Outline of the Applied Economics and Econometrics Sequence at the EUI

Academic year: 2022-23

Courses and instructors

Compulsory Courses

Compulsory 1A: Pre-course on Probability and Statistics **Block I**
Cristina Lafuente Martinez (Cristina.Lafuente@eui.eu)

Compulsory 1B: Regression Analysis **Block I**
Andrea Ichino (andrea.ichino@eui.eu)

Compulsory 2: Econometric Models for Micro Data **Block II**
Sule Alan (sule.alan@eui.eu) and Thomas Crossley (thomas.crossley@eui.eu)

Compulsory 3a: Time Series Econometrics **Block III**
Jesus Bueren (jesus.bueren@eui.eu)

Compulsory 3b: Simulation-based Estimators **Block IV**
Russell Cooper (russellcoop@gmail.com)

Advanced Courses

Advanced 1 The Econometrics of Causality **Block I**
Fabrizia Mealli (fabrizia.mealli@unifi.it)

Advanced 2: Topics in Microeconometrics **Block III**
Alessandro Tarozzi (alessandro.tarozzi@gmail.com)

Advanced 3: Recent Advances in Applied Micro-econometrics for Causal Inference **Block III**
Alessandro Tarozzi (alessandro.tarozzi@gmail.com)

Advanced 4: Economic Measurement **Block II**
Sule Alan (sule.alan@eui.eu) and Thomas Crossley (thomas.crossley@eui.eu)

Advanced 5: Topics in Macroeconometrics **Block III**
Barbara Rossi (barbara.rossi@upf.edu)

Advanced 6: Development Economics and Global Health **Block IV**
Alessandro Tarozzi (alessandro.tarozzi@upf.edu)

Advanced 7: The Econometrics of Real Data **Block III**
Thomas Crossley (thomas.crossley@eui.eu)

Compulsory 1A: Probability and Statistics

Cristina Lafuente Martinez (Cristina.Lafuente@eui.eu)

The main goal of this course is to review core concepts in probability theory and univariate and bivariate statistics. The pre-course will cover the building blocks of probability theory, moving to the study of random variables and their distributions (with a focus on the most important distributions for economists), basics of bivariate distributions, large sample theory and finish with an introduction to markov processes. All lectures will contain intuitive examples of basic concepts and practice problems.

There will be seven lectures and three exercise classes in this part.

Topics

Topic 1

Introduction. Set theory. Basic probability theory. Probability axioms. Joint, marginal and conditional probabilities.

Blitzstein and Hwang, chapters 1 and 2

Topic 2

Discrete random variables. Probability mass and cumulative distribution functions. Continuous Random Variables. Probability density functions. Important distributions: Normal, Poisson, Exponential.

Blitzstein and Hwang, chapters 3 and 5

Topic 3

Expected values. Moments and moment generating functions. Transformations of random variables.

Blitzstein and Hwang, chapters 4, 6 and 8

Topic 4

Multivariate random variables. Joint and marginal distributions. Conditional distributions and independence of random variables. Covariance and correlation. The distribution of order statistics. Bivariate and multivariate normal densities. Conditional normal densities. Bivariate transformations of random variables. Law of Iterated Expectations.

Blitzstein and Hwang, chapters 7 and 9

Topic 5

Large sample theory. Laws of large numbers. Central limit theorems. Markov Chains.

Blitzstein and Hwang, chapter 10 and 11

Exercise classes

There will be 3 exercise classes, one after topic 3, one after topic 5 and a final one covering problems from all topics.

Teaching material

- Joseph K. Blitzstein and Jessica Hwang. *Introduction to probability.* Chapman and Hall/CRC, Second Edition, 2019.
- Lecture notes by the instructor, which will highlight the parts of the textbook that would be relevant for the course.

Other reference books:

- George Casella and Roger L. Berger. *Statistical Inference.* Thomson, Second Edition, 2002.
- Richard J. Larsen and Morris L. Marx. *An introduction to mathematical statistics and its applications.* Prentice Hall, Fifth Edition, 2012.

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Compulsory 1B: Regression Analysis

Andrea Ichino (andrea.ichino@eui.eu)

The main goal of this Core course is to give an introduction to the basic tools that an econometrician needs: the most popular estimation methods; inference and hypothesis testing; asymptotics; simple and multiple regression; instrumental variables.

