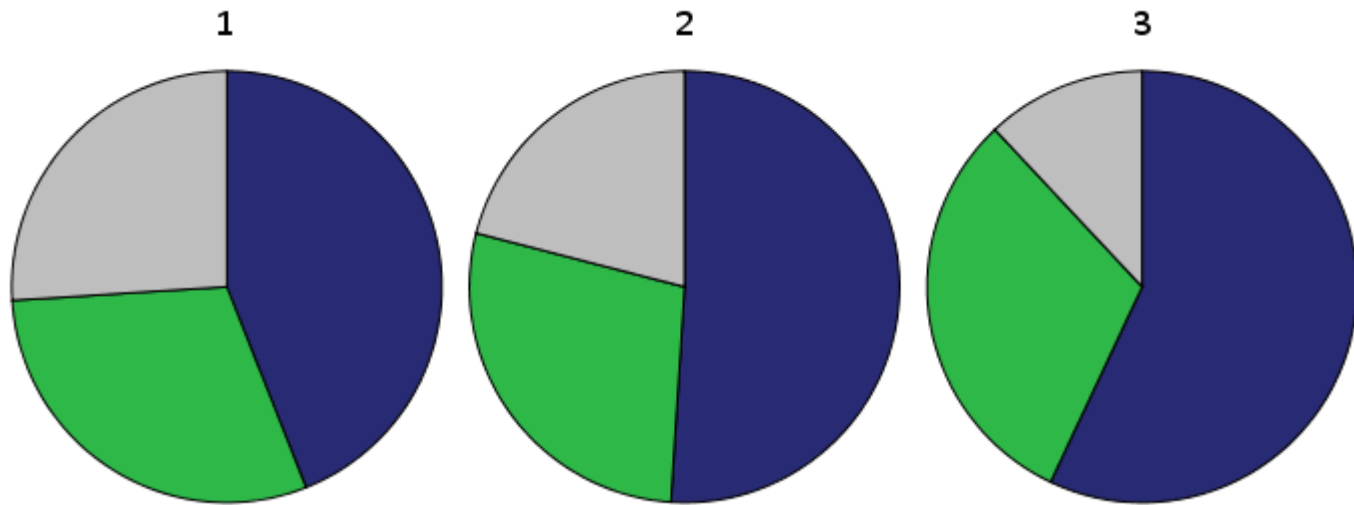
Graphs

- Easier to make comparisons when elements are *aligned*



Graphs

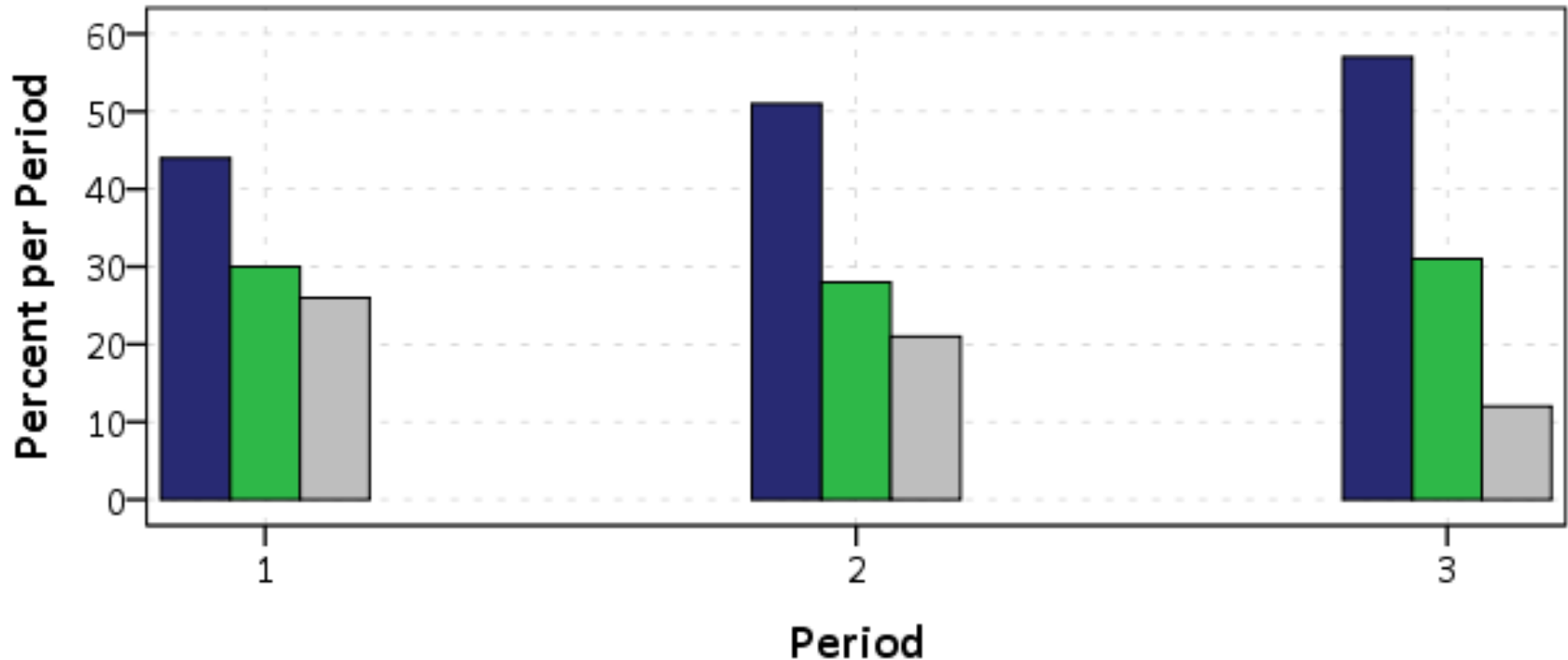
- Pie charts are hard to make comparisons over time



