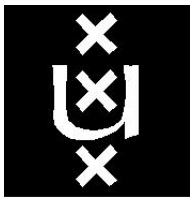

Econometric Analysis

PPLE 2019-2020

1 Introduction

1.1 General Information

Course number	3843ECOPVY
Credits in EC	6
Semester, period	Semester 1, period 1
Lecturer	Andrei Sirchenko, PhD (lectures, tutorials and computer classes)

1.2 Content of the course

This course is about regression analysis, which in applied economics is a powerful tool to analyze empirical relationships. First, estimation in general will be discussed. Then the attention is concentrated on the linear regression model, its estimation with ordinary least squares (OLS) and testing hypotheses with t- and F-tests. Particular attention will be paid to the statistical assumptions underlying the basic model. These assumptions should be valid in applications in order to give reliable outcomes. After that, we will focus on various specification issues: multicollinearity, functional form and qualitative variables. The consequences of deviations from the statistical assumptions underlying OLS (and t- and F-tests) will be examined. We will focus on nonlinearities and simultaneity bias and their effects on estimation and hypothesis testing. You will learn how to detect possible misspecification with formal statistical tests and how to adapt statistical inference methods in order to get reliable estimation and testing outcomes. Finally, some attention will be paid to the alternative estimation technique of Maximum Likelihood. In particular, binary choice models will be discussed.

1.3 Learning Outcomes

After this course the student

- is able to understand and apply basic econometric methods that are frequently used in empirical economics.
- should be able to identify violations of the assumptions underlying the econometric methods discussed. Furthermore, the student should be able to provide solutions to the problems identified.
- is able to apply the econometric techniques on real economic data in an academic fashion.
- is able to carry out and present an empirical investigation of an economic problem using econometric techniques.

1.4 Timetable

Information about the timetable can be found on https://rooster.uva.nl/schedule

1.5 Literature/readings

- Introduction to Econometrics, James H. Stock and Mark W. Watson, 4th global edition 2019, Pearson Education.
- Reader Statistics and Estimation (available on Canvas)
- Other course material, e.g. lecture notes, data sets or computer exercises, will be made available on Canvas site of this course.

1.6 Weekly schedule

See the end of this document for the schedule. Officially there are two 2-hour lectures, a 2-hour tutorial and a 2-hour computer class per week (for 7 consecutive weeks). Since this year the number of students doing this course is modest, the lectures will have an informal character. During the first lecture of a week an introduction into subject of that week will be given according to the schedule. It is strongly recommended to read the relevant parts of the book in advance. The lecturer will explain the most relevant parts of the literature only. Be aware that some theory not discussed in the book will be introduced during the lectures. These subjects may be part of the examination. During the second lecture of the week, students get the opportunity to ask questions and addtional explanation of the theory is provided. Also, the last week's computer exercise will be discussed. If time permits, students will get the opportunity to work on some additional exercises.

Students are encouraged to practice with the subjects of the course in several ways. First, in the tutorials both conceptual and analytical skills are practiced by (1) answering questions from students; (2) doing exercises (these exercises are partly on the level of the examination questions, some old examination question will be discussed). It is assumed that students have read the relevant material in advance and understand basic statistics. Second, in the computer classes students will have the opportunity to acquire practical econometric skills by making computer exercises using the Stata software. This software is installed on the computers in the exercise rooms.

Additional exercises are available in the book. Some exercises are really basic and others quite advanced. On the companion website of the book:

http://wps.aw.com/aw_stock_ie_3/178/45691/11696965.cw/index.html

you can download the solutions to the odd end-of-chapter exercises of the book as additional material to practice your knowledge and skills. If you want additional explanation on the theory or exercises from the book you are encouraged to ask for this during the tutorial.

To follow this course successfully from the beginning you should have knowledge of elementary statistics. Officially you should have completed the elementary statistics courses of the PPLE-programme (Statistics for Experimental Research and Statistics for Analysing Existing data/Doing Research III). You should be familiar with the concepts of random variable, probability distribution, expectation, variance and correlation. Furthermore, you should know the concepts of estimation and hypothesis testing, p-values and confidence intervals. Chapters 2 and 3 of Stock & Watson (2015) covers all necessary knowledge and it is assumed that you are familiar with it. If you lack this knowledge, you have to catch up instantly. Furthermore, we will use some elementary mathematics and matrix algebra in this course, but the matrix algebra only for illustrative purposes (not part of the examination).

