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Office hours (during term): Mon. 9-10/Wed. 9-10 or by appointment

EC5041: Microeconometrics

Delivery: The course is delivered via a weekly 2-hour lecture and a weekly 1-hour seminar. In the seminar we discuss the solution to a homework assignment.

Prerequisites: The course is relevant for both MSc Economics and MSc Finance students. The prerequistes are EC5040 or EC5330 or equivalent.

Course outline

Raw data contains too much and too disparate information to be directly useful to economists (indeed, open your favorite dataset; I bet it looks pretty confusing to you). Empirical economists use economic theory and statistical methods to extract the relevant pieces of information from raw data. This process is called econometrics. Econometrics applied to microeconomic data, i.e. data on individual persons, households and/or companies, is called microeconometrics. This course provide students with a solid introduction to a number of commonly used microeconometric tools. We cover single linear equation estimators (OLS, GLS, IV), multiple linear equations estimators (FIVE, 3SLS, SUR), estimators of linear panel data models (random and fixed effects models), and more general estimators for nonlinear models (e.g. censored and truncated regression models, Probit and Logit models) including the Maximum Likelihood Estimator. The material is presented within the Generalized Method of Moments (GMM) framework. This means that the underlying statistical theory is essentially the same for the different estimators and that the relationship between them is transparent. Throughout, we emphasize not only the importance of understanding the statistical theory behind the estimators and tests but also being able to implement them using STATA (each homework assignment contains a partial replication of a well-known published empirical economic analysis). While many of the applications we consider will use microeconomic data, the GMM framework is equally well suited for macroeconomic and financial data and time series analysis.

Learning outcomes

- Understand how good empirical economic analysis uses both restrictions from economic theory and statistical methods to extract information from data.

- Understand the concepts of consistency, asymptotic normality, asymptotic efficiency, and be able to apply these to evaluate properties of microeconometric estimators.

- Understand the principle and statistical theory of the GMM framework, and understand how it encompasses Extremum Estimators including Maximum Likelihood estimators.

- Have a good working knowledge of single equation GMM models (including OLS, GLS, IV), their statistical properties, and their application to data

- Have a good working knowledge of multiple equation GMM models (including FIVE, 3SLS, SUR), their statistical properties, and their application to data

- Have a good working knowledge of panel data models (including fixed and random effects models), their statistical properties, and their application to data

- Have a good working knowledge of ML estimation and its applicability to microeconometric models (including Truncated and Censored regression models, Probit, and Logit models).

Assessment

- **End-of-year exam:** 2-hour written exam (75%)

- **Homework:** 1 randomly selected homework assignment[1] (10%) and an empirical project (15%)

Literature

1) Hayashi, F. (2000), "Econometrics", Princeton University Press

2) A number of journal articles to be read in preparation for seminars [to be made available on Moodle].

3) Slides and occasional notes [to be made available on Moodle]

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[1]Students are required to hand in their a homework assignment every week. At the end of term, two assignments are *randomly* selected for each student. The assignment with the highest mark of the two accounts for 10% of the EC5041 mark. Non-submitted homework assignments are automatically selected. Hence, if a student fails to hand in two of the homework assignments, a mark of 0 will be given for the homework component. If a student fails to hand in one of the homework assignments, only one of the submitted homeworks will be randomly selected and marked for the homework component.