In addition to the lectures there will be six exercise classes. Examples and applications will be used to illustrate the theoretical content of the course.

Topics

Topic 1

Introduction: what is econometrics about; the tool-box of econometrics; the econometrics sequence at the EUI; Content of this course.
Estimation: Estimators and estimates; the Method of maximum Likelihood; the Method of Moments.

Larsen and Marx, chapter 5. Casella and Berger, chapter 7 . Lecture notes.

Topic 2

Estimation: Finite sample properties of estimators; Unbiasedness, Efficiency,, Sufficiency, Minimum variance estimators; The Cramer-Rao Lower Bound, Invariance.

Larsen and Marx, chapter 5. Casella and Berger, chapter 7 and chapter 5. Lecture notes.

Topic 3

Estimation: Asymptotic properties of estimators; Asymptotic Unbiasedness, Asymptotic Efficiency, Consistency; Asymptotic Normality
Basic asymptotics: concepts of convergence; Law of Large Numbers; Central Limit theorem; Continuous Mapping Theorem, Slutzky Theorem and Delta Method.

Larsen and Marx, chapter 5. Casella and Berger, chapter 7 and chapter 5. Lecture notes.

Topic 4

Simple regression: The Conditional Expectation Function; The Population Regression Function; The Sample Regression Function; OLS, Method of Moments and Maximum Likelihood estimation of a regression; Algebraic and geometric properties of the OLS-MM estimators.

Angrist and Pischke chapter 1, 2 and 3. Wooldridge part 1. Lecture notes.

Topic 5

Simple regression: Goodness of fit and the R-Squared; Statistical Properties of the OLS-MM estimator; The Gauss-Markov Theorem'.

Angrist and Pischke chapter 1, 2 and 3. Wooldridge part 1. Lecture notes.

Topic 6

Simple regression: Causality and Regression.

Angrist and Pischke chapter 1, 2 and 3. Lecture notes.

Topic 7

Multiple regression: The Conditional Independence Assumption; Interpretation of the partial Multiple Regression Coefficient; Multiple Regression in matrix notation; Omitted variable bias and inclusion of irrelevant regressors.

Angrist and Pischke chapter 1, 2 and 3. Wooldridge part 1. Lecture notes.

Topic 8

Multiple regression: The Gauss-Markov Theorem and Multiple Regression; "Partialling out" and the interpretation of coefficients; Good and bad habits concerning control variables;

Angrist and Pischke chapter 1, 2 and 3. Wooldridge part 1. Lecture notes.

Topic 9

Inference and Hypothesis testing: what is a statistical test and how it is constructed; The decision rule; Type I and type II errors; Power of a test.

Larsen and Marx, chapters 6 and 9. Casella and Berger, chapter 8. Lecture notes.

Topic 10

Inference and Hypothesis testing: finite sample and asymptotic tests in the context of a regression model.

Larsen and Marx, chapters 6 and 9. Casella and Berger, chapter 8. Lecture notes

Topic 11

Instrumental Variable estimation: The traditional interpretation and the Angrist-Imbens-Rubin interpretation of IV; Average Treatment Effect; Average Treatment Effect for the Treated; Local Average Treatment Effect.

Woolridge (2009); Angrist and Pischke (2013). Lecture notes

Exercise classes: TBD

There will be 6 exercise classes.

Teaching material

- Richard J. Larsen and Morris L. Marx. *An introduction to mathematical statistics and its applications.* Prentice Hall, Fifth Edition, 2012.
- George Casella and Roger L. Berger. *Statistical Inference.* Thomson, Second Edition, 2002.
- Jeffrey Wooldridge, *Introductory Econometrics. A Modern Appproach.* South Western Cengage Learning, 2009
- Joshua Angrist and Jorn-Steffen Pischke. *Mostly Harmless Econometrics. An Empiricist's Companion.* Princeton University Press, 2013.
- Lecture notes by the instructor.

Final exam and Grading

There will be two separate class room exams for Core 1A and Core 1B, but a single final grade based on:

- 20% of the Core 1A grade;
- 80% of the Core 1B grade;

The professors of each Core course will communicate in class the weights of the problems sets and of the final exam for the respective parts.