- Is green bigger in period 2 or period 1?
- How much bigger is blue than green in period 1?

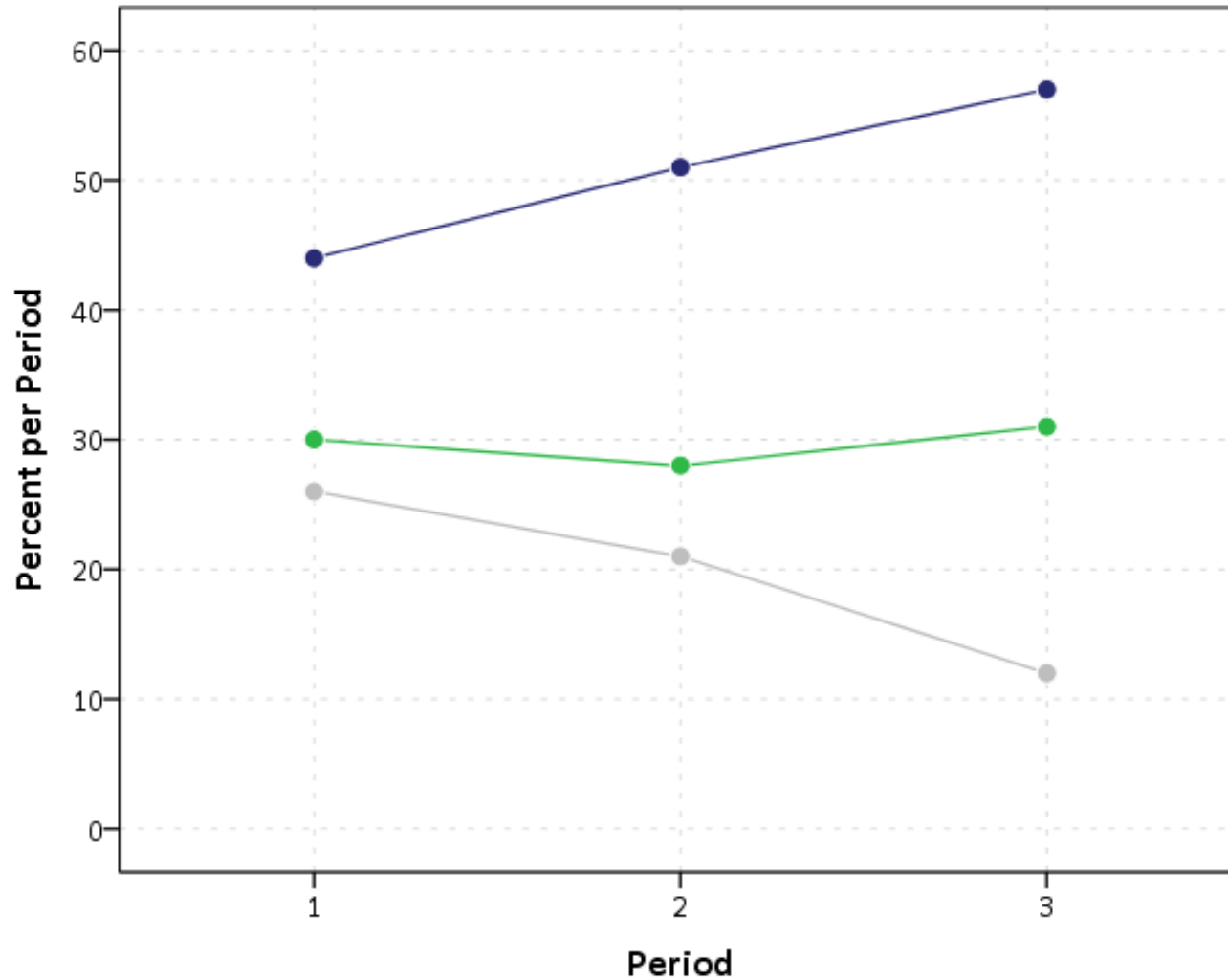
Graphs

- Dodge bars are good for within groups, e.g. is grey bigger than green?, but not as good for between groups, is green bigger in period 3 than in period 1?

