References: Regression

Foundations

Hayashi, Fumio - Econometrics (2000)

Graduate level, nice blend of theory and application.
Most importantly, Princeton Press puts the first chapter online for free.

- **Highlight**: Chapter 1 (http://assets.press.princeton.edu/chapters/s6946.pdf) is a strong introduction to classic OLS.
  Also a very good discussion of why strict exogeneity is not satisfied in lagged time-series regressions.
- **For the future:** Has a strong chapter on non-stationary time-series data.
- **Warning**: As a comprehensive graduate reference, it gets into many topics we will not use.

Cunningham, Scott (2021) - Causal Inference

(https://mixtape.scunning.com/index.html) Somewhat quirky book on regression for applied microeconomics.
The publisher puts the entire book online (https://mixtape.scunning.com/index.html) for free.

- **Highlight:** Chapter 2 (https://mixtape.scunning.com/probability-and-regression.html?panelset2=python-code3) has a very intuitive discussion of probability and OLS. Includes Python code.
- **Warning:** Most of the rest of the book is not a priority for quant finance. Stick with Chapter 2.

Lin, Timothy (2018) - Notes on Regression

- Six-part series of online notes showing that OLS regression can be derived and interpreted in many ways.
- Link to Part 6 (https://www.timlrx.com/blog/notes-on-regression-approximation-of-the-conditional-expectation-function#fn1) . (At the start of the note, links to the first 5 are given.)

StackOverflow & CodeAcademy (2021) - Linear Regression for Python

Series of free videos (https://stackoverflow.blog/2021/05/22/level-up-linear-regression-in-python-part-1/)

Posting this as example of the many(!) OLS in Python tutorials out there.

I am not sure if this one is particularly strong compared to what else you might find, so look around.

- If you find one you like more, tell me!
- This series is hosted on StackOverflow, and does a good job of linking to relevant questions covered in the videos.

Other Resources

Wooldridge, Jeffrey (2019) - Introductory Econometrics: A Modern Approach

Classic undergraduate intro to regression.

- **Highlight**: Chapters 2-5 are a very strong textbook introduction to OLS.
  Similarly, Chapters 10-12 are a nice intro to issues with time series data in OLS.

Wooldridge, Jeffrey (2010) - Econometric Analysis of Cross Section and Panel Data

Very theoretical, graduate level. Considered a/the principal reference for econometrics used in microeconomics.

- **Highlight**: Chapter 2. OLS as an estimator of the conditional expectation.
- **For the future**: Chapter 8 on GMM, relating it to OLS. Chapter 13 on MLE.
- **Warning**: Much of the focus is on methods used in microeconomics that see little use in finance. (Such as Sections II and III).