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Compulsory 2: Econometrics Models for Micro Data

Sule Alan (sule.alan@eui.eu) and Thomas Crossley (thomas.crossley@eui.eu)

The course is intended to introduce students to some standard methods specifically designed for the analysis of microeconomic data. The first half of the course covers maximum likelihood methods with applications to limited dependent variables, censoring, truncation and duration data. The 2nd half of the course covers methods for panel data, and draws on a number of tools including GLS, sandwich variance estimators, fixed and random effects, method of moments and generalized methods of moments.

Topic 1

Overview and Introduction Content of this course. Review of maximum likelihood methods.

Cameron and Trivedi, 5

Topic 2

Binary Response models: Probit and Logit.

Cameron and Trivedi, 14

Topic 3

Multinomial and Ordered Response: Ordered probit models, Multinomial logit models; Independence of irrelevant alternatives.

Cameron and Trivedi, 15

Topic 4

Corners, Censoring, Truncation: Censoring, Tobit, Selection models.

Cameron and Trivedi, 16

Topic 5

Introduction to Duration Analysis:

Cameron and Trivedi, 17, 18

Topic 6

Basic Linear Panel Data Models: Review of GLS and Sandwich Variance Estimators. Pooled estimation, fixed effects, random effects. The Hausman test. Differencing estimators. Differences- in-Differences.

Cameron and Trivedi, 21

Topic 7

Further topics in Linear Panel Data Models :IV, Method of Moments and GMM applied to linear panel data models. Hausman Taylor. Dynamic Panel models. The Chamberlain approach and minimum distance.

Cameron and Trivedi, 22

Topic 8

Binary Response Models for Panel Data: Pooled versus random effects probit. Correlated Random Effects. Conditional (fixed-effect) logit.

Exercise classes

There will be 6 problem sets, 6 exercise classes and 1 review class before the exam.

Teaching material

- (main text) Cameron and Trivedi, *Microeconometrics: Methods and Applications*, Cambridge University Press, 2005
- (supplement) Joshua Angrist and Jorn-Steffen Pischke. *Mostly Harmless Econometrics. An Empiricist's Companion.* Princeton University Press, 2013.
- (alternative) Jeffrey Wooldridge, *Introductory Econometrics. A Modern Approach.* South Western Cengage Learning, 2009
- Lecture notes by the instructors.

Final exam and Grading

- 6 problem sets will count for 30% of the final grade;
- A final exam will count for 70% of the final grade.

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Compulsory 3a: Time Series Econometrics

Jesus Bueren (jesus.bueren@eui.eu)

A ten-hour course introduces students to the analysis, modelling and estimation of stationary time series processes.

Topic 1
Basic Time Series concepts: Recap on difference equations, Stationarity, Ergodicity, ARMA processes.

Hamilton (Chapters 1, 3), Lecture notes.

Topic 2 *Maximum Likelihood Estimation*: Estimation of ARMA models using MLE. Statistical Inference. Likelihood Ratio test. Model selection criteria.

Hamilton (Chapter 5), Lecture notes.

Topic 3 *Multivariate VAR Models*: Stationarity, Conditional likelihood and OLS estimation, Granger Causality, Impulse responses, error bands, recursive VARs.

Hamilton (Chapter 11), Lecture notes.

Topic 4 *State-Space Representation and the Kalman Filter*: Representation, a recursive algorithm. *Hamilton (Chapter 13), Lecture notes.*

Exercise classes

There will be 3-4 exercise classes

Teaching material

- Hamilton, J. H. (1994), *Time Series Analysis*, Princeton University Press
- Slides notes by the instructor.

Final exam and Grading

There will be problems sets graded by TAs in classes (20%) and a final exam (80%).

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Compulsory 3b: Simulation-based Estimation

Russell Cooper(russellcoop@gmail.com)

This ten-hour course focuses on simulation based estimators. This will include simulated method of moments, indirect inference and the Generalized Method of Moments approach. The course is built around the book by Adda and Cooper. The lectures will be applications based, drawing on dynamic optimization problems for households, firms and the stochastic growth model. Here are key papers by topic. The full reading list is more substantial. All courses include Topics 1 and 2. Some years include the consumption component, Topic 3, while others include firm dynamics, Topic 4.

