

BSSn4495: Qualitative research in security studies

The logic of
process tracing

April 6, 2021

Miriam Matejova, PhD



LOGIC LANE



Agenda

- What are the advantages/ disadvantages of QCA?
- Process-tracing: logic and advantages

When do we use QCA?

- Causal complexity
 - *Multifinality*: same factor, different outcomes
 - *Equifinality*: different factors, same outcome
 - *Asymmetric causality*:
 - presence and absence of outcome have different explanations
 - economic growth → democratization
 - clientelism → non-democratization
 - Presence and absence of condition produce different outcomes
- Mid-sized N

What are sets?

- Establish qualitative, not quantitative, differences between cases
 - height \leftarrow not a set
 - tall person \leftarrow set

Types of sets: crisp set

- Dichotomous sets
- Full member (1) vs. full non-member (0)
 - Establishes qualitative, not quantitative, differences between cases
 - E.g., set of big countries
 - China, Russia (1) vs. Hungary, Lichtenstein (0)

Types of sets: fuzzy sets

- Allow for degree of membership in set
- Partial membership in sets
 - Any value between 0 and 1
 - Generally three qualitative anchors (0, 0.5, 1)
 - Qualitative and quantitative differences
- NOT probabilities

CRISP VERSUS FUZZY SETS

Crisp set	Three-value fuzzy set	Four-value fuzzy set	Six-value fuzzy set	"Continuous" fuzzy set
1 = fully in	1 = fully in	1 = fully in	1 = fully in	1 = fully in
	.5 = neither fully in nor fully out	.75 = more in than out	.8 = mostly but not fully in .6 = more or less in	Degree of membership is more "in" than "out": $.5 < x_i < 1$
		.25 = more out than in	.4 = more or less out .2 = mostly but not fully out	Degree of membership is more "out" than "in": $0 < x_i < .5$
0 = fully out	0 = fully out	0 = fully out	0 = fully out	0 = fully out

QCA challenges

- Location of qualitative anchors
- Sometimes false impression of precision
- Resources, time, data availability

Moving beyond correlation: process tracing

- **Process Tracing** is a method for assessing whether **C** is a cause of **E** that *moves beyond the logic of covariation*.
- Instead, it is based on **looking for clues** within a single case to determine whether the facts are consistent with the process through which C causes E

C → **S1** → **S2** → **S3** → **S4** → **E**

How to process trace?

Examining a single instance in which the outcome did or did not occur and trying to explain why.

1. We wonder: Does C cause E?
2. We see that E is present and that C is present in a case.
 - But this doesn't tell us that C *caused* E in that case. How could we figure that out?
3. Think about the causal logic through which C *would* have caused E *if* C did cause E.
4. Now investigate the case to see whether that causal logic in fact unfolded within the case.

What causes civil war?

- Ethnic tensions?
- Poverty?
- Natural resources (diamonds, oil)?
- Weak state?

The problem: Often all 3 are present → correlations won't tell you which one is the cause.

What caused DRC civil war?

- Precious natural resources?

Causal logic(s):

Presence of natural resources → rising tensions over disposition of profits and grievances against those who control the resources → motivates uprising by dispossessed groups who seek to take the resources → occurrence of civil war

Presence of natural resources → increased frequency of rebel groups taking over or looting resources to finance and arm themselves → stronger rebel groups → decreased ability of state to quickly crush them → occurrence of civil war

What caused DRC civil war?

- Precious natural resources?

Causal logic(s):

Presence of natural resources → rising tensions over disposition of profits and **grievances against those who control the resources** → motivates uprising by dispossessed groups who seek to take the resources → occurrence of civil war

Presence of natural resources → increased frequency of rebel groups taking over or looting resources to finance and arm themselves → stronger rebel groups → decreased ability of state to quickly crush them → occurrence of civil war

What caused DRC civil war?

- Precious natural resources?

Causal logic(s):

Presence of natural resources → rising tensions over disposition of profits and rising grievances against those who control the resources → motivates **uprising by dispossessed groups who seek to take the resources** → occurrence of civil war

Presence of natural resources → increased frequency of rebel groups taking over or looting resources to finance and arm themselves → stronger rebel groups → decreased ability of state to quickly crush them → occurrence of civil war

What caused DRC civil war?

