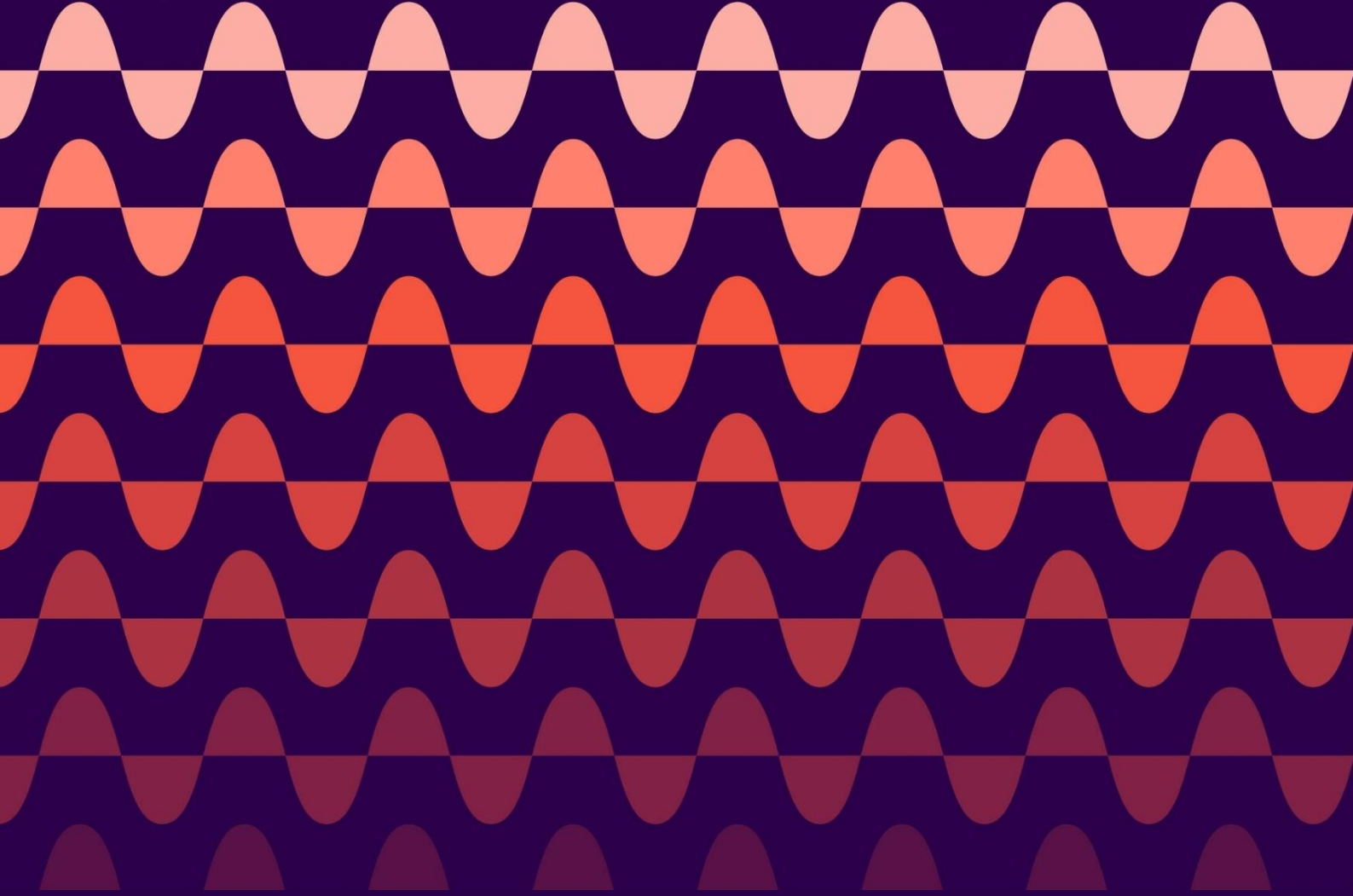

MIGNEX

MIGNEX Handbook Chapter 13

Research Area Truth Tables

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MIGNEX

MIGNEX (Aligning Migration Management and the Migration-Development Nexus) is a five-year research project (2018–2023) with the core ambition of creating new knowledge on migration, development and policy. It is carried out by a consortium of nine partners in Europe, Africa and Asia: the Peace Research Institute Oslo (coordinator), Danube University Krems, University of Ghana, Koç University, Lahore University of Management Sciences, Maastricht University, ODI, the University of Oxford and Samuel Hall.

See www.mignex.org.

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The MIGNEX Handbook

The MIGNEX Handbook grows chapter by chapter over the lifetime of the project. It is primarily as a tool for internal information-sharing and quality assurance. The text refers to 'we' as the team members and 'you' as an individual team member reader. The handbook is public in order to ensure transparency and facilitate knowledge exchange also on issues such as project management, methodology and communication.

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MIGNEX Handbook Chapter

13. Research Area Truth Tables

Analyses within MIGNEX draw upon multiple data sources. Some data sources are combined by means of Qualitative Comparative Analysis (QCA). This chapter follows up on MIGNEX Handbook Chapter 6 and uses the data to lay out the synthesis and calibration procedure for generating Research Area Truth Tables.

QCA allows for combining multiple types of data in systematic analyses of patterns of similarities and differences between research areas.

Raw data are grouped into 24 condition and outcome categories, followed by a re-coding and 'fuzzifying' procedure. The resulting matrices are known as truth tables.

Selection and combination of individual data instruments into broader concepts of conditions and outcomes is driven by theory and research questions.

13.1 Introduction

This MIGNEX Handbook Chapter follows up on the description of the overall research design for the Qualitative Comparative Analysis (QCA) as outlined in MIGNEX Handbook Chapter 6 and the MIGNEX Background paper *Qualitative Comparative Analysis for migration and development research* (Czaika and Godin 2019).

Based on the overarching research questions of the MIGNEX project, we outline in a step-by-step approach the procedure in generating alternative Research Area Truth Tables that address specific research questions on (I) the necessary and sufficient conditions for various migration-related outcomes, and (II) the necessary and sufficient conditions for various migration-induced development outcomes. These two sets of analyses share the groundwork of data collection and calibration steps but are distinct in the model specification and the design of the actual truth tables. To avoid repetitions, we focus in the following on the calibration of MIGNEX raw data and the specification of truth tables with a migration-related outcome but, where appropriate, indicate also procedural steps that are distinct for model specification with a development-related outcome.