Topic 1

Tools

- Jérôme Adda and Russell Cooper, Dynamic Economics: Quantitative Methods and Applications, MIT Press, 2003. (AC), Chpt. 2-4
- Cooper, R "An Overview of Applied Dynamic Programming" February 2020

Topic 2

Stochastic Growth Model

- AC, Chpt. 5
- Altug, Sumru. "Time-to-build and aggregate fluctuations: some new evidence." International Economic Review (1989): 889-920.
- Ingram, B. F., Kocherlakota, N. R., and Savin, N. E. (1994). Explaining business cycles: A multiple-shock approach. Journal of Monetary Economics, 34(3), 415-428.
- (E) Jordà, Ò. (2005). Estimation and inference of impulse responses by local projections. American economic review, 95(1), 161-182.
- King, Robert G., Charles I. Plosser, and Sergio T. Rebelo. "Production, growth and business cycles." Journal of monetary Economics 21, no. 2/3 (1988): 196-232.
- Kydland, Finn E., and Edward C. Prescott. "Time to build and aggregate fluctuations." Econometrica, (1982): 1345-1370.
- Krusell, Per, and Anthony A. Smith, Jr. "Income and wealth heterogeneity in the macroeconomy." Journal of Political Economy 106.5 (1998): 867-896.
- (E) Smith, Anthony A. "Estimating nonlinear timeâseries models using simulated vector autoregressions." Journal of Applied Econometrics 8.S1 (1993): S63-S84.

Topic 3a

Consumption

- AC, Chpt. 6
- Bonaparte, Yosef, Russell Cooper, and Guozhong Zhu. "Consumption smoothing and portfolio rebalancing: The effects of adjustment costs." Journal of Monetary Economics 59, no. 8 (2012): 751-768.

- Carroll, Christopher D., Robert E. Hall, and Stephen P. Zeldes. "The buffer-stock theory of saving: Some macroeconomic evidence." Brookings papers on economic activity 1992, no. 2 (1992): 61-156.
- Carroll, C. "Death to the Log-Linearized Consumption Euler Equation," NBER Working Paper 6298, 1997.
- Cooper, Russell, and Guozhong Zhu. "Household finance over the life-cycle: What does education contribute?." Review of Economic Dynamics 20 (2016): 63-89.
- Deaton, A. "Savings and Liquidity Constraints," Econometrica, 59 (1991), 1121-42.
- Eichenbaum, M., Hansen, L. and K. Singleton, " A Time Series Analysis of Representative Agent Models of Consumption and Leisure Choice under Uncertainty," Quarterly Journal of Economics, 103 (1988), 51-78.
- Gourinchas, P. and J. Parker, "Consumption over the Life Cycle", Econometrica, 70 (2002), 47-89.
- Hall, R. "Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence," Journal of Political Economy, 86 (1978), 971-87.
- Hansen, L. âProofs for Large Sample Properties of Generalized Method of Moments Estimatorsâ University of Chicago, March 2012. (M)
- Hansen, L. and K. Singleton, "Generalized Instrumental Variables Estimation of Nonlinear Rational Expectations Models," Econometrica, 50 (1982), 1269-86.
- Newey, K. Whitney, âGeneralized Method of MomentsâMIT October 2007 (M)
- Zeldes, S. "Consumption and Liquidity Constraints: An Empirical Investigation," Journal of Political Economy, 97 (1989), 305-46.

Topic 3b

Durable Consumption

- AC, Chpt. 7
- Adda, J. and R. Cooper, "Balladurette and Juppette: A Discrete Approach," Journal of Political Economy, August, 2000.
- Mankiw, N.G. "Hall's Consumption Hypothesis and Durable Goods," Journal of Monetary Economics, 10 (1982), 417-25.

Topic 4

Firm Dynamics

- AC, Chpt. 8
- Abel, A. and J. Eberly, "A Unified Model of Investment Under Uncertainty," American Economic Review, 94 (1994), 1369-84.
- Bloom, N. "The Impact of Uncertainty Shocks," Econometrica, 2009.
- Bloom, Nicholas, Max Floetotto, Nir Jaimovich, Itay SaportaâEksten, and Stephen J. Terry. "Really uncertain business cycles." Econometrica 86, no. 3 (2018): 1031-1065.

