Outline of the Main Elements in an Honors Thesis in Economics

(Econometric Analysis Topic)

EC 418: Economic Analysis of Community Issues
Profs. Blonigen and Harbaugh
University of Oregon

Step 1: Introduction

- Begin by getting the readers attention to the big context in which your paper fits. Make sure to highlight why we should care about this topic.
- Briefly refer to/discuss the work of the previous literature on the issue.
- Highlight what is missing from the previous literature and then explain your paper's approach and exact research question.
- Briefly summarize the analysis your paper undertakes, including a sentence or two each on the data and methodology used.
- Describe your paper's results and conclusions in a paragraph or two and tie this back to how this informs the overall issue that motivates the paper
- Think of this as an "Executive Summary"

Step 2: Literature Review

- Be efficient and stand on the shoulders of giants (and dwarves).
  - Will help with hypothesis development and methodology.
  - Will alert you to potential pitfalls.
  - Will help with data sources.
  - Read with a critical eye and look for improvements you can make.
- Sources
  - Academic searches
    - EconLit
    - Google Scholar
    - Web of Science
  - Other literature
    - Relevant government organizations
    - Policy “think tanks”

Step 2: Literature Review

- Keywords can be crucial for good literature searches.
- Once you have one paper "on topic", follow the references.
- Be efficient in reading the literature – read only abstract and. introduction before deciding whether to read entire paper.
- Start reference list immediately. Styles vary across economics outlets, so just choose a style and stay consistent. Example:

Harbaugh, William T. (1998) "The Prestige Motive for Making Charitable Transfers," *American Economic Review* 88(2): 277-82.

Step 3: Hypothesis Development

- Need to specify a proposed relationship between variables that can be tested.

$$y = f(X)$$

- Theory behind such a relationship should be explained and expected sign of correlations should be given.
- Previous literature should be a useful guide.
- Often, the magnitude of the hypothesized relationship is more the focus of the study, as the predicted sign of the relationship should be not in doubt.
  - Ex: Quantity demanded should be inversely correlated with price, but the magnitude of this relationship (elasticity) is quite important for many issues.

Step 4: Data Description

- First – a few comments on data collection
  - Our contacts will be good sources of information on where to find data, but other sources are:
    - Bill and I
    - www.fedstats.gov
    - www.oregon.gov
    - Google searches
  - Be clear about unit of analysis.
    - Individual level? Aggregate level?
    - How does this relate to hypotheses and theory?
  - Data is never perfect.
    - Measurement issues.
    - Missing data for certain observations.
    - Time constraints versus the perfect data set.

Step 4: Data Description

- Describing the data in the paper
  - It is important to understand and document the basic features of your data before discussing regression results.
    - Descriptive statistics: Means, standard deviations, etc.
    - Graphs of trends in main variables are often helpful. Most familiar to our clients.
    - Charts and tables should be self-explanatory without referring to the text.

Step 5: Econometric Methodology

- Choice of Methodology
  - Characteristics of data and nature of hypotheses will affect methodology chosen.
    - Ex: Estimating demand equations requires worrying about endogeneity of price and quantity.
    - Ex: If dependent variable is a "0/1" variable, OLS is not likely the best regression technique.
  - Previous literature again can be a useful reference.
  - OLS is always a good starting point and can then get more sophisticated from there. In truth, virtually all private consulting work never gets beyond OLS.

Step 5: Econometric Methodology

- Reporting econometric analysis.
  - First, evaluate overall fit and performance of estimation
    - R^2 and F-test
    - Do coefficient signs match expectations? Statistical significance?
    - Plots of residuals may be informative as well.
  - Evaluate results with respect to main hypotheses.
    - Sign and significance.
    - Magnitude (i.e., economic significance).
  - Report alternative specifications to test sensitivity of results.
    - Appropriate subsample results.
    - More sophisticated techniques to control for data or potential statistical problems.

Step 6: Conclusion

- Restate problem/issue and why we should care.
- Concise statement of hypotheses and empirical evidence.
- Policy implications. How could results inform future decisions?
- Possible extensions.
  - More extensive data collection.
  - Apply similar analysis to related problem/issue.
  - Further statistical sophistication that could be added to check robustness of results.
  - Alternative samples to examine.