Econ 220D, Fall 2021
Instructor: James Hamilton (jhamilton@ucsd.edu)
Office Hours: Thursdays 2:00-3:00 (in Econ 307 or online or by appointment)

Grades

Grades for Econ 220D will be based on the empirical project and two take-home exams with 1/3 weight on each. You are free to look at notes or any references in completing all three of the assignments. You may talk with other students, faculty, or the TA about the empirical assignment, but you can not talk or exchange ideas with anyone about either of the two exams.

First midterm exam
Posted Tues Oct 26 at 2:00 p.m.
Due Wed Oct 27 at 2:00 p.m.
Empirical project
Due Mon Dec 6 at 6:00 p.m.
Final exam
Posted Tues Dec 7 at 3:00 p.m.
Due Wed Dec 8 at 6:00 p.m.

Empirical project

One of the assignments for this course is completion of an empirical project (due Monday December 6) that applies one of the methods covered in the course to some data that are interesting to you. This will take the form of a 10-page typed double-spaced paper structured as follows. It might be a good idea to discuss your project with the professor before diving in.

Section 1. Assemble some time series that could be relevant for a topic that you may want to explore as part of your dissertation. The opening section of your paper should briefly describe some questions (either empirical or theoretical) that have interested other researchers and how those questions could be related to these data. Note that you do not need to develop a test of a formal hypothesis as part of this assignment. But you should provide a succinct statement of what you're interested in about these variables with references to related previous research, and it should be written in a style that could be submitted to a journal (not "here's what I'm thinking about"). This first section should also include graphs of the key variables and brief discussion of whether these series are characterized by unit roots or structural breaks.

Section 2. Describe the procedure that you used to analyze these data. This should be a self-contained detailed description of what the procedure is, what its assumptions are, and exactly how it is implemented. Do not assume that the reader of your paper is familiar with the method or is convinced that it is appropriate. The goal of this section is to explain clearly to a nonspecialist what the method is, why it should be used, and what it can tell us.

Section 3. Present your empirical results and explain why they might be of interest.

Section 4. References following *American Economic Review* format (e.g., include author full names, not just abbreviations, and full citations).

Class meetings and health measures

We will plan on holding class in person in Econ 300 Mondays and Wednesdays 2:00-3:20. All exams and other assignments will be take-home. All those attending should be vaccinated, wear masks covering mouth and nose, and pass a self-administered symptom test before coming to class. Do not come to class if you have any symptoms such as: fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhea, or if within the last two weeks you have been exposed to the virus or tested positive to the virus.

Online alternatives

If a student has any symptoms, concerns, or other obstacles to attending any or all lectures we will follow a hybrid format allowing them to participate. Lectures can be followed remotely using Zoom as follows:

Meeting ID: 999 6290 3840 Password: fun

https://ucsd.zoom.us/j/99962903840?pwd=c3ZZMzh0SDRKUjkyNHZIdHdwUFo4UT09

We also hope to have a video recording, written transcript, and slides for each lecture available.

Course schedule (starred readings are most important)

Mon Sep 27 Linear difference equations

*Hamilton (1994*a*, Chapters 1 and 2)

Wed Sep 29 Stationary ARMA processes

*Hamilton (1994*a*, Chapters 3 and 4)

Mon Oct 4 Maximum likelihood estimation

*Hamilton (1994*a*, Chapter 5), DeJong and Whiteman (1993)

Wed Oct 6 Vector autoregressions and economic forecasts

*Hamilton (2022, Chapter 1), Hamilton (1994*a*, Chapter 11)

Mon Oct 11 Impulse-response functions

*Hamilton (2022, Chapter 2), Hamilton (1994*a*, Chapter 11), Jordà (2005), Barnichon and Matthes (2018), Plagborg-Møller and Wolf (2021)

Wed Oct 13 State-space models

*Hamilton (1994*b*), Hamilton (1994*a*, Chapter 13), Camacho and Perez-Quiros (2010)

Mon Oct 18 Markov-switching processes

*Hamilton (2016), Hamilton (1994*a*, Chapter 21)

Wed Oct 20 Introduction to Bayesian analysis

*Hamilton (1994*a*, Chapter 12), Ferguson (1967, Sections 1.1-1.5), Schervish (1995, Section 7.4), Doan, Litterman and Sims (1984), Karlsson (2013), Sims and Zha (1998), Carriero, Clark and Marcellino (2015)

Mon Oct 25 Numerical Bayesian methods

*Greenberg (2012, Chapters 5-8), Robert and Casella (2013, Chapter 7, Section 9.1, Chapter 12), Smith and Gelfand (1992), Chib and Greenberg (1996), Chib (1995), Doucet, Godsill and Andrieu (2000), Geweke (1992)

Wed Oct 27 Unit roots [**Take-home midterm exam due at the start of class**]

*Hamilton (1994*a*, Chapters 17 and 18), Elliott, Rothenberg and Stock (1996), Stock (1994), Müller and Norets (2016), Hamilton (2018)

Mon Nov 1 Cointegration and spurious regression

*Hamilton (1994*a*, Chapters 18-20)

Wed Nov 3 Structural breaks and time-varying parameters

*Primiceri (2005), Del Negro and Primiceri (2015), Andrews (1993), Andrews (2003), Bai and Perron (1998), Bai and Perron (2003), , Lenza and Primiceri (2020), Ng (2021), Carriero et al. (2021)

Mon Nov 8 Large data sets

*Stock and Watson (2002), Bai and Ng (2008), Stock and Watson (2016), Bernanke, Boivin and Eliasz (2005), Pesaran and Chudik (2014), Giannone, Reichlin and Small (2008), Bańbura, Giannone and Reichlin (2010)

Wed Nov 10 Structural vector autoregressions

*Hamilton (1994*a*, Chapte4 11), Del Negro and Schorfheide (2004), Christiano, Eichenbaum and Evans (1999), Plagborg-Møller and Wolf (2021), Baumeister and Hamilton (2015), Baumeister and Hamilton (2021)

Mon Nov 15 Identification using heteroskedasticity and non-Gaussianity

*Wright (2012), Rigobon (2003), Lewis (2021), De Lathauwer, De Moor and Vandewalle (2000), Lanne, Meitz and Saikkonen (2017), Matteson and Tsay (2017), Olea, Plagborg-Møller and Qian (2021), Antolín-Díaz and Rubio-Ramírez (2018)

Wed Nov 17 Instrumental variables

*Stock and Watson (2012), Mertens and Ravn (2013), Gertler and Karadi (2015), Känzig (2021), Paul (2020), Plagborg-Møller and Wolf (2021)

Mon Nov 22 Other approaches to identification

Blanchard and Quah (1989), Stock and Watson (2016), Bai and Ng (2013), Bernanke, Boivin and Eliasz (2005), Gabaix and Koijen (2020)

Wed Nov 24 Bayesian structural inference

*Baumeister and Hamilton (2015), Sims and Zha (1998), Herbst and Schorfheide (2015)

Mon Nov 29 Using inexact prior information

*Baumeister and Hamilton (2018), Baumeister and Hamilton (2019)

Wed Dec 1 Sign restrictions

*Rubio-Ramirez, Waggoner and Zha (2010), Uhlig (2005), Arias, Rubio-Ramírez and Waggoner (2018), Baumeister and Hamilton (2015), Wolf (2020)

References

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