- Caballero, R. and E. Engel, "Explaining Investment Dynamics in U.S. Manufacturing: A Generalized (S,s) Approach", Econometrica, 67 (1999), 783-826.
- Caballero, R., E. Engel and J. Haltiwanger, "Plant Level Adjustment and Aggregate Investment Dynamics," Brookings Papers on Economic Activity, 2 (1995b), 1-39.
- Cooper, R. and J. Ejarque, "Financial Frictions and Investment: A Requiem in Q," Review of Economic Dynamics, 6 (2003), 710-28.
- Cooper, R. and J. Haltiwanger, "On the Nature of Capital Adjustment Costs," Review of Economic Studies, 73 (2006), 611-33.
- Khan, Aubhik, and Julia K. Thomas. "Idiosyncratic shocks and the role of nonconvexities in plant and aggregate investment dynamics." Econometrica 76, no. 2 (2008): 395-436.
- Rust, John. "Optimal replacement of GMC bus engines: An empirical model of Harold Zurcher." Econometrica: Journal of the Econometric Society (1987): 999-1033.
- Thomas, J. "Is Lumpy Investment Relevant for the Business Cycle?" Journal of Political Economy 110, no. 3 (2002): 508-534.

Homework, exams and grading

Over this course there will be three homework assignments. The way to learn this material is by using it, both in the homework assignments and beyond. The homework will be evaluated on a pass/fail basis. You are encouraged to work in a group, but you should submit answers independently. Your grade will be based entirely upon the exam.

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Advanced 1: The econometrics of causality

Fabrizia Mealli (fabrizia.mealli@unifi.it)

This course will feature 10 2-hour lectures.

1. Introduction to Causality and Causal Inference (1 lecture)
    - Setting up the problem: the potential outcome framework
    - The role of the assignment mechanism
    - Design and analysis of randomized experiments
    - Estimands and modes of inference: Fisher exact tests; Neyman frequentist perspective; Regression analysis; Bayesian model-based imputation
    - Examples
2. Introduction to observational studies under unconfoundedness (2 lectures)
    - The role of the propensity score
    - Designing observational studies: matching, weighting, trimming
    - Analysis of observational studies: stratification, weighting estimators, matching estimators, methods based on the outcome models and regression.
    - Methods combined: bias corrected estimators, doubly robust estimators
    - Sensitivity analysis
    - Enhancing causal inference with machine learning in high dimensional settings and heterogeneous effects
3. Instrumental variables (2-3 lectures)
    - Homogeneous vs heterogenous causal effects
    - IV and RCT with noncompliance - revisited
    - Bayesian IV analysis: relaxing some of the assumptions
    - Point, partial, weak identification of causal effects
    - The role of covariates
    - IV and beyond: principal stratification and mediation analysis
4. Regression discontinuity designs (1-2 lectures)
    - The identification strategy: continuity vs local randomization
    - Sharp RDD
    - Fuzzy RDD and the local LATE interpretation of RDD
    - Graphical analysis, assessing identification assumptions
    - Bandwidth selection
    - Multiple thresholds, multiple forcing variables
    - Examples
5. Difference in difference, synthetic controls and beyond (2 lecture)
    - DID and extensions (e.g., CIC, Synthetic DID)
    - Lagged dependent variables
    - Synthetic controls and permutation inference
    - Some recent developments (e.g., Matrix Completion, Time Series)
6. Causal Inference with interference (1 lecture)
    - Cluster/partial interference in randomized studies

- Design, detect, assess interference
- Cluster/partial interference in observational settings
- General network interference in experimental and observational settings

Exercise classes

Two practical sessions on Causal Inference methods using R d

Teaching material

- Imbens G. W., Rubin D. B. (2015) Causal Inference for Statistics, Social, and Biomedical Sciences, Cambridge University Press
- Articles in journals
- Lecture notes by the instructor.

Final exam and Grading

There will be final class room exam (referee report) and two take-home assignments (simulation and real data exercises).