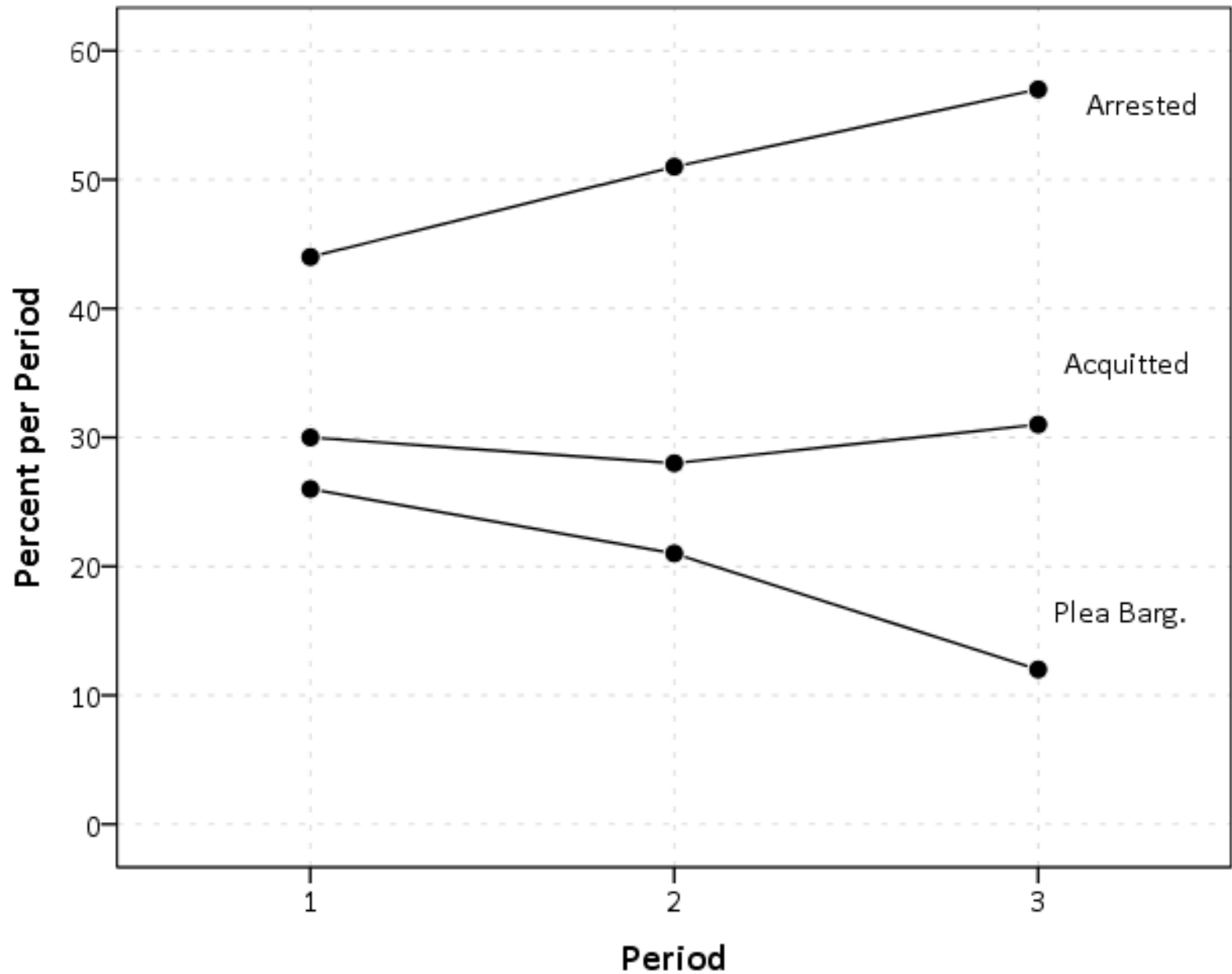


Graphs