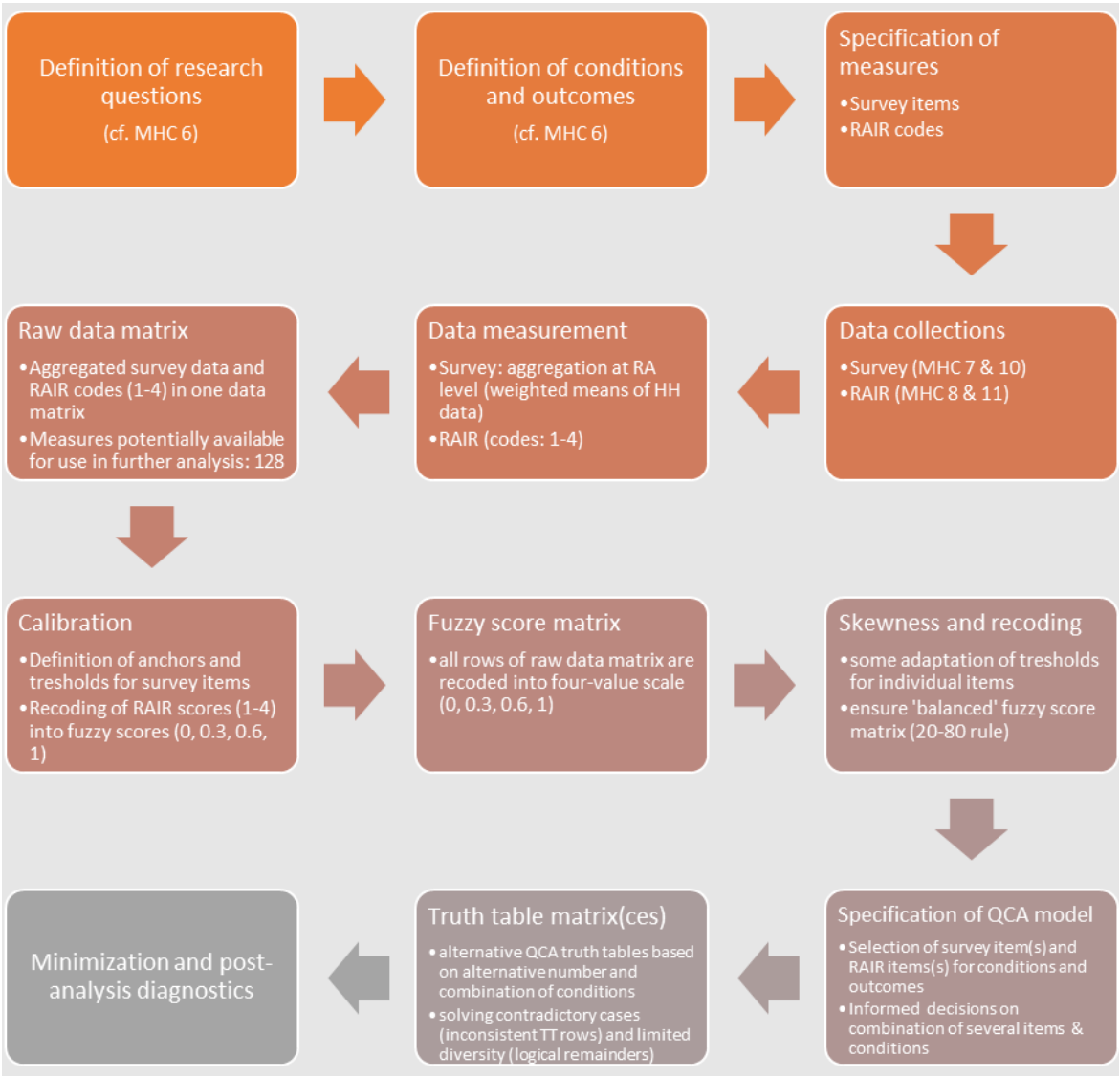


Figure 1 The QCA research process in MIGNEX

This Handbook Chapter is structured according to the steps that we have taken in the QCA research process (see Figure 1 The QCA research process in MIGNEX). As with any QCA analysis, the definition of the research questions and the conceptualisation of relevant conditions and outcomes are at the beginning of this process. These two initial and crucial steps have been presented and discussed in detail in MIGNEX Handbook Chapter 6. The subsequent steps in specifying relevant measures for operationalising conditions and outcomes of a series of QCA models that will be addressing MIGNEX research questions has been detailed in MIGNEX handbook chapter 7 (for the MIGNEX survey) and 8 (for qualitative methods). The quantitative and qualitative data collections across 26 research areas in ten different African and Asian countries have been implemented between February 2020 and February 2022 and is documented in detail in MIGNEX handbook chapter 10 (MHC10: Documentation of survey data) and 11 (MHC11: Documentation of qualitative data).

Building on an impressive amount of data collected in the 26 research areas, this MIGNEX Handbook chapter will focus on data processing and calibration. These steps entail theoretically and methodologically informed decisions on conveying the steps of building the raw data matrix, the calibration procedure itself and the specification and operationalisation of the different QCA models. The final product of these steps are truth tables, which represent

the central tool for the QCA analysis. The analysis and minimization procedures including post-analysis diagnostics of necessary and sufficient solutions of various QCA models will be part of subsequent MIGNEX Background Papers.

13.2 Research questions, conditions, and measures

13.2.1 Research questions

As outlined in MIGNEX Handbook Chapter 6, all QCA analyses of the MIGNEX project address aspects of the following two overarching research questions:

1. What are the necessary and/or sufficient (combinations of) conditions that explain the variation in migration aspirations and outcomes among young adults across 26 areas of origin?
2. Under what circumstances does migration (in combination with other conditions) lead to specific development outcomes across 26 areas of origin?

These two questions capture some fundamental elements of the so-called migration-development nexus. The questions specify the research field and the geographical scope (the 26 research areas as cases) of the analyses. The questions further reveal the main methodological, set-theoretic approach ('conditions' and 'outcomes', respectively) and the hypothesized causal (sufficient and necessary) links between conditions and outcomes.

These overarching research questions can be further specified in into several sub-questions which will be then addressed by separate QCA models and analyses. Of the tentatively 12 research questions that have been outlined in MIGNEX Handbook Chapter 6, we focus in this handbook chapter on only one specific research question ('What combination of conditions explains variation in migration aspirations across 26 areas of origin?') when we describe the design of the QCA model and the respective Research Area Truth table in section 13.8. Other research questions (such as those mentioned in MIGNEX handbook chapter 6) require alternative QCA model specifications and therefore modified truth tables. The procedural steps for preparing the fuzzy score matrix is however the same for any subsequent specification of a QCA model.