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Advanced 2: Topics in Microeconometrics

Alessandro Tarozzi (alessandro.tarozzi@gmail.com)

A 20-hour topics course in applied micro-econometrics, with a particular emphasis on problems likely to be encountered in applied micro work, and techniques for dealing with those.

1. **Non-standard standard errors and inference** (10 hours): Adjusting standard errors with non-*i.i.d.* data in cross-sectional and panel data; the bootstrap; small-sample inference; randomization inference; inference with multiple hypothesis and family-wise error rates. Moulton (REStat 1990), Bertrand, Duflo and Mullainathan (QJE 2004), Cameron and Miller (JHR 2015), Holm (1979), Clarke, Romano and Wolf (2020).
2. **Introduction to non-parametric and semi-parametric methods**. Non-parametric estimation of densities and regressions. (4 hours): Bandwdiths and Kernels; Nadaraya-Watson and locally weighted regressions; partially linear models.
3. **Quantile Regression**. (2 hours)
4. **Bounding causal estimates when exogeneity does not hold**. Altonji et al (JPE 2005), Oster (JBES 2017), Pei, Pischke and Schwandt (JBES 2019), De Luca, Magnus and Peracchi (JBES 2019) (4 hours)

Exercise classes

No exercise class

Teaching material

- Selected journal articles and additional reading assigned with each lecture.
- Lecture notes provided by the instructor.

Evaluation

There will be 2-3 problem sets and a take home exam.

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Advanced 3: Recent Advances in Applied Micro-econometrics for Causal Inference

Alessandro Tarozzi (alessandro.tarozzi@gmail.com)

A 10-hour topics course in recent advances in applied micro-econometrics for causal inference. The following is a temporary reading list that will be expanded later.

1. Recent advances in DD models with heterogeneous treatment effects and Event studies. Sant'Anna and Zhao (2020, "Doubly robust difference-in-differences estimators," Journal of Econometrics, 219, 101-122); Sun and Abraham (2020, "Estimating Dynamic Treatment Effects in Event Studies with Heterogeneous Treatment Effects," Journal of Econometrics); Wooldridge (2021, "Two-Way Fixed Effects, the Two-Way Mundlak Regression, and Difference-in-Differences Estimators," Available at SSRN 3906345).
2. Shift-share instruments. Borusyak et al (REStud 2022 "Quasi-Experimental Shift-Share Research Designs")
3. Randomized Controlled Trials with a Twist. Banerjee et al (2021, "Selecting the Most Effective Nudge"), Caria et al (2020, "An Adaptive Targeted Field Experiment"), Bahety et al (2021 JDE "An adaptive trial to prevent the spread of COVID-19 in India").

Exercise classes

No exercise class

Teaching material

- Selected journal articles and lecture notes provided by the instructor.

Evaluation

There will be 1-2 problem sets and a take home exam.

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Advanced 4: Economic Measurement

Sule Alan (sule.alan@eui.eu)
and Thomas Crossley (thomas.crossley@eui.eu)

A first course in Economic Measurement, covering both "micro" and "macro" topics. 20 hours.

Topic 1

Introduction to National Accounting: Output, income and expenditure GDP; Intermediate consumption and value added. Supply-use balancing. Sectoral accounts. National and sectoral balance sheets.

Lequiller and Blades (2014), chapters 1, 4-8, and 10; Lecture notes and additional assigned readings.

Topic 2

Price-Volume Decomposition: Price and quantity Indices. Axiomatic and economic approaches. The CPI in practice. Multilateral price indices and international comparisons.

Lequiller and Blades (2014), chapters 2 and 3; Lecture notes and additional assigned readings.

Topic 3

The Labour Market: Labour market states and labour market flows.

Lecture notes and assigned readings.

Topic 4

Investment, Capital and Productivity: Measuring investment. Estimation of the capital stock. Productivity measurement.

Lecture notes and assigned readings.

Topic 5

Poverty and Inequality: Household income, consumption and wealth. Poverty lines and measures. Inequality measures.

Lecture notes and assigned readings.

Topic 6

Item Response Theory: Construction and of tests and scales.

Lecture notes and assigned readings.

Topic 7

Measuring Economic Preferences: Preferences over Risk and Time Preferences. Incentivized measures and survey measures.