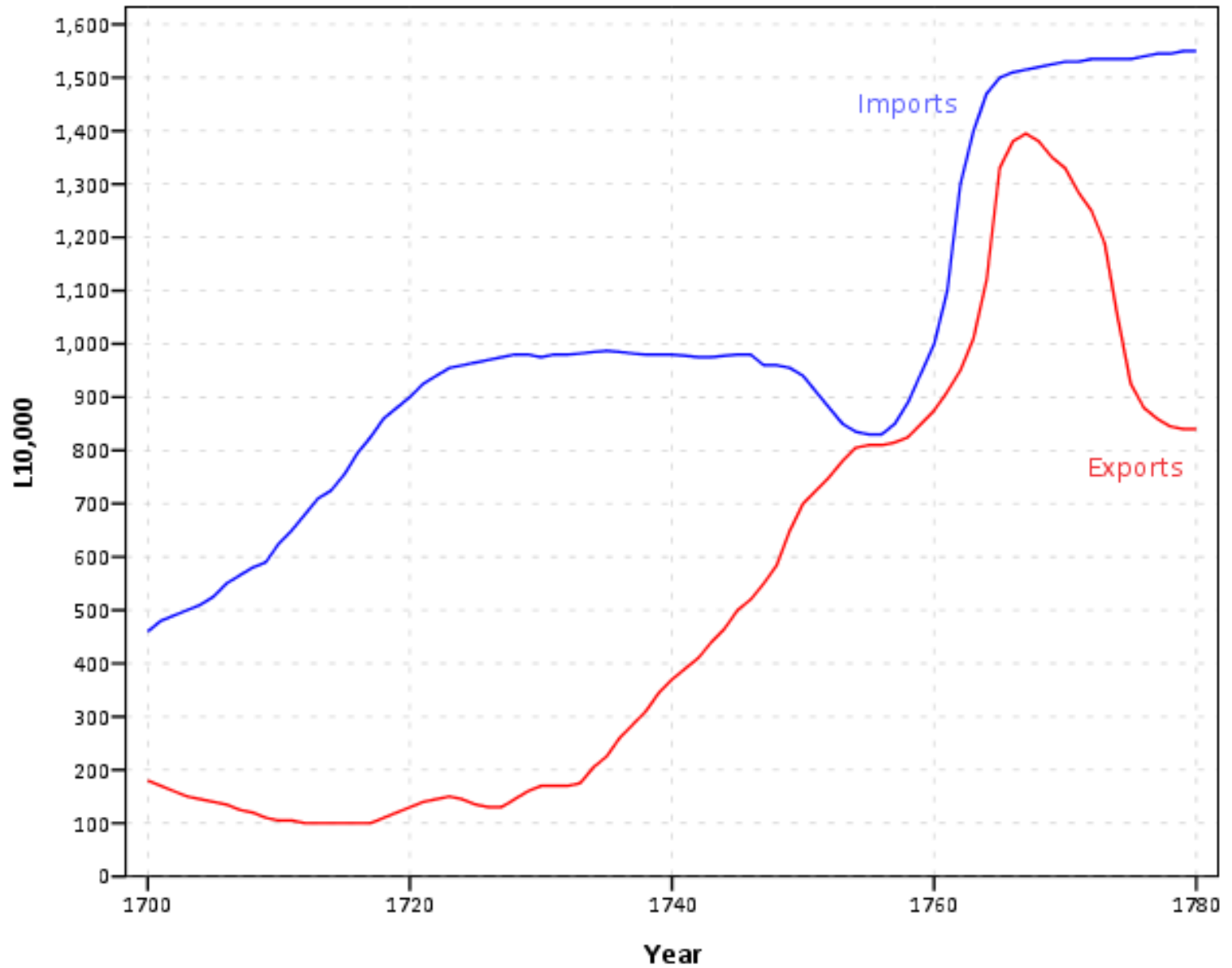
- I almost always like lines over bar plots