13.2.2 Definition and specification of cases

The definition and selection of cases is an important step in the QCA research process as it has significant implications on the variation in outcomes and conditions in the sample of cases. This again influences the analytical results and the findings of QCA solutions and what MIGNEX will finally be able to say about the migration-development nexus as outlined by the above research questions for the 26 research areas in ten countries. External validity depends on the selection of cases ('sampling strategy') and the extent to which the set (or, sample) of cases is representative for other cases not included in the analysis. For detailed description of research area selection, we refer to MIGNEX Handbook Chapter 6.

In brief, in a MIGNEX QCA analysis, a research area is the unit of analysis, or, in QCA terms, a case. A research area is a geographical area, for instance (a) a geographically distinct rural area, such as a valley; (b) a town and its surrounding villages, if they are interdependent; (c) a section of a big city that has a clear identity and extensive interaction within its boundaries. That is, the population or society within a selected research area is, as far as possible, a

functional social unit. This is important since all QCA analyses will refer to research areas as the central analytical unit.

The 26 cases (=research areas), selected in 19 African and Asian countries, fulfil the following criteria:

- A research area has typically a population between 10,000 and 100,000. Within this range, the size of the area is primarily determined by other criteria such as population density, security considerations and infrastructure: population density should not be too low (cost-inefficient data collection), security situation must be acceptable (risks for project staff, subcontractors and research participants), and infrastructure for transportation, accommodation and communication must be satisfactory.
- A research area is characterised by some of the following nine 'specific developments':
  - Severe environmental problems
  - Major livelihood expansion
  - Major livelihood collapse
  - Sustained improvement of security
  - Severe deterioration of security
  - Major social protection reform
  - Major educational expansion
  - Major infrastructure improvement
  - Protracted stagnation

In total, 26 research areas across ten different countries have been selected as cases (see Annex 1 for list of research areas). Given the relatively low number of cases available in MIGNEX QCA analyses, we must limit the number of conditions per specific QCA model to a maximum of three to five.

13.2.3 Data sources and methodological triangulation

Table 1 presents the six types of *data elements* that are generated as part of the MIGNEX methodology. Two data elements contribute directly to the specification of conditions for QCA, namely the MIGNEX survey and the RAIR coding scales. Two data elements contribute to the specification of the RAIR coding scales (MIGNEX focus group data, Research Area Interim Reports), while the remaining two data elements provide contextual information (MIGNEX policy database, MIGNEX background papers on migration-related policies).

Table 1. MIGNEX data elements

WP	Source	Type	Units	Application in QCA
WP3	MIGNEX survey data set	Numerical (various scales)	Individuals, households	Input to the specification of conditions
WP4	Research Area Interim Reports	Text (100–250 words on a topic)	Research areas	Input to the specification of RAIR coding scales
WP4	MIGNEX focus group data set	Text (transcripts of discussion)	Research areas	Input to the specification of RAIR coding scales
WP4	RAIR coding scales from qualitative data collection	Numerical (4-point scale)	Research areas	Input to the specification of conditions
WP5	MIGNEX policy database	Numerical (various scales)	Countries	Contextual information
WP5	MIGNEX Background Papers on migration-related policies	Text (1000–1500 words on a policy area)	Countries	Contextual information

13.2.4 Definition and specification of conditions and outcomes

MIGNEX QCA analyses can refer to the following 24 theoretically informed and literature-based concepts or factors explaining migration-related outcomes or explaining migration-induced development outcomes. The definition of these concepts has partly been informed by a recent meta-analysis and knowledge accumulation exercise identifying major 'drivers of migration' (Czaika and Reinprecht 2020). The first 16 concepts relate to various aspects of human, economic, social, or political development, while the remaining 8 have to do with migration and migration policy:

1. Livelihoods and economic opportunities
2. Well-being and standard of living
3. Health: access and quality
4. Education: access and quality
5. Social protection
6. Infrastructure and utilities
7. Governance and institutions
8. Civic participation
9. Insecurity and violence
10. Environmental degradation and natural disasters
11. International connectedness
12. Local attachment and social cohesion
13. Gender relations
14. Development interventions
15. Local investment
16. Overall perceptions of change
17. In-migration, transit migration and integration
18. Out-migration
19. Return migration
20. Migrant transnationalism
21. Culture of migration
22. Migration aspirations
23. Feasibility of migration
24. Migration policy

These concepts will be used selectively for various specifications of MIGNEX QCA analyses addressing aspects of the two overarching research questions (cf. 6.2.1).

13.2.5 Specification of possible measures for conditions and outcomes

The following list reports the measures that are available from the two core data elements, the MIGNEX survey and the RAIR coding scales, for measuring one to three specific conditions that operationalise the 24 concepts / themes listed above (in 13.2.1).

Each specific condition assigned to one of our 24 themes entails several possible measures to choose from for their operationalisation. There is usually more than one specific condition available per theme leading to 49 specific (sub-)conditions. Each sub-condition is identified by the number of the theme it is assigned to, followed by a capital letter: 1A, 1B, 2A, etc. Each specific condition has a concise name that describes *full set membership* of this specific condition, i.e., 'High standard of living' rather than 'Standard of living'. For each condition a concise definition is provided. Under each theme there is a list of measures that are available and possibly relevant for the specification of the respective sub-conditions.

In the definition of sub-conditions, the *research area* is always the implicit unit of analysis. When we refer to *residents*, it refers to the population of the research area. Depending on the nature of each condition and its operationalization, this may be limited to the population of young adults (aged 18–39) who are covered by the MIGNEX survey and focus groups, or to their households (cf. MIGNEX Handbook Chapters 7 and 10).

Condition 1A: Abundant livelihood opportunities ('Extent to which the local area offers ample employment, business or other livelihood opportunities')

- Survey Item B1 How easy or difficult is it to find a good job in [Research Area]? Would you say that it is… (a) Very easy, (b) Easy, (c) Difficult, or (d) Very difficult?
- Survey Item B6 In general, do you find that earning a living and feeding a family in [Research Area] is… (a) Easy, (b) Manageable, or (c) Difficult?

