ECPR Winter School

6-11 February 2023

Course Outline

**Course Title: Introduction to Conjoint Experiments**

**Instructor name: Alberto Stefanelli**

**Instructor bio:** Alberto Stefanelli is an FWO PhD Fellow at the Institute for Social and Political Opinion Research at KU Leuven and a Visiting Researcher at the Department of Political Science at Yale University and at the Department of Sociology at New York University. His research interests include radicalism, voting behaviour, democratic erosion, and political methodology.

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**Prerequisite Knowledge and Commitment Time:**

The course assumes intermediate familiarity with the basis of experimental design, survey experiments and regression analysis.

The empirical analysis will be implemented using R. While example datasets and full syntax codes will be provided, intermediate knowledge of R is expected.

You should know how to:

1. read datasets in R

2. work with data frames

3. perform basic data manipulation

4. run basic statistical analyses such as linear or logistic regression.

More advanced knowledge of statistical computing, such as writing functions and loops, is helpful but not essential.

Make sure that your R and Python environments work and that you can run a script before coming to class since we will have no time to resolve technical issues. If you have already collected data, bring it along. If not, you’ll get a toy dataset to play with. Be sure to have installed in R the cjoint and cregg packages together with any other package that you use for data management/cleaning/visualization (e.g. dplyr, ggplot, etc).

**Classroom time preference:** 13:00 – 15:30

**Short Outline:**

Estimating causal effects is a central aim of quantitative empirical analysis in social sciences. Recently, Conjoint Analysis and Choice-Based Conjoint Experiments have gained interest among social scientists to understand and predict people's preferences in a multi-dimensional and multi-choice environment. This course offers an applied introduction to Choice-Based Conjoint, along with hands-on experience in lab sessions.

**Purpose of the Course:**

1. Have a basic understanding of the structure, logical underpinnings, basic notions, and analytical goals of conjoint analysis.

2. Identify areas of application where conjoint analysis could be successfully implemented.

3. Critically evaluate conjoint experiment applications and understand the advantages/disadvantages compared to more traditional methods.

4. Implement your own conjoint experiment into an (online) survey platform.

5. Understand and be able to apply different techniques to analyse conjoint experiments.

6. Be able to easily visualise the result of a conjoint experiment.

7. Be prepared for more advanced conjoint (and factorial experiments) courses or workshops.

**Long Outline: Key topics covered**

**The course is structured around seven key topics:**

1. I present the general idea of conjoint experiments. I introduce the logic underlining conjoint experiments, their development, and the reasons behind their recent popularity in the social and behavioral sciences.
2. I briefly introduce the potential outcome framework at the base of modern causal analysis. In particular, I give an overview of the fundamental problem of causal inference (Holland, 1986) and discuss it within the framework of conjoint analysis.
3. I present different ways to measure individual preferences in a conjoint experiment. The focus will be on Choice-Based Conjoint measurement but we will briefly discuss other measurements (e.g. Rating, Ranking, Combined, and Adaptive).
4. I give an overview of different types of conjoint design, their use, and their limitations. I present and explain the various elements of a conjoint design (alternatives, choice sets, and context) paying particular attention to the design of conjoint alternatives.
5. I focus on the construction of a conjoint experiment. Using a JavaScript/Python program and R, I show how to design simple choice-based design. I also cover more advanced designs with attributes/levels constraints and randomisation.
6. I show a simple workflow to deploy a conjoint design using Qualtrics.
7. I give an overview of different methods to analyse a conjoint experiment. Specifically, I focus on AMCEs, marginal mean and omnibus F-test. We will briefly discuss subgroup differences and visualisation.
8. I will cover more recent advances in conjoint analysis including power analysis and the usage of mixture modelling to discover treatment heterogeneity.

**How the course will work**

*The course is a mix of in-person interactive lectures and hands-on in-class. Each class ends with a practical exercise that we start solving in class and should be completed before the beginning of the next session. Solutions will be provided and discussed in-class in an interactive way to facilitate learning, problem solving, and exchange of ideas. We will have p*resentations with Q&A sessions and small-group work.