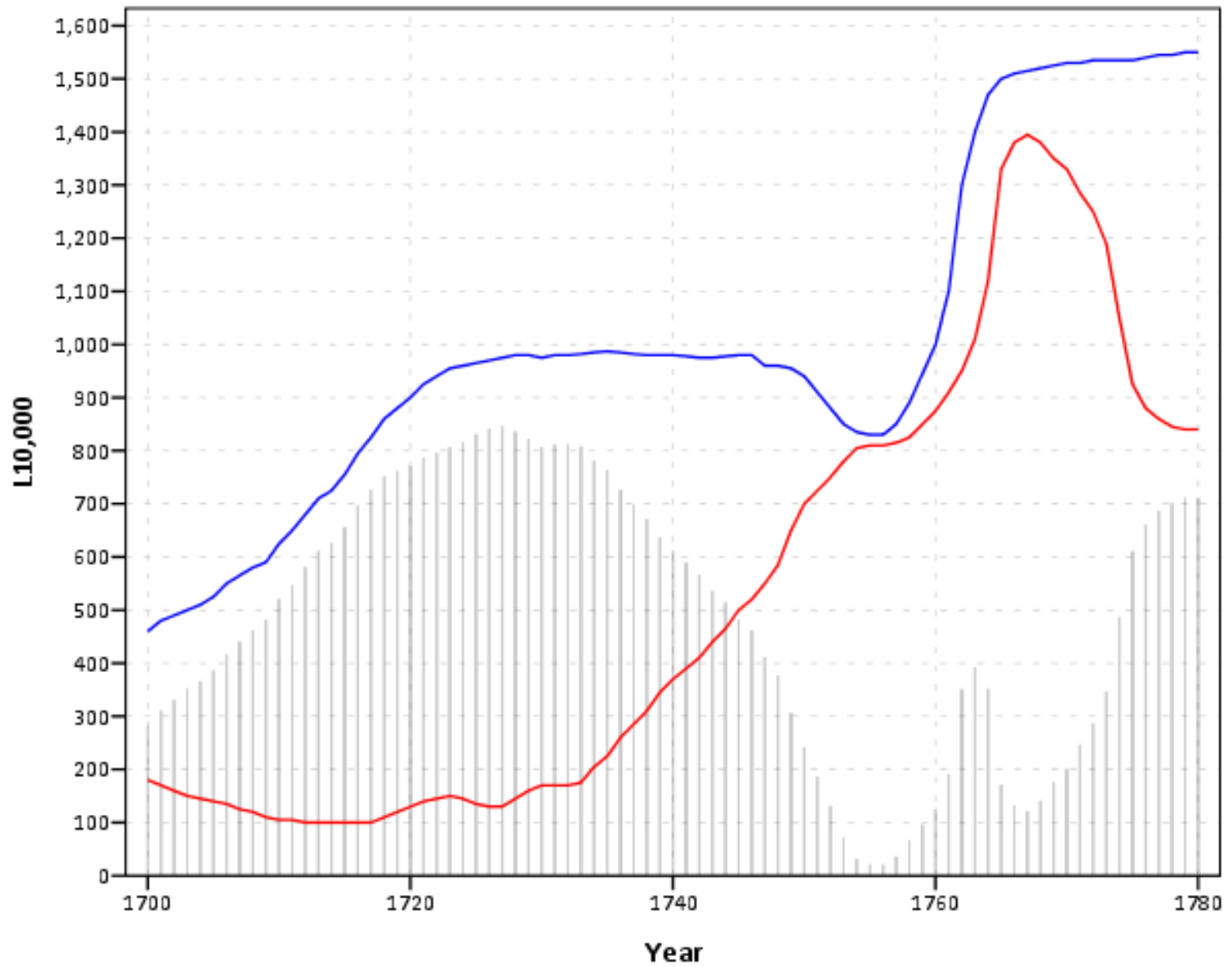
Graphs



Graphs



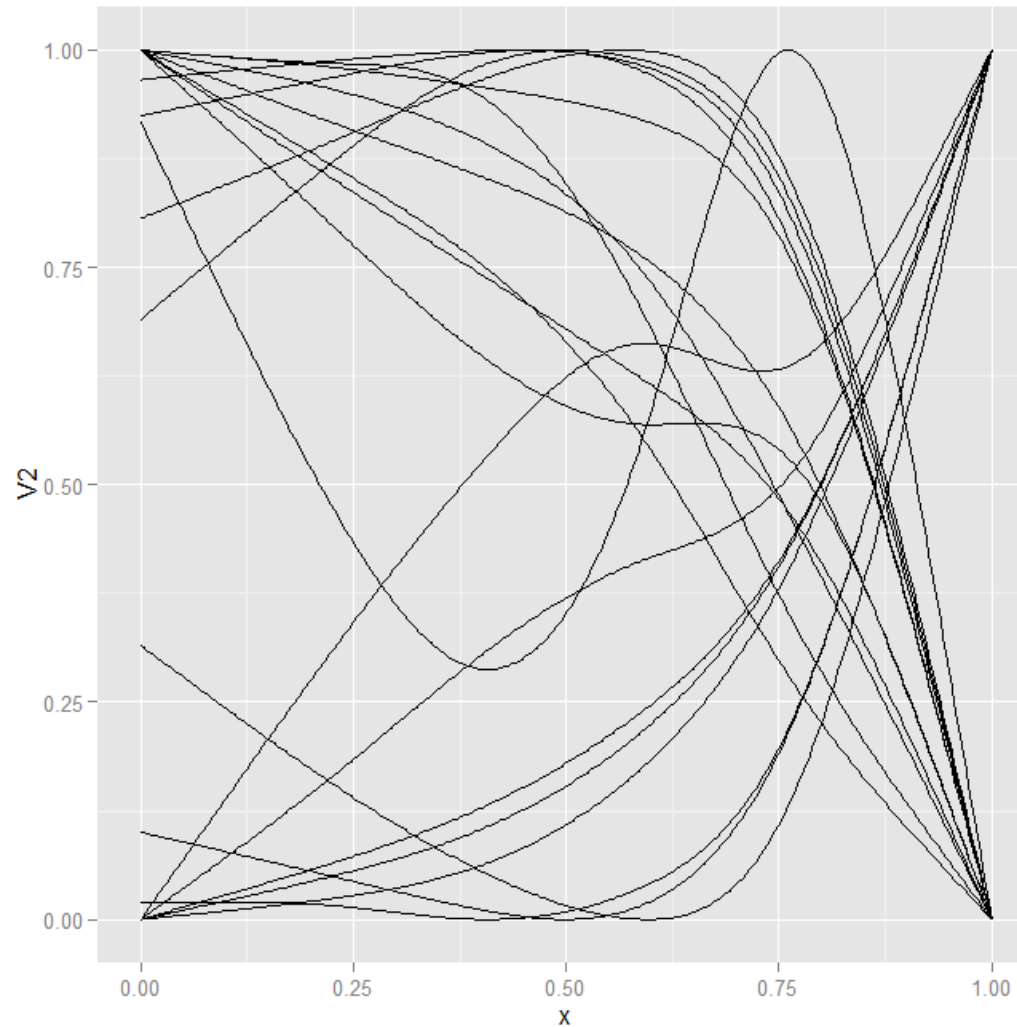
Graphs



Red line is exports, Blue line is imports, grey bars are Imports minus exports.