Condition 1B: Expanding livelihood opportunities ('Extent to which the local employment, business or other livelihood opportunities are (perceived to be) expanding')

- Survey Item B5 In terms of creating jobs, do you think the authorities are… (a) Doing well, (b) Doing OK, (c) Doing badly?
- Survey Item B7 Compared to five years ago, do you think that earning a living and feeding a family in [Research Area] has… (a) Become easier, (b) Stayed the same, or (c) Become more difficult?
- Survey Item B8 And how do you expect it will change over the next five years? Do you expect that earning a living and feeding a family in [Research Area] will… (a) Become easier, (b) Stayed the same, or (c) Become more difficult?

Condition 2A: High levels of well-being and standard of living ('Extent to which residents experience a high level of well-being and standard of living')

- Survey Item B17 All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are 'completely dissatisfied' and 10

means you are 'completely satisfied' where would you put your satisfaction with life as a whole?

- Survey Item I12 Is your home… (a) Owned by someone in the household, (b) Rented?
- Survey Item I13 How many rooms are there in this house?

Condition 2B: High levels of poverty and inequality ('Extent to which residents experience high levels of poverty and socio-economic inequality')

- Survey Item I3 Think about the difference between rich and poor households in [RESEARCH AREA]. Imagine that on this card, 1 represents the very poorest households and 10 represents the very richest households in [RESEARCH AREA]. Where would you place your own household?
- Survey Item I4 Thinking about your household's current financial situation, would you say your household is (a) Finding it difficult to get by, (b) Coping, (c) Living comfortably?
- Survey Item I8 Over the past month, how many times have you or anyone in your household gone to sleep without having had enough food to eat that day? (a) Never, (b) Sometimes, (c) Often, or (d) Always?
- Survey Item I9 If you needed 15000 [AMOUNT IN RELEVANT CURRENCY] for an emergency, would you or someone else in your household be able to get it within a week? (a) No, (b) Yes, (c) Don't know, (d) Refuse to answer.

Condition 2C: Large intergenerational improvement in standards of living ('Extent to which residents see their standard of living as substantially higher than that of the preceding generation')

- Survey Item I6 When your parents were the same age as you are now, do you think their standard of living was (a) Worse than yours is now, (b) About the same as yours is now, or (c) Better than yours is now?
- Survey Item I7 When your children are the age you are now, do you think their standard of living will be (a) Worse than yours is now, (b) About the same as yours is now, or (c) Better than yours is now?

Condition 3A: High levels of access and quality in health care services ('Extent to which residents have access to health care services and regard them to be of high quality')

- Survey Item D2 Thinking about the most recent time, did the person who was sick or injured receive formal health care? By this I mean the kinds of examination or treatment that a doctor, nurse or pharmacist would be able to provide.
- Survey Item D4 Generally speaking, would you say formal health care in [Research Area] is (a)Very bad, (b) Bad, (c) Fair, (d) Good, or (e)Very good?
- Survey Item D5 In the past five years do you think that getting formal health care in [RESEARCH AREA] has become (a)Easier. (b) Stayed the same, or (c) Become more difficult?

Condition 3B: Prevalence of good health outcomes ('Extent to which residents and their families experience good health outcomes')

- Survey Item D1 During the past year, have you or anyone in your household been seriously ill or injured or had another serious health problem?
- Survey Item D7 In general, how would you rate your own health today? Would you say that it is a) Very good, b) Good, c) Moderate, d) Bad, or e) Very bad?
- Survey Item D8 Think about the child aged four years or younger in your household that had their birthday most recently. How would you describe their growth and health? a) Very good, b) Good, c) Moderate, d) Bad, or e) Very bad?

Condition 4A: High levels of access and quality in education ('Extent to which residents have access to education and regard it to be of high quality')

- Survey Item A20 Is he enrolled in secondary school?
- Survey Item A23 Is she enrolled in secondary school?
- Survey Item A31 Overall, would you say schools in [RESEARCH AREA] are (a) Very bad, (b) Bad, (c) Fair, (d) Good, (e) Or very good?
- Survey Item A32 Do you think that, in general, the schools in [RESEARCH AREA] prepare children well for their future?
- Survey Item A34 Have the new skills you learnt in the training course been useful for earning income afterwards? Would you say that they have been (a) Very useful, (b) A bit useful, or (c) Not at all useful.
- RAIR Coding scale F. Educational expansion

Condition 4B: High levels of educational attainment ('Extent to which residents have high levels of educational attainment')

- Survey Item A6 What is the highest level of formal education you have completed?
- Survey Item A33 Have you participated in any vocational or skills training course in the last five years?

Condition 4C: Large intergenerational increase in educational attainment ('Extent to which residents have substantially higher levels of educational attainment than their parents did')

- Survey Item A7 Did your father complete primary school?
- Survey Item A8 And did he complete secondary school?
- Survey Item A9 Did your mother complete primary school?
- Survey Item A10 And did she complete secondary school?

Condition 5A: High level of social protection ('Extent to which residents have access to social protection')

- Survey Item E1 Compulsory social protection (Has anyone in your household received any of the following support from the authorities or other organisations in the past year?)
- Survey Item E2 Social pension (Has anyone in your household received any of the following support from the authorities or other organisations in the past year?)
- Survey Item E3 Social Inclusion Income (Has anyone in your household received any of the following support from the authorities or other organisations in the past year?)
- Survey Item E9 Would you say that the poor in [Research Area] get help from the authorities if they need it?

Condition 6A: High levels of access to public infrastructure and utilities ('Extent to which residents have access to basic public infrastructure and utilities')

- Survey Item M1 Is the nearest marketplace or supermarket within walking distance?
- Survey Item M3 Do you have electricity in your home?
- Survey Item M4 Does the electricity come from (a) The public electric grid, [KP] (b) A generator (c) Solar power, or (d) Another source? [SPECIFY]
- Survey Item M5 What is your main source of energy for cooking?
- Survey Item M8 What is your main source of water for drinking?
- Survey Item M9 Is this water source (a) Only for your household, or (b) Shared with other households?
- Survey Item M10 How long does a round trip to fetch water usually take, in minutes?
- Survey Item M11 How often do you have shortages of water from your usual drinking water source? Would you say that it is (a) Never, (b) Sometimes, (c) Often, or (d) Always?
- Survey Item I29 During the last month, how often did you use the internet? Was it (a) Almost every day, (b) At least once a week, (c) Less often, or (d) Not at all?
- RAIR Coding scale A: Major infrastructure improvement
- RAIR Coding scale B. Mobile phone network

Condition 7A: High quality of governance and institutions ('Extent to which residents experience high-quality governance and low levels of corruption')

- Survey Item J7 In [RESEARCH AREA], are voters offered money to vote for a candidate during elections?
- Survey Item J8 How much do you trust the police? Do you trust them (a) Completely, (b) Mostly, (c) A little, or (d) Not at all?
- Survey Item J9 How much do you trust the courts of law? Do you trust them (a) Completely, (b) Mostly, (c) A little, or (d) Not at all?

