Qualitative Comparative Analysis (QCA)
Outline for the ICPSR Summer Program 2020, June 1-3

QCA can be used to answer any research question if one is interested in analyzing patterns of necessity and sufficiency in a group of cases ranging from a handful to many thousands. The method is now widely used in different disciplines including political science, sociology, public administration, public health, medical research, organization and management research. The course introduces participants to the principles and techniques of Qualitative Comparative Analysis (QCA) on a methodological and an applied dimension using RStudio. At the end of the course, participants will be familiar with the key elements of a QCA study and know how to read, criticize and implement an empirical analysis.

Prerequisites
Basic knowledge of QCA and set-theoretic thinking is useful, but not necessary for taking the course. We will use RStudio that is freely available (see below). It is recommended that participants be familiar with RStudio and basic commands. Participants who want to acquire R programming skills or need to refresh them can take an introductory R course at the ICPSR Summer Program or access an online tutorial in advance of the course. Before the course starts, I will share basic information on online tutorials and the entire R code I will use for illustrating QCA.

Setup of the course
The course will have two components. First, there will be recordings of fundamentals and general principles of QCA. The recordings will be available before the course starts. Second, there will be interactive live sessions with exercises on the elements addressed in the recordings plus hands-on coding illustrations and exercises. We will take a sufficient number of smaller breaks during the live sessions.
The hours in the course plan below refer to U.S. Eastern Time. I will be available for questions and chats outside of the course time. (The restriction is that I will be in the Central European Summer Time zone.)

Introductory readings
Participants who want to get a better idea about the basics of set theory, QCA and running it in RStudio may consult the following readings.


• Using the *QCA* package in R: Dusa, Adrian (2018): *QCA with R*. Springer. [NO need to buy this expensive book specifically for this course.]

**Day-by-day schedule**

**Day 1**

9.00-12.30: Set types, set relations and getting started with QCA in R


• Lab session: Firing up RStudio and loading data

14.00-17.00: Calibration and necessity


• Lab session: Calibration of conditions and understanding consequences of different calibration decisions; analysis of necessity

**Day 2**

9.00-12.30: Construction of the truth table


• Lab session: Creating truth tables and understanding consequences of different design decisions (frequency threshold, consistency threshold, remainder handling)

14.00-17.00: Construction of the truth table & minimization
Day 3

9.00-12.30: Minimization & producing the solution

- Lab session: Producing different solution types with Quine-McCluskey algorithm and understanding the differences and commonalities between them

14.00-17.00: Parameters of fit, interpreting the solution and what makes a good QCA study

- Lab session: How consistency and coverage depend on distribution of cases