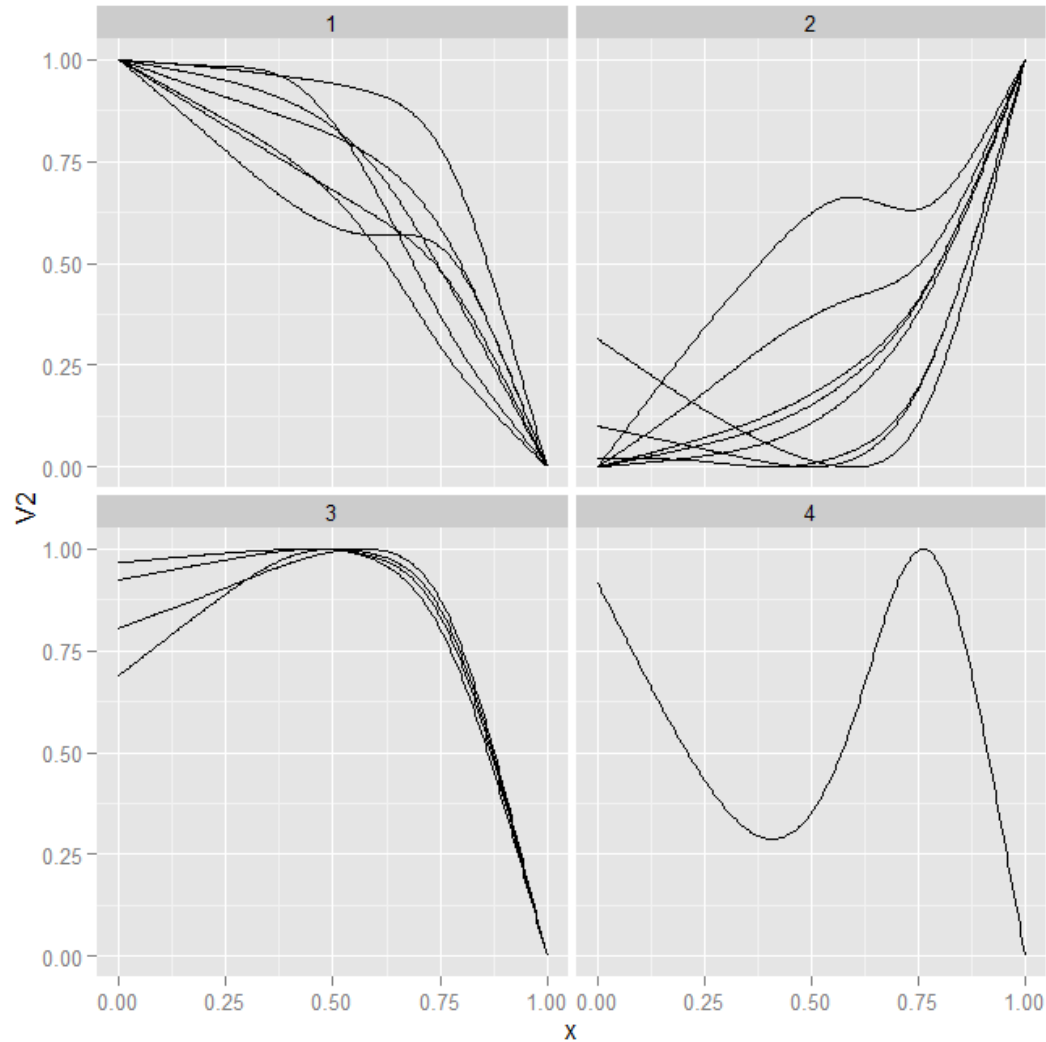
Graphs

- Many lines are difficult to disentangle



Graphs

- Consider making a small multiple graph



Common mistakes in graphs

- Type is too small (especially for ppt presentations)
- Exported in inappropriate format (should export in vector or high resolution PNG – no JPEG!)
- Simple edits from the defaults – like nice variable names, decimal points for tick marks of count data

Tables

- Easier to make comparisons in columns than in rows

| Variables | Model 1 | | Model 2 | |
|------------------|----------------|-----------|----------------|-----------|
| | <i>B</i> | <i>SE</i> | <i>B</i> | <i>SE</i> |
| <i>V1</i> | 5 | 3 | 4 | 4 |
| <i>V2</i> | 4 | 6 | 5 | 3 |
| <i>V3</i> | | | 1 | 9 |

Tables

- Easier to make comparisons in columns than in rows

| Model | V1 | | V2 | | V3 | |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | <i>B</i> | <i>SE</i> | <i>B</i> | <i>SE</i> | <i>B</i> | <i>SE</i> |
| Model 1 | 5 | 3 | 4 | 6 | | |
| Model 2 | 4 | 4 | 5 | 3 | 1 | 9 |