- Survey Item J10 And how much do you trust the armed forces? Do you trust them (a) Completely, (b) Mostly, (c) A little, or (d) Not at all?
- Survey Item J11 All things considered, how good a job does the [LEVEL OF LOCAL GOVERNMENT RELEVANT TO RESEARCH AREA] do in running [Research Area]? Using this card on which 1 means you think [LEVEL OF LOCAL GOVERNMENT RELEVANT TO RESEARCH AREA] is doing a terrible job and 10 means it is doing an excellent job in running this area, where would you put it?
- Survey Item J12 Now thinking about the [CENTRAL GOVERNMENT IN NAME OF CAPITAL], how good a job does it do in running [Country]? Using this card on which 1 means you think the [CENTRAL GOVERNMENT IN NAME OF CAPITAL] is doing a terrible job and 10 means it is doing an excellent job in running [Country], where would you put it?
- Survey Item J13 In [RESEARCH AREA], how much of a problem is corruption nowadays? Is it (a) Not at all a problem, (b) Not much of a problem, [KP], (c) A slight problem, (d) A serious problem?
- Survey Item J14 In the past year, has anyone in [RESEARCH AREA] asked you, or expected you, to pay a bribe for his or her services?

Condition 8A: High level of civil rights and participation ('Extent to which residents enjoys civil rights and actively engage in democratic life')

- Survey Item J1 Have you heard of any demonstrations or protest marches in [RESEARCH AREA] in the past year?
- Survey Item J2 Did you personally participate?
- Survey Item J3 If you heard about a demonstration for an issue you care about, would you go?
- Survey Item J5 Did you vote in that election?
- Survey Item J6 Did you participate in any party meetings or political rallies in the lead-up to the election?

Condition 9A: High levels of physical insecurity and violence ('Extent to which residents fear or experience physical insecurity and violence')

- Survey Item K1 Do you think that here in [RESEARCH AREA] it is safe to walk the streets at night?
- Survey Item K3 In the past five years, have you or anyone in your household experienced theft or burglary?
- Survey Item K4 In the past five years, have you or anyone in your household experienced assault or physical violence?
- Survey Item K5 Violence at a political rally, public protest, or demonstration
- Survey Item K6 An armed attack by armed forces or militias
- Survey Item K7 Any other types of violence among people in [RESEARCH AREA]

- Survey Item K8 Have you personally experienced any of these types of violence in the past five years?
- RAIR Coding scale H. Level of insecurity and violence
- RAIR Coding scale I. Visibility of police/military/security

Condition 9B: Increasing physical insecurity and violence ('Extent to which residents perceive physical insecurity and violence as increasing')

- Survey Item K2 Compared to five years ago, has [RESEARCH AREA] ... (a) Become more dangerous, (b) Stayed the same, (c) Or become safer?

Condition 10A: High levels of environmental degradation ('Extent to which residents are detrimentally affected by environmental degradation')

- Survey Item L1 In the last five years, has your household been affected by droughts?
- Survey Item L3 Has it been affected by soil degradation?
- Survey Item L4 And has it been affected by agricultural pests, crop or livestock disease?
- RAIR Coding scale J. Environmental degradation

Condition 10B: High exposure to natural disasters ('Extent to which residents are exposed to natural disasters and environmental shocks')

- Survey Item L2 Has it been affected by floods?
- RAIR Coding scale K. Vulnerability to natural disasters

Condition 11A: High level of international presence ('Extent to which international actors and external resources are present and visible in the form of tourism, aid, trade or investment')

- Survey Item B13 Do you know of any foreign businesses that have invested in [RESEARCH AREA]?
- Survey Item B15 Do you know of any governments or organisations from other countries that work towards improving life in [RESEARCH AREA]?
- RAIR Coding scale C. Prominence of international tourism
- RAIR Coding scale D. Prominence of micro-level international aid
- RAIR Coding scale E. Prominence of international investment

Condition 12A: Large proportion of long-resident families ('Extent to which residents and their parents are born in the research area')

- Survey Item H3 Did your father grow up here in [RESEARCH AREA]?
- Survey Item H4 Did your mother grow up here?

Condition 12B: High level of mutual trust ('Extent to which residents feel that people in the research area can generally be trusted')

- Survey Item E11 Would you say that (a) Most people in [RESEARCH AREA] can be trusted, or that b) You can't rely on anybody?
- Survey Item E12 During the past year, have you participated in any kind of volunteering or community group?

Condition 12C: High levels of conservatism and conformism ('Extent to which residents are socially conservative and conformist')

- Survey Item A38 When a mother works for pay, the children suffer.
- Survey Item E14 How important would you say religion is in your life? Would you say that it is (a) Very important, (b) Somewhat important, (c) Not too important, or (d) Not at all important?
- Survey Item B23 Worry: Losing traditions and customs

Condition 13A: High level of gender inequality ('Extent to which men and women lead different lives under the influence of different norms')

- Survey Item A35 In [RESEARCH AREA] women have the same opportunities as men.
- Survey Item A36 Only men should be responsible for providing income.
- Survey Item A37 Education is more important for boys than girls.
- Survey Item A39 Only women should take responsibility for the household.
- RAIR Coding scale G. Extent of gender segregation and gender differences

Condition 14A: High levels of development intervention ('Extent to which domestic and international development interventions are present in the area and in residents' awareness')

- Survey Item B15 Do you know of any governments or organisations from other countries that work towards improving life in [RESEARCH AREA]?
- RAIR Coding scale D. Prominence of micro-level international aid

Condition 14B: Positive assessments of development interventions ('Extent to which residents hold favourable views on the importance and effects of domestic and international development interventions')

- Survey Item B16 Do you think that their work (a) Makes a big difference, (b) Makes a bit of a difference, or (c) Makes no difference?

