



SPS Seminar 1st term 2017-2018

Introduction to Quantitative Methods

Instructor: Marta Fraile

Schedule: Mondays at 11:00-13:00, Seminar Room 2, Badia Fiesolana

No registration required (compulsory for all first-year researchers)

Contact: Jennifer.Dari@eui.eu

Introduction and Aim

This seminar introduces the basic concepts of data analysis, increasingly used in the social sciences. The emphasis is on the practical application of quantitative reasoning, visualization, and data analysis. The goal is to provide students pragmatic tools for assessing statistical claims and/or conducting their own basic statistical analyses. Topics covered include basic descriptive measures, measures of association, and specially linear regression. A correct understanding of its proper functioning and limitations is an essential precondition for venturing into more advanced techniques. Depending on the rhythm of the course, we will also include further extensions of regression analysis (such as binomial logit estimation)

Once the course will be finished, you might be able to know: (i) how quantitative models work; (ii) what assumptions we need to make to use them appropriately, and (iii) what they might be good for. You can only learn statistics by doing them. In recognition of this fact, the reading for this course will be minimal, and the written work will be extensive. The only way to succeed in this course is to practice; the assignments give you the opportunity to do this. Assignments are based on real-world data and problems in social sciences, including political science and sociology.

An important part of working with quantitative research methods involves the use of statistical software. Class examples will be done using STATA (www.stata.com)

Basic readings

Berk, R. (2004). *Regression Analysis: A Constructive Critique*. Thousand Oaks, CA: Sage Publications.
Bohrnstedt, G.W. & Knoke, D. (1994). *Statistics for social data*, Peacock Publishers.
Firebaugh, G. (2008). *Seven Rules for Social Research*, Princeton, NJ: Princeton University Press.
Kellstedt, P. & Whitten, G. (2009). *The Fundamentals of Political Science Research*. Cambridge UP.
Treiman, D. (2009). *Quantitative Data Analysis. Doing Research to Test Ideas*, Jossey Bass.

The EUI library has a number of copies of these books on the seminar shelf.

Organization

You should bring your laptop to the seminar because part of the teaching will consists of interactive examples using STATA in the class. The most important part of the seminar is not attending the two-hour sessions, but making the exercises that are assigned each week. A special dropbox folder will be created where you will find the weekly exercises and the materials used in class. The teacher assistants for this seminar are Ilze Plavgo and Marco Cozzani, both SPS researchers. They will also have office hours to provide assistance with STATA and with the making of the exercises (time and place tbc).

From the seven session (depending on the functioning of the previous sessions), the class will be divided in two groups. A first group (group A, “advanced”) will go through the contents of the full program. A second group (group B, “beginners”) will deepen basic knowledge with the TAs by focusing on additional practical exercises on data management, multiple regression, and statistical inference in OLS regression (see the schedule below, tbc).

Credits

Complying with the attendance requirements and making all exercises is the condition for being awarded the seminar credits. These exercises have to be posted in a dedicated folder of the seminar Drop-box 24 hours before each session (thus on Sunday 11:00 am). You can team in groups of two for making the exercises. The last exercise consists of a small paper (4/5 pages plus tables) where you should carry out a multivariate analysis and interpret the results, using the skills you have learned through-out the seminar. For this final exercise participants are encouraged to use their own data (not necessarily the data one will use in his/her thesis). Researchers without applicable data have to contact us and the TAs in order to find proper data for this exercise.

If you want to write a term paper for this seminar/workshop, please send a copy by email to Marta Fraile (Marta.fraile@eui.eu) as well as to the organizing administrative assistant (Jennifer.Dari@EUI.eu) by January 15th. More details on seminar practicalities, deadlines and the final assignment will be given during the first introductory class. This course is obligatory for all SPS first year researchers.

All sessions will take place in Seminar Room 2 from 11.00 to 13.00 (except for the first one, which will be in Sala del Capitolo). When the group will be divided, we will announce the additional room.

Approximate Schedule (specific readings-chapter of manuals-will be distributed each week in advance through the EUI Learning Platform)

Session 1: Monday 2 October **Sala del Capitolo** 11:00-13:00

Introduction and overview of seminar
Descriptive Statistics and types of variables
Making comparisons: a first overview

*Read this article as an example of empirical social research using quantitative evidence:
Lupu & Peisakhin, (2017). The legacy of political violence across generations. *AJPS*. DOI: 10.1111/ajps.12327

Session 2: Monday 9 October Seminar room 2 11:00-13:00

Making controlled comparison
Process of elaboration: spurious, intervening and conditional relationships

Session 3: Monday 16 October Seminar room 2 11:00-13:00

Bivariate regression and correlation
The logic of OLS estimation
The interpretation of the b coefficient

Session 4: Monday 23 October Seminar room 2 11:00-13:00

Further discussion of the OLS regression

Session 5: Monday 30 October Seminar room 2 11:00-13:00

Statistical Inference.
The use of statistical tests in applied research

Session 6: Monday 6 November Seminar room 2 11:00-13:00

Multivariate regression in practice: estimation, assumptions, restrictions

Session 7: Monday 13 November Seminar room 2 11:00-13:00
Regression Diagnostics

GROUP A

Session 8: Monday 20 November Seminar room 2 11:00-13:00
More on model specification in OLS: interaction terms (meaning, estimation and interpretation)

Session 9: Monday 27 November Seminar room 2 11:00-13:00
Introduction to categorical dependent variables: linear probability model vs the logit model

Session 10: Monday 4 December Seminar room 2 11:00-13:00
Further developments of categorical dependent variable models: ordinal and multinomial logit

GROUP B

Session 8: Monday 20 November. Sala del Capitolo 11:00-13:00
Additional examples on the topic addressed in the course: data management

Session 9: Monday 27 November. Sala del Capitolo 11:00-13:00
Additional examples on the topic addressed in the course: hypothesis testing

Session 10: Monday 4 December. Seminar room 4 11:00-13:00
Additional examples on the topic addressed in the course: multiple regression