Tables

- Unnecessary precision

| Set | Condition | N | Mean | Std. Dev. | T-Test | Std. Bias | Bias Reduction |
|---------------|-----------|------------|--------|-----------|---------|-----------|----------------|
| Full Samp. | Control | 11514.0000 | 0.8561 | 1.9618 | | | |
| | Treated | 345.0000 | 2.5217 | 3.7911 | 14.9566 | 55.1821 | |
| Matched Samp. | Control | 328.0000 | 1.4878 | 2.3990 | | | |
| | Treated | 328.0000 | 1.9970 | 2.5956 | 2.6092 | 20.3744 | 63.0780 |

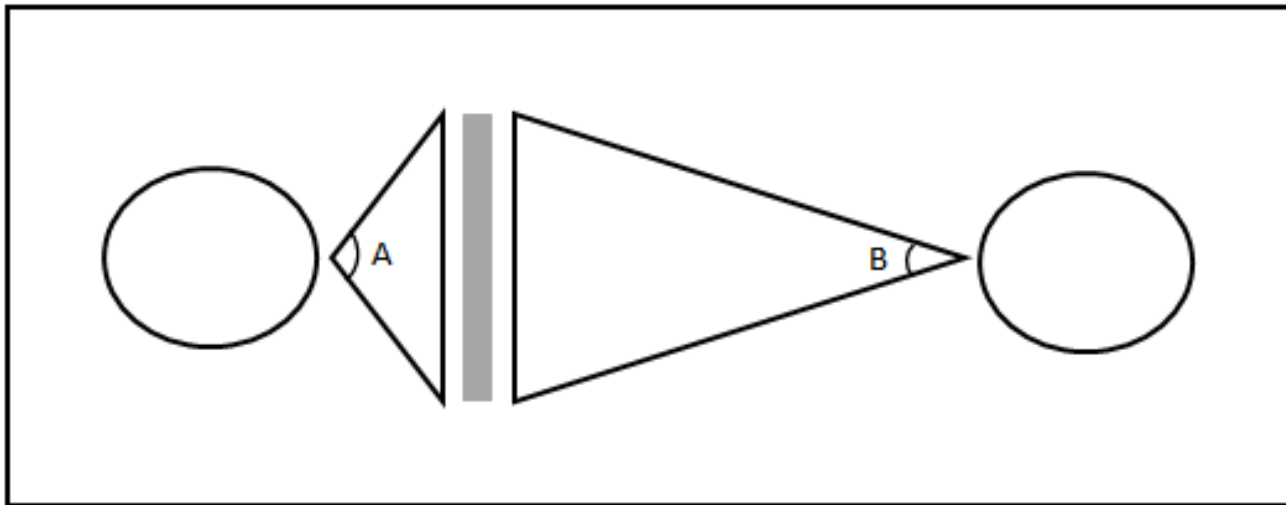
Tables

- 2~3 significant figures – at max

| Set | Condition | N | Mean | Std. Dev. | T-Test | Std. Bias | Bias Reduction |
|---------------|-----------|--------|------|-----------|--------|-----------|----------------|
| Full Samp. | Control | 11,514 | 0.9 | 2.0 | | | |
| | Treated | 345 | 2.5 | 3.8 | 15.0 | 55 | |
| Matched Samp. | Control | 328 | 1.5 | 2.4 | | | |
| | Treated | 328 | 2.0 | 2.6 | 2.6 | 20 | 63 |

Presentations

- Size of Elements! ~ 0.007 radians [typical range of 0.003-0.010]



- Posters – *minimum* of 25 point font
- PPT – always aim for less

Presentations

44

32

28

24

20

16

12

10

References

- Tables
 - See <http://stats.blogoverflow.com/2012/02/some-notes-on-making-effective-tables/> for more references
- Presentations
 - My blog post on poster sizes in fuller detail, <https://andrewpwheeler.wordpress.com/2015/10/14/poster-presentations-should-have-a-minimum-font-size-of-25-points/>
 - Colin Purrington has great advice and templates for Posters, <http://colinpurrington.com/tips/poster-design>

Homework & Next Weeks Class

Lab Assignment

Introduction to Reproducible Research in R, SPSS, & Stata

Make a nice graph and a table in software of choice. Turn in graph and table in hard copy with name on it.

Readings For Next Week

- Mostly Harmless, Chapters 1, 2 & 3
- Experimental and Quasi-Experimental, Chapters 1, 2, & 3