Condition 15A: High inclination to invest in local businesses or assets ('Extent to which residents have invested, plan to invest, or would be willing to invest in business activities or assets in the research area')

- Survey Item B14 Do you know of any person who used to live in [RESEARCH AREA], and now lives in another country, who has invested in a business here?
- RAIR Coding scale E. Prominence of international investment

Condition 16A: Positive assessments of recent local development ('Extent to which residents hold favourable views on how the research area has developed during the past five years')

- Survey Item M12 Compared to five years ago, how reliable is your current source of water for drinking? Would you say it is (a) Worse, (b) The same, or c) Better?
- Survey Item E10 Thinking back to five years ago, has help for the poor from the authorities a) Gotten worse, b) Stayed the same, c) Gotten better.
- Survey Item I5 Looking back to five years ago, has your household's financial situation (a) Become better, (b) Stayed the same, or (c) Gotten worse?
- Survey Item K2 Compared to five years ago, has [RESEARCH AREA] (a) Become more dangerous, (b) Stayed the same, (c) Or become safer?
- Survey Item J15 In your opinion, over the past five years, do you think corruption in [RESEARCH AREA] has (a) Become less of a problem, (b) Stayed the same, or (c) Become a bigger problem?
- RAIR Coding scale A. Major infrastructure improvement

Condition 16B: Optimistic expectations for the future ('Extent to which resident's expectations for the future are marked by optimism rather than fear')

- Survey Item B19 Worry: Insufficient income
- Survey Item B20 Worry: Disease and poor health
- Survey Item B21 Worry: Conflict and violence
- Survey Item B22 Worry: Climate change
- Survey Item B23 Worry: Losing traditions and customs
- RAIR Coding scale L. Overall atmosphere (hope/despair)

Condition 16C: Positive perceptions of the general direction of change ('Extent to which residents hold positive views on the general direction of change in their lives and in the research area')

- Survey Item B18 If you think about the ways in which [RESEARCH AREA] is changing, do you think that overall, things are (a) Mostly changing in good ways, or (b) Mostly changing in bad ways?
- RAIR Coding scale L. Overall atmosphere (hope/despair)

Condition 17A: High levels of immigration ('Extent to which immigrants make up a large part of the resident population')

- Survey Item H1 Did you grow up in (a) Here in [RESEARCH AREA], (b) Elsewhere in [COUNTRY], or (c) In another country?
- Survey Item H4 When did you move to [RESEARCH COUNTRY] for the first time?

Condition 17B: High levels of internal in-migration ('Extent to which internal migrants make up a large part of the resident population')

- Survey Item H1 Did you grow up in (a) Here in [RESEARCH AREA], (b) Elsewhere in [COUNTRY], or (c) In another country?
- Survey Item H5 When did you move to [RESEARCH AREA] for the first time?

Condition 18A: High levels of international out-migration ('Extent to which there is a large outflow of international migrants from the research area')

- Survey Item H9 Did you live in another country for at least one year?
- RAIR Coding scale M. Salience of international out-migration
- RAIR Coding scale Q. Gendering of out-migration (internal and international)

Condition 18B: High levels of internal out-migration ('Extent to which there is a large outflow of internal migrants from the research area')

- Survey Item G1 Do you know anyone who used to live here in [RESEARCH AREA] who has moved to another part of [RESEARCH COUNTRY] during the past five years?
- Survey Item G2 Would you say that you know more than ten people who have done so?

Condition 19A: Large presence of international return migrants ('Extent to which a large proportion of residents have lived abroad')

- Survey Item F4 Do you have other family members, relatives or friends who left [RESEARCH COUNTRY], lived abroad for at least one year and later moved back to [RESEARCH COUNTRY]?
- Survey Item G10 Been deported from abroad and forced to come back to [RESEARCH COUNTRY]?

Condition 20A: Widespread transnational ties ('Extent to which a large proportion of residents have family members, relatives, or friends in other countries')

- Survey Item F1 Do you have any family members, relatives or friends who live in another country?
- Survey Item F10 Was any of the money you received sent by someone who used to live in your household?
- Survey Item G3 Do you know anyone who used to live here in [RESEARCH AREA] who has moved to another country during the past five years?

- RAIR Coding scale R. Strength of transnational ties

Condition 20B: High intensity of transnational communication ('Extent to which a large proportion of residents have regular communication with family members, relatives, or friends in other countries')

- Survey Item F7 Have you seen, talked with, or exchanged messages with any of your family members, relatives or friends abroad during the past year?

Condition 20C: High importance of remittances ('Extent to which remittance inflows are widespread and important to household income')

- Survey Item F9 [ONLY IF F1=(b) OR IF F3=(b)] Has anyone who lives abroad sent money to you or anyone in your household during the past year?
- RAIR Coding scale S. Importance of collective remittances

Condition 21A: Well-established culture of migration ('Extent to which international out-migration is part of everyday life, discourses, experiences and institutions in the research area')

- Survey Item G5 Would you say that you know more than ten people who have moved to another country during the past five years?
- Survey Item G2 Would you say that you know more than ten people who have done so?
- RAIR Coding scale N. Attitudes towards international out-migration
- RAIR Coding scale M. Salience of international out-migration

Condition 21B: Predominantly favourable views on migration ('Extent to which residents hold favourable views on international out-migration and its effects of communities of origin')

- Survey Item C9 If you were to go to live or work in a richer country, do you think your family would (a) Approve, or (b) Disapprove?
- Survey Item C14 Has anybody ever encouraged you to go to a richer country?
- Survey Item C16 Have you ever encouraged anybody else in [RESEARCH AREA] to go to a richer country?
- Survey Item C17 It makes life harder for those who stay behind
- Survey Item C18 They still contribute to [RESEARCH COUNTRY]
- Survey Item C19 They support their family members in [RESEARCH COUNTRY]
- Survey Item C20 They often regret that they have left
- Survey Item C21 They get rich
- RAIR Coding scale N. Attitudes towards international out-migration

Condition 22A: High prevalence of aspirations for international migration ('Extent to which international migration aspirations are widespread and well-developed')

- Survey Item C3 Would you like to go and live in another country sometime during the next five years, or would you prefer to stay in [RESEARCH COUNTRY]?
- Survey Item C6 During the past year, have you thought seriously about leaving [RESEARCH COUNTRY] to live or work in another country?
- Survey Item C8 If someone were to give you the necessary papers to live and work in a richer country, would you go, or would you stay in [RESEARCH COUNTRY]?

Condition 22B: High prevalence of aspirations for internal migration ('Extent to which internal migration aspirations are widespread and well-developed')

- Survey Item C1 In five years' time, do you think you'll still be living in [RESEARCH AREA]?
- Survey Item C5 If you stay in [RESEARCH COUNTRY] would you like to (a) Stay here in [RESEARCH AREA], or (b) Move somewhere else?
- Survey Item C7 During the past year, have you thought seriously about going to live or work somewhere else in [RESEARCH COUNTRY]?

