

Applied Regression Analysis for Public Policy

SOPP 5304 – Fall 2020

School of Public Policy, Central European University

No. of credits: 2

Course e-learning site: [CEU Moodle](#)

Time and location: Thursday, 15:30 – 19:00, Green Lab

Instructor: Dr. Michael Dorsch, Associate Professor

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Teaching Assistant: Krisztina Szabo, PhD candidate

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Office hours: Tuesday 16:00 – 17:00, Okt6*7, 4th floor PhD lab

Course description

This class provides an intuitive and practical introduction to applied econometrics – the practice of analyzing quantitative data with statistical methods. The primary objective is to equip students with the quantitative techniques that are essential to “evidence-based policy-making” and necessary for post-graduate academic research in the quantitative social sciences (economics, peace science, political science, sociology, etc).

The course covers the fundamentals of regression analysis. We begin with a brief review of the necessary ingredients from probability and statistics. From day one, students will learn the basic functionality of the statistical software package STATA, starting with the generation of descriptive statistics and graphics. Coverage of the linear regression model and regression diagnostics constitutes the core of the course. Time permitting, non-linear regression models and other more advanced regression techniques will also be introduced.

Primary learning objectives

1. Interpret the output produced by the statistical software Stata when performing regression analysis of a data set.
2. Assess the validity of an econometric study/report.
3. Discuss econometric output within the context of analytical policy making/evaluation.
4. Acquire basic proficiency in the statistical software Stata.

Requirements and evaluation

Homework 1	November 7	10 %
Homework 2	November 14	10 %
Homework 3	November 21	10 %
Homework 4	November 28	10 %
Homework 5	December 5	10 %
Homework presentation	periodically	10 %
Final exercise	December 5	40 %

Grading scale

93	≤	A	≤	100
86	≤	A –	<	93
79	≤	B +	<	86
72	≤	B	<	79
65	≤	B –	<	72
58	≤	C +	<	65
0	≤	F	<	58

Online resources

[Seeing Theory: A visual introduction to probability and statistics](#)

[Moodle site](#) for the course

[Web site companion](#) to the textbook

[Getting Started in Data Analysis Using Stata 10](#) from Princeton University

The official [Introduction to R](#)

[Many tutorials on R](#), listed in the category “Contributed Documentation”

Primary textbook

Introduction to Econometrics – Global Edition, James Stock and Mark Watson, 2012 (on reserve at CEU library).

Additional sources

[An Adventure in Statistics: The Reality Enigma](#), Andy Field, 2016

A Gentle Introduction to Stata, Alan Acock, 2012 (on reserve at CEU library).

An Introduction to Stata Programming, Christopher Baum, 2009 (on reserve at CEU library).

An Introduction to Modern Econometrics Using Stata, Christopher Baum, 2006.

A Guide to Econometrics, 6E, Peter Kennedy, 2008 (on reserve at CEU library).

Essentials of Statistics for the Behavioral Sciences, Frederick Gravetter and Larry Wallnau, 2008 (on reserve at CEU library).

Jonathan Schwabish, [An economist’s guide to visualizing data](#),” *Journal of Economic Perspectives*, 28(1): 209 – 34 (2014).

Course outline (subject to change)

1. Introduction (week 7)

10/31 (1): Overview of econometrics and introduction to Stata

- S & W chapter 1

10/31 (2): Review of probability and statistics

- S & W chapters 2 and 3
- [Seeing Theory: A visual introduction to probability and statistics](#)

2. Linear regression model (weeks 8 – 9)**11/07 (1): Simple linear regression – estimation**

- Homework 1 due
- Homework presentations
- S & W chapter 4

11/07: (2) Simple linear regression – hypothesis testing

- S & W chapter 5

11/14 (1): Multiple linear regression – estimation

- Homework 2 due
- Homework presentations
- S & W chapter 6

11/14 (2): Multiple linear regression – hypothesis testing

- S & W chapter 7

3. Further topics in regression analysis (weeks 10 – 11)

11/21 (1): Non-linear regression – quadratic regression

- Homework 3 due
- Homework presentations
- S & W chapter 8

11/21 (2): Non-linear regression – logarithmic regression

- S & W chapter 8

11/28 (1): Non-linear regression – interaction terms

- Homework 4 due
- Homework presentations
- S & W chapter 8

11/28 (2): Limited dependent variables

- S & W chapter 10

4. Wrapping up (week 12)**12/05 (1): Assessing regression studies**

- Homework 5 due
- Homework presentations
- Professor research presentation

12/05 (2): In-class final exercise