Fuzzy set Qualitative Comparative Analysis (fsQCA) – 7.5 ECTS

Coordinator and lecturer

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Practical requirements

Students should bring a laptop. The course will include instruction in the use of the software package fsQCA (freely available for both Windows and Mac).
http://www.socsci.uci.edu/~cragin/fsQCA/software.shtml

Course description

Qualitative Comparative Analysis (QCA) is a research approach consisting of both an analytical technique and a conceptual perspective for researchers to understand complex social phenomena. Fuzzy set QCA is a variant of this research approach that also deals with uncertain elements (i.e. fuzzy sets); an approach which has been increasing its popularity in Social- and Political Science, Organizations Research, and Management.

The main benefits of fsQCA as an analytical technique is that it enables creating a deeper understanding of the studied phenomena's complexity by helping researchers to identify necessary conditions and sufficient configurations of conditions that produce specific outcomes. Hence, fsQCA can help researchers in identifying important mechanisms and understanding causally complex relationships. FsQCA is a type of a mixed method and can be applied on both quantitative and qualitative data.

Learning objectives

This course is aimed at helping students to understand and apply fsQCA as an analytical technique. The course consists of interactive workshops, seminars and readings to facilitate the students learning. After a completed course, the student should have sufficient knowledge on how to independently apply fsQCA as method for data analysis in their research.

After a completed course, the student should be able to:

- Demonstrate understanding of the underlining principles of fsQCA
- Apply data analytical procedures using the fsQCA software package
- Reflect on the methodological limitations and trustworthiness of fsQCA's application

Examination

The learning objectives are examined through individual written assignments, oral presentations and active participation in discussions.

Grades

One of the grades Pass (G) or Fail (U) is awarded in the examination of the course.

Alexandre Sukhov, PhD in Business Administration

Course content

The course consists of five modules. We will work in an interactive seminar/workshop format that will include short lectures within each module. Following is an outline of each of the modules.

   1. **Background to QCA (9.00-12.00) date: 6 May 2022**

In the first meeting, we will discuss the background of QCA, its underlying assumptions and principles, as well as its usage as a research method. We will also talk about different variants of QCA, namely crisp set QCA (csQCA) and fuzzy set QCA (fsQCA).

The purpose of this meeting is to familiarize the student with the positioning of fsQCA in relation to other methodological approaches, and clarify its main contributions as a research method. The focus of this meeting will be on helping the students to motivate the usage of the method in their research projects.

Before the meeting, all students are required to read a number of selected articles and book chapters (see below).

- Fiss, P. C. (2007). A set-theoretic approach to organizational configurations. *Academy of management review*, *32*(4), 1180-1198.

- Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of management journal*, *54*(2), 393-420.

- Woodside, A. G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. *Journal of Business Research*, *66*(4), 463-472.

Some students will be assigned to present specific articles (see below), which will set the stage for a group discussion.

- Jacobs, S., & Cambré, B. (2020). Designers' road (s) to success: Balancing exploration and exploitation. *Journal of Business Research*, *115*, 241-249.

- Sukhov, A., Sihvonen, A., Netz, J., Magnusson, P., & Olsson, L. E. (2021). How experts screen ideas: The complex interplay of intuition, analysis and sensemaking. *Journal of Product Innovation Management*, *38*(2), 248-270.

The first meeting will occur according to the following structure:

During the first hour (9.00-10.00), selected students will make 10 min presentations on two research articles, the presenters should mainly focus on:

   1. What is the article about?
   2. How is the fsQCA method motivated (type of research questions/aim)?
   3. What is the underlying logic of the research method?

After the presentations, we will compare the articles and discuss the similarities/differences of the fsQCA application. This will be followed by a short break.

During the second hour (10.00-11.00), there will be a short lecture on QCA. The lecture will be orientated on:

1. What is Qualitative Comparative Analysis?
2. What is a case?
3. What was QCA designed to do?
4. What are the fundamental assumptions of the method (i.e. causal complexity)
5. What does it mean to have a set theoretic perspective on data?
6. What do we mean by crisp sets and fuzzy sets?

After the lecture, there will be a short break.

During the third hour (11.00-12.00), there will be a Q&A and room for discussion to help students orientate and adapt their research questions/aim to the QCA methodology.

2. Calibration of data (9.00-12.00) date: TBA

In the second meeting, we will discuss the operational side of applying QCA. Specifically, we will talk about defining key conditions and outcomes, translating quantitative or qualitative data into sets, and defining set membership scores.

The purpose of this meeting is to familiarize the student with the process of applying QCA in research and help to prepare data for the coming analysis. The focus of this meeting will be on helping the student avoid common errors and having a clearer understanding of the concrete steps in fsQCA.

Before the meeting, all students are required to read a number of selected articles and book chapters (see below).

- Greckhamer, T., Furnari, S., Fiss, P. C., & Aguilera, R. V. (2018). Studying configurations with qualitative comparative analysis: Best practices in strategy and organization research. *Strategic Organization*, *16*(4), 482-495.

- Ragin, C. C. (2008). Redesigning social inquiry: fuzzy sets and beyond. Chicago, IL: University of Chicago Press. (Chapters: 1-2)

- Rubinson, C., Gerrits, L., Rutten, R., & Greckhamer, T. (2019). Avoiding common errors in QCA: a short guide for new practitioners. *Sociology*, *9*, 397-418.

- Sukhov, A., Lättman, K., Olsson, L. E., Friman, M., & Fujii, S. (2021). Assessing travel satisfaction in public transport: A configurational approach. *Transportation Research Part D: Transport and Environment*, *93*, 102732.