Condition 23A: High perceived feasibility of migration ('Extent to which people in the research area see international migration as a realistic option for those who want to pursue it')

- Survey Item C22 If someone from [RESEARCH AREA] wants to go live or work in a richer country, how easy or difficult do you think it would be to actually do it? Would it be (a) Very easy, (b) Easy, (c) Difficult, or (d) Very difficult?
- RAIR Coding scale O. Perceived feasibility of international out-migration

Condition 23B: High prevalence of failed migration attempts ('Extent to which experiences of failed migration attempts are widespread')

- Survey Item C10 In the past five years, have you ever prepared to move to another country, but not been able to go?
- Survey Item G6 Been injured whilst on the way to move to another country?
- Survey Item G7 Lost their life on the way to move to another country?
- Survey Item G8 Been detained on the way to move to another country, not reaching their destination?
- Survey Item G9 Tried to move to one particular country, but was stuck in another country instead?
- Survey Item G10 Been deported from abroad and forced to come back to [RESEARCH COUNTRY]?

Condition 24A: Restrictive migration policy at major destinations ('Extent to which restrictive immigration policies in major destination countries are obstacles for international migration from the research area')

- Not specified

Condition 24B: Prominent information campaigns to discourage irregular migration ('Extent to which residents have been exposed to information campaigns intended to discourage irregular migration')

- Survey Item G12 A TV advert or programme about migration?
- Survey Item G13 A workshop or event about migration?
- Survey Item G14 A radio programme or advert about migration?
- Survey Item G15 Social media or a website about migration?
- Survey Item G16 A poster or newspaper advert about migration?
- Coding scale P. Presence of migration information campaigns

Condition 24C: Active emigration policy ('Extent to which national or sub-national government engages in active emigration management by either facilitating or constraining emigration')

- MIGNEX Policy Database

Condition 24D: Active return and diaspora policy ('Extent to which governmental and non-governmental actors engage with their diaspora (e.g., in facilitating remittances or return')

- MIGNEX Policy Database

13.3 Data measurement

For most of the planned MIGNEX QCA analyses, we will use the MIGNEX survey and the RAIR MIGNEX RAIR coding scales as the two main data sources. These, however, provide data information at different levels of analysis. While the MIGNEX survey is a household survey implemented in 26 research areas in ten different countries at the micro level, the RAIR coding scales are measures that have been informed by various qualitative data sources including key informant interviews, focus groups, and in situ observations. For a detailed discussion of these data collection tools and respective methodologies we refer to the MIGNEX Handbook Chapters 7 and 10 for the MIGNEX survey, and MIGNEX Handbook Chapter 8 and 11 for all qualitative data collections and the construction of the RAIR coding scales. Another source of information, the MIGNEX policy database, was not directly used for creating MIGNEX QCA measures. The policy data was collected at national levels, and a research area break down of policy data was methodologically not possible and without additional meaning, because all cases per research country would have the same scores for a migration policy code.

In the following, we briefly present how the survey data as well as the qualitative information have been used in the process of preparing a raw dataset for the QCA analyses.

13.3.1 MIGNEX survey data

The MIGNEX survey was implemented using a three-stage, probability-proportional-to-size cluster sampling strategy with random walks as described in detail in MHC7 (Hagen-Zanker et al., 2020). The survey dataset includes more than 13000 respondents (young adults) across the 26 research areas. As MIGNEX QCA analyses are using the research area as analytical unit (cases), we had to aggregate (technically, collapse) the micro-level data items into (weighted) means at research area level using sampling weights. Sampling weights are calculated by the probability that a household is selected in a cluster sample which is the product of the probability by which a cluster is selected and the conditional probability of selecting a household given that the cluster has already been selected (cf. MHC7). We have decided to use weighted means for calculating research area scores for each of the selected survey items that are potentially useful as measures for one of the conditions.

In one research area, Kombolcha (ETH1), the survey data collection was cancelled for security reasons after 40% of the target was reached. Qualitative data had already been successfully completed. While this research area is excluded from much of the project's survey data analysis, it is feasible to use the incomplete data as input to QCA. This is because our QCA calibration only differentiates between four levels of membership in a condition, as explained in section 13.5. Correct attribution is therefore possible with larger margins of error.

13.3.2 MIGNEX coding scales

Qualitative data collection in MIGNEX resulted in *Research Area Interim Reports (RAIRs),* which included *coding scales* for 19 selected topics (Table 2). The researchers who carried out the fieldwork used the scales to rate their overall impression from key informant interviews, focus group discussions, and observation in the research area.

The MIGNEX coding scales are discretely scaled from 1 to 4 with 1 representing the relative absence of the respective characteristics describing the state of things in the research area, and 4 reflecting it full presence. The methodology is fully described in MIGNEX Handbook Chapter 8. The scores for each research area on all the coding scales are presented in Annex 3.

Table 2. MIGNEX RAIR coding scale topics

Coding scale	Description of minimum value	Description of maximum value
A: Major infrastructure improvement	The existence and quality of infrastructure has generally remained unchanged or worsened.	One or more forms of infrastructure has developed in ways that have transformed life in the research area
B: Mobile phone network	There is no mobile phone network in the area	One or more mobile phone networks reliably cover the entire area
C: Prominence of international tourism	There are apparently no tourists and no infrastructure for international tourism.	Tourists and the tourism industry are a prominent and visible feature of the area.
D: Prominence of micro-level international aid	There are no signs of any international development aid directly targeting households and/or community institutions.	International development aid directly targeting households and/or community institutions is prominent in the area and in people's awareness.
E: Prominence of international investment	There are no signs of any foreign investment in the area.	Large-scale foreign investment is highly prominent in the area.
F: Educational expansion	Access to education has declined, e.g., through closure of institutions or deterioration in quality.	Access to education has expanded significantly, e.g., in the form of more, better, or new types of institutions.
G: Extent of gender segregation and gender differences	Men and women lead relatively similar lives, with similar livelihoods and opportunities in the same social spheres	Men and women lead very different and/or highly segregated lives with dissimilar livelihoods and opportunities
H: Level of insecurity and violence	The atmosphere is relaxed and there are no apparent concerns about security.	The atmosphere is tense, and people are acutely aware of threats to their safety.
I: Visibility of police/ military/security	There is no visible presence of any police, military or security personnel, vehicles or institutions.	The state security apparatus is heavily present in the form of control posts, armed patrols, guards, security checks, etc.
J: Environmental degradation	Environmental degradation is insignificant or has no impact on people's lives and livelihoods.	Severe environmental degradation is a widespread concern and negatively affects lives and livelihoods.
K: Vulnerability to natural disasters	There have been no natural disasters in recent memory and there is no obvious risk of natural disasters.	Recent experiences and/or obvious risk factors make the area prone to natural disasters, which inhabitants fear.
L: Overall atmosphere of hope/despair	The general atmosphere in the area is one of hopelessness, despair, or resignation.	The general atmosphere in the area is one of optimism, confidence, or dynamism
M: Salience of international out-migration	International out-migration is very rare and not an issue that people think about or relate to.	International out-migration is prominent in people's awareness and daily life.
N: Attitudes towards international out-migration	International migration, migrants and their influence are consistently described in negative terms.	International migration, migrants and their influence are consistently described in positive terms.
O: Perceived feasibility of international out-migration	International migration is generally seen as nearly impossible for those who may want to migrate.	International migration is generally seen as possible to do for whoever wants to migrate.
P: Presence of migration information campaigns	There are no signs of any forms of migration information campaigns and no informants say that they have been exposed to any.	There are (or have recently been) prominent migration information campaigns that a large share of inhabitants is likely to have been exposed to.
Q: Gendering of out-migration (internal and international)	Men and women migrate from the area in similar numbers, in similar ways, and to the same destinations	Men and women differ markedly in whether, how, and/or to where they migrate
R: Strength of transnational ties	Transnational ties are virtually inexistent	Transnational ties are strong and widespread
S: Importance of collective remittances	Collective remittances or diaspora investment are inexistent.	Collective remittances or diaspora investment are widespread and significant.