Lecture notes and assigned readings.

Topic 8

Measuring Social Preferences:

Lecture notes and assigned readings.

Exercise classes

No exercise class

Teaching material

- Lequiller, F. and D. Blades, (2014). Understanding National Accounts, 2nd Ed. OECD. (available here: http://www.oecd.org/std/UNA-2014.pdf)
- Selected journal articles and additional reading assigned with each lecture.
- Lecture notes provided by the instructors.

Evaluation

- Paper presentation (50%)
- Take home exam (50%)

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Advanced 5: Topics in Macroeconometrics

Barbara Rossi (barbara.rossi@upf.edu)

A course in Macroeconometrics. 20 hours.

The course will offer an overview of the econometric techniques used in the empirical analysis of monetary and fiscal policy as well as their empirical results.

The course has three specific objectives. The first is to equip students with the tools they need for empirical research on monetary and fiscal policy. The second objective is to lay out the econometric theory used in estimating the effects of economic policies, with an emphasis on recent developments. The third objective is to analyze selected recent empirical works.

1. Overview of econometric techniques to estimate the effects of economic policies
2. Selected works on monetary policy: identification, estimation and empirical results
3. Selected works on fiscal policy: identification, estimation and empirical results

Exercise classes

No exercise classes.

Teaching material

- Journal articles and other assigned readings.

Evaluation

The evaluation will be based on an in-class presentation and a written exam. Back to

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Advanced 6: Development Economics and Global Health

Alessandro Tarozzi (alessandro.tarozzi@gmail.com)

10 hours. The course will cover a number of topics in Development micro-economics, with a focus on Global Health and Gender in low and middle-income countries (LMICs). Given the vast literature and the small number of hours, the course will be structured as a reading group, with topics chosen by the researchers taking the course for credit (in agreement with the instructor). The following is a tentative and partial list of themes that are important in Development and Global Health.

1. From health to wealth and vice-versa. Causal links between health inputs and shocks and human capital, in the short and long-run. The importance of early-life health investments. Structural models of determinants of cognitive and non-cognitive skills.
2. The importance of demand factors in explaining poor health in LMICs: liquidity constraints, information, trust, present-bias.
3. The importance of supply factors in explaining poor health in LMICs: doctors' competence and effort, workers' selection, drug quality. Contracts and incentives for public health workers.
4. Gender in LMICs. 'Missing women', preference for sons and sex-selective abortion, female labor force participation, intra-household allocation of resources.
5. Fertility: Demand and supply factors, the role of contraceptives, information, old-age support, gendered preferences for large families.

Exercise classes

No exercise classes.

Teaching material

- Journal articles and other assigned readings.

Evaluation

The evaluation will be based on (A) in-class presentations; (B) in-class participation to group discussion.

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Advanced 7: The Econometrics of Real Data

Tom Crossley (thomas.crossley@eui.eu)

A ten-hour course on problems that arise in micro data, and tools to deal with those problems.

Topic 1

Introduction: Sources of Economic Data. Surveys and versus administrative and other "naturally occurring" data sources. Integrated data. Overview of data problems. Total error framework.

Lecture notes and assigned readings.

Topic 2

Survey Data: How surveys are designed and conducted. Particular features of survey data. Design weights. Strata and PSU. Consequences for analysis. Population (or design-based) inferences versus model-based inferences.

Lecture notes and assigned readings.

Topic 3

Missing Data: How missing data arises: unit non- response, item non-response, attrition. Consequences for Analysis. Solutions: weighting; GMM; Single and multiple imputation; partial identification approaches (bounds).

Lecture notes and assigned readings.

Topic 4

Measurement Error: The ubiquity of measurement error. Classical measurement error, Berkson errors, non-classical measurement error, mis-classification. Measurement error in dependent and independent variables. Proxy variables. Consequences for analysis and solutions.

Lecture notes and assigned readings.

Topic 5

Data Combination: Issues arising when combining data from mulitiple sources (survey or admin) and solutions.

Lecture notes and assigned readings.

Exercise classes

No exercise classes.

Teaching material

- Journal articles and other assigned readings.
- Lecture notes from the instructor.

Evaluation

There will be graded data assignments worth 50 % and a final project worth 50 %.

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