During the first hour (9.00-10.00), selected students will make 10 min presentations on two research articles (articles of choice that apply QCA). The presenters should mainly focus on:

1. What is the article about?
2. What type of sample data is used and for what purposes?
3. How did the authors motivate their calibration choices?

After the presentations, we will compare the articles and discuss the similarities/differences of the calibration procedures. This will be followed by a short break.

During the second hour (10.00-11.00), there will be a short lecture on calibration. The lecture will be orientated on:

1. Measurements in quantitative and qualitative research
2. Calibration into crisp and fuzzy sets
3. Thresholds and the cross-over point
4. Direct and indirect method of calibration

This will be followed by a short break.

During the third hour (11.00-12.00), there will be time for discussion and exercise to help students calibrate their data in terms of set-membership scores.

3. **Necessity analysis (9.00-12.00) date: TBA**

In the third meeting, we will focus on understanding the necessity analysis function of fsQCA.

The purpose of this meeting is to familiarize the student with the logic and procedures of a simple necessity analysis in the fsQCA 3.0 software. The focus of this meeting will be on helping the student to understand and perform necessity analysis.

Before the meeting, all students are required to read a number of selected articles and book chapters (see below).

- Ragin, C. C. (2006). Set relations in social research: Evaluating their consistency and coverage. *Political analysis*, *14*(3), 291-310.

- Ragin, C. C. (2008). Redesigning social inquiry: fuzzy sets and beyond. Chicago, IL: University of Chicago Press. (Chapters: 3-5)

During the first hour (9.00-10.00), selected students will make 10 min presentations on two research articles (articles of choice that apply necessity analysis). The presenters should mainly focus on:

1. What is the article about?
2. How are necessary conditions hypothesized in the article?
3. What are the implications of identifying necessary conditions?

After the presentations, we will compare the articles and discuss the similarities/differences of the necessity analysis. This will be followed by a short break.

During the second hour (10.00-11.00), there will be a short lecture on necessary conditions. The lecture will be orientated on:

1. What is a necessary condition?
2. What is the role of consistency and coverage in necessity analysis?
3. How do we measure necessity?
4. How do we perform necessity analysis in fsQCA 3.0?
5. How do we interpret the results?

This will be followed by a short break.

<u>During the third hour</u> (11.00-12.00), there will be time for discussion and exercise to help students perform necessity analysis using their calibrated datasets.

4. Sufficiency analysis (9.00-12.00) date: TBA

In the fourth meeting, we will focus on understanding the sufficiency analysis in fsQCA by using the truth table algorithm.

The purpose of this meeting is to familiarize the student with the logic and procedures of the truth table operations in the fsQCA 3.0 software. The focus of this meeting will be on helping the student to understand and perform analysis in order to identify sufficient configurations of conditions for a specific outcome.

Before the meeting, all students are required to read a number of selected articles and book chapters (see below).

- Pappas, I. O., & Woodside, A. G. (2021). Fuzzy-set Qualitative Comparative Analysis (fsQCA): Guidelines for research practice in Information Systems and marketing. *International Journal of Information Management*, *58*, 102310.

- Ragin, C. C. (2014). *The comparative method*. University of California Press. (Chapters: 6-8)

<u>During the first hour</u> (9.00-10.00), selected students will make 10 min presentations on two research articles (articles of choice that apply truth table/sufficiency analysis). The presenters should mainly focus on:

1. What is the article about?
2. How is the truth table (sufficiency) analysis performed?
3. How are configurations of conditions interpreted and what conclusions are drawn?

After the presentations, we will compare the articles and discuss the similarities/differences of the calibration procedures. This will be followed by a short break.

<u>During the second hour</u> (10.00-11.00), there will be a short lecture on the sufficiency analysis. The lecture will be orientated on:

1. What does it mean to have sufficient configurations of conditions for an outcome?
2. What is the role of consistency and coverage in a sufficiency analysis?
3. How does Boolean minimization work?
4. What are the consistency and frequency thresholds to consider?
5. How do we perform truth table analysis in fsQCA 3.0?
6. How do we interpret complex, parsimonious and intermediate solutions?

This will be followed by a short break.

<u>During the third hour</u> (11.00-12.00), there will be time for discussion and exercise to help students perform truth table analysis using their calibrated datasets.

5. Presentation of research findings (9.00-12.00) date: TBA

In the fifth and final meeting, we will focus on interpreting fsQCA results and presenting research findings.

The purpose of this meeting is to reflect on the methodological applicability and limitations of fsQCA. The focus of this meeting will be on helping the students to consolidate and present their findings.

Before the meeting, all students are required to read a number of selected articles and book chapters (see below), and prepare their final presentations.

- Rubinson, C. (2019). Presenting qualitative comparative analysis: Notation, tabular layout, and visualization. *Methodological Innovations*, *12*(2), 2059799119862110.

During the whole session (9.00-12.00), students will make 10 min presentations of their own work. Each presenter will have another student as an opponent providing feedback. The presented projects will be subjects for group discussion.

The presenters should focus on:

1. What is your research about?
2. What is the outcome that you are trying to explain and what are the main conditions that you focus on?
3. What evidence are you going to collect and analyze?
4. What are your cases? How do you calibrate your data?
5. What analysis will you use and how will it help you to answer your research question(s)?
6. What are your findings?

After the presentations, the students that wish to receive credits for the course will be required to send in a written assignment (see instructions in a separate document).