- Precious natural resources?

Causal logic(s):

Presence of natural resources → rising tensions over disposition of profits and rising grievances against those who control the resources → motivates uprising by dispossessed groups who seek to take the resources → occurrence of civil war

Presence of natural resources → increased frequency of **rebel groups taking over** or looting resources to finance and arm themselves → stronger rebel groups → decreased ability of state to quickly crush them → occurrence of civil war

What caused DRC civil war?

- Precious natural resources?

Causal logic(s):

Presence of natural resources → rising tensions over disposition of profits and rising grievances against those who control the resources → motivates uprising by dispossessed groups who seek to take the resources → occurrence of civil war

Presence of natural resources → increased frequency of rebel groups taking over or looting resources **to finance and arm themselves** → stronger rebel groups → decreased ability of state to quickly crush them → occurrence of civil war

What caused DRC civil war?

- Ethnic tensions?

Causal logic(s):

Historical ethnic hatreds → desire by each group to dominate or extinguish the other → increase in violence by each side designed to dominate/extinguish other group → spirals into all-out war

What caused DRC civil war?

- Ethnic tensions?

Causal logic(s):

Historical ethnic hatreds → desire by each group to dominate or extinguish the other → increase in violence by each side designed to dominate/extinguish other group → spirals into all-out war

Process tracing tests

Hoop test

- A test that a hypothesis *has* to pass for us to believe it (a “hoop” the theory has to jump through)
 - If hoop test failed: the hypothesis is greatly weakened
 - If hoop test passed: the hypothesis survives, but doesn’t mean it’s true

Smoking gun test

- A test that can point strongly to the correctness of a hypothesis
 - If smoking gun test failed: the hypothesis survives
 - If smoking gun test passed: the hypothesis is very likely true

What happens when tests are passed or failed?

Asymmetric outcomes

	H fails	H passes
Hoop test	H <u>greatly</u> weakened	H slightly strengthened
Smoking gun test	H slightly weakened	H <u>greatly</u> strengthened

Process tracing tests (cont.)

- **Straw in the wind test**
 - Passing = hypothesis is relevant but not confirmed
 - Failing = hypothesis is not eliminated but slightly weakened
- **Doubly decisive test**
 - Passing = hypothesis is confirmed and others are eliminated
 - Failing = hypothesis is eliminated

Why didn't Obama break up the big banks?

- A. Because he didn't want to alienate rich Wall Street donors
- B. Because Republican opposition made it impossible

What clues could we look for?

1. Did Obama get a lot of campaign money from Wall Street?

Hoop test for A

If no, A is probably wrong

If yes, A survives (but still could be wrong)

Why didn't Obama break up the big banks?

- A. Because he didn't want to alienate rich Wall Street donors
- B. Because Republican opposition made it impossible

What clues could we look for?

2. Were Republicans against breaking up the banks?

Hoop test for B

If no, B is probably wrong

If yes, B survives (but still could be wrong)

Why didn't Obama break up the big banks?

- A. Because he didn't want to alienate rich Wall Street donors
- B. Because Republican opposition made it impossible

What clues could we look for?

3. Did the White House propose breakup and lobby the Senate Finance committee to get it to happen?

Smoking gun test for B

If no, B could still be right (maybe he didn't bother proposing because he knew it wouldn't pass)

If yes, B is very likely right (hard to explain without B)

Why didn't Obama break up the big banks?

- A. Because he didn't want to alienate rich Wall Street donors
- B. Because Republican opposition made it impossible

What clues could we look for?

4. Did the White House decide against proposing a breakup shortly after meeting with Wall Street donors?

Smoking gun test for A

If no, A could still be right.

If yes, A is very likely right (hard to explain without A).

Process tracing: advantages

- Yields in-depth knowledge of context
- Opportunity for discovery
 - Immersion in a case often suggests causal claims we hadn't thought of before
 - Not just *testing* theories, but *developing* new theories
- Avoids troubles with correlation
 - Studying causal processes → less chance to be fooled by spuriousness, reverse causation, randomness