13.4 Raw data matrix

In preparing the raw data for the MIGNEX QCA analyses, we first had to filter the MIGNEX survey (we used the version of 29 June 2022: mxs-prep-merge-CPV-GHA-TUN-GIN-AFG-ETH-TUR-SOM-NGA-PAK-2022-06-29.dta) and its 225 survey items for those relevant to the conditions and outcomes used for the QCA. This selection was based on data availability, theoretical considerations, and criteria as well as suitability for conceptualisation of the condition or outcome.

The MIGNEX QCA raw data matrix contains the combined information of the 169 selected survey data items (aggregated at research area levels) and the 19 RAIR coding scales for the 26 research areas (cases). All data items are assigned to one of the specific sub-conditions listed under 13.2.5.

13.5 Calibration

To integrate different kinds of data and run the QCA algorithm that identifies necessary and sufficient (combinations of) conditions, we first must calibrate all items of the raw dataset. In line with good practices in QCA (Schneider and Wagemann 2012; Schneider and Rohlfing 2013), this involves developing causal conditions and calibration thresholds in an iterative process. The calibration procedure essentially consists of a determination of the extent to which a case belongs to the different sets we are interested in and transforming interval-scale measures into fuzzy set membership scores ranging between 0 and 1.

13.5.1 Set membership and fuzzy scores

In MIGNEX QCA, we are using fuzzy set scores to identify set membership. The process of transforming measures from either a discrete, or a continuous (interval-scale) variable into a fuzzy score indicating the degree of membership in a set, is called calibration. In essence, calibration is about “semantic transformations”, as in connecting the meaning of a concept to numerical indicators (Goertz 2020, 74). Fuzzy scores are calibrated discretely between 0 (full non-membership) and 1 (full membership) representing the degree of presence of a concept (Schneider & Wagemann 2012). This implies that cases are characterised by their degree of membership in the respective condition set X and outcome set Y. While in a crisp set, there is only differentiation between full membership (1.0) and non-membership (0.0), for fuzzy sets we have to determine a cross-over point of maximum ambiguity (0.5). Maximum ambiguity means that we cannot say with full confidence that a case is clearly in or clearly out of a particular set. Fuzzy sets can take several forms, ranging from four to eleven values or using a continuous scale.

In MIGNEX, we employ fuzzy set QCA (fsQCA), i.e., cases can have full or partial membership or non-membership in the sets of conditions X and outcome Y which allows for more information and fine-grained analysis. For instance, cases can be more in or out than in the set of ‘research areas with high level of well-being’. We employ theoretical and substantive knowledge to specify transform (‘fuzzify’) all available measures from the MIGNEX survey as well as the MIGNEX coding scales consistently into four-value fuzzy sets, that is besides the anchors for fully in-membership (1.0) and fully out-membership (0.0), we also use 0.33 (‘more out than in the set’) and 0.67 (‘more in than out of the set’). In some cases, such as with the policy data a crisp calibration indicating the presence (1.0) or absence (0.0) of a policy may be used.

13.5.2 Calibration of survey data

All measures of the raw data matrix are 'fuzzified' to a four-value fuzzy score scale including '0.0' (=fully out), '0.33' (partially out), '0.67' (partially in), and '1.0' (fully in). The critical decision in this process is the definition of anchors and thresholds. The calibration procedure requires thresholds for certain data points to determine whether they are fully, more in, more out, or fully out of a set.

At the micro-level, survey items are scaled either on a 2-point, 3-point, 4-point, 5-point, or 10-point scale (see examples in Table 3. Calibration rules). Depending on the scales and the distribution of cases, we have defined 0-1 anchor points (cut-off values) as well as thresholds for 0.33 and for 0.67 fuzzy scores for each measure of the raw data matrix. For instance, survey item D2, which was used for the specific sub-condition 'High level of access and quality of health care services' produces a proportion if aggregated across all households in the research area. Given the distribution of this measure across all 26 research area cases we have decided to set the 'fully out' threshold at 0.7 (i.e., 70 percent or less of all households in the research area have responded to survey item D2 with 'no'), and the 'fully in' threshold at 0.9. For other 2-point survey items however we have defined other anchors (e.g., 0.4 and 0.8 for A32 Do you think that, in general, the schools in [RESEARCH AREA] prepare children well for their future?). These decisions were taken on the basis of the distribution and the skewness of the respective raw data (see 13.6 for skewness).

For 3-point-scaled survey items coded from 1 to 3 (e.g., I6 When your parents were the same age as you are now, do you think their standard of living was (1) Worse than yours is now, (2) About the same as yours is now, or (3) Better than yours is now?) we have set the 'fully out' threshold at 1.5 and the 'fully in' threshold at 2.5. Otherwise scaled survey items (i.e., 4-, 5-, and 10-point scaled) are fuzzified as exemplified in Table 3.

Table 3. Calibration rules

Raw data scale	Name of Condition	Item ID/Question	Raw data codes	Calibration rules
2-point	High levels of access and quality in health care services	D2 Thinking about the most recent time, did the person who was sick or injured receive formal health care?	Percentage