BE AWARE: Seriously and actively participating in the lectures, tutorials and computer class will strongly increase the likelihood that you will complete this course. Do not be satisfied with only listening or reproducing. You should aim at understanding.

2 Assessment

The final grade (needs to be 5.5 or higher) consists of a closed book final written examination (70%, results needs to be 5.5 or higher) and weekly tests (30%). In case of a resit, the result of the resit counts for 70% and should also be 5.5 or higher. The final exam and resit consist of both open and multiple choice questions.

Examination Scheme

- Six weekly tests at the beginning of the second lecture of the week. The worst test result will be dropped, and the remaining 5 test results will count for 6% of the final grade each (total: 30%).
- Final exam: 3 hours. This exam is on all the subjects discussed in class (Weight: 70%).
- Resit (if necessary): 3 hours exam on all subjects of the course (Weight: 70%).

3 Attendance & Responsibilities

3.1 Attendance

The bachelor PPLE assumes that all students will be present in class. All students may miss two tutorial meetings per course, regardless of the reason. Missing three classes will lead to exclusion from the course.

3.2 Late policy

Tardiness will be punished consistently. When the door to the room has been closed, the tutorial meeting has started. All students coming into the classroom after the door has been closed (whether it is 5 or 20 minutes after) will be noted as 'late'. Being late three times leads to one full absence.

3.3 Deadlines

In accordance with the PPLE Teaching and Examinations regulation (OER) all assignments that are handed in after the respective deadlines are to be graded as '1'.

4 Fraud and Plagiarism

For all written assignments, a Turnitin assignment is made on Canvas. Turnitin is a tool that can detect work that is copied. All suspected cases of fraud and/or plagiarism will be reported to the Examinations Board. This course uses the 'Regulations Governing Fraud and Plagiarism for UvA Students'. For more information, see

http://student.uva.nl/pple/shared/studentensites/uva-studentensite/en/az/plagiarism-and-fraud/plagiarism-and-fraud.html?origin=bg5ujKpfRM6MmU9azVVbsw

5 More information

- This course has a Canvas page. Here you can find the necessary information like the group information of your tutorials, the assignments. You are expected to look at this website regularly, because any updates will be communicated through Canvas.
- You are registered for this course via SIS. This means that you are automatically registered for exams that are part of this course. For more information about SIS visit: www.student.uva.nl/sis .

6 Contact information

Lecturer: Andrei Sirchenko, PhD (email a.sirchenko@uva.nl).

Weekly Schedule:

Week 1	Introduction to the course + basic statistics + estimation	
	Lecture	Reader + Chapters 1 + 2 + 3
	Tutorial	Exercises: See Canvas - Tut. Exerc. Week 1
	Computer Class	Basic statistics
Week 2	Simple regression model	
	Lecture	Chapter 4 + 5
	Tutorial	Exercises: S&W 4.2; 4.4; 4.8; 4.14; 5.2; 5.6; 5.8
	Computer Class	Simple regression model
Week 3	Multiple regression	
	Lecture	Chapters 6 + 7
	Tutorial	Exercises: S&W 6.4; 6.6; 6.10; 7.4; 7.6; 7.8 (not c)
	Computer Class	Multiple regression model
Week 4	Functional form	
	Lecture	Chapter 8
	Tutorial	Exercises: S&W 8.2; 8.4; 8.6; 8.8
	Computer Class	Regression model for nonlinear relations
Week 5	Validity	
	Lecture	Chapter 9
	Tutorial	Exercises: S&W 9.2; 9.4; 9.6; 9.10
	Computer Class	Doing research using regression
Week 6	Endogeneity	
	Lecture	Chapter 12
	Tutorial	Exercises: S&W 12.2; 12.4; 12.6; 12.7; 12.8; 12.10
	Computer Class	Endogeneity: IV and 2SLS
Week 7	Maximum Likelihood: Binary choice models	
	Lecture	Chapter 11
	Tutorial	Exercises: S&W 11.2; 11.4; 11.6; 11.8; 11.10; 11.11
	Computer Class	Binary choice models
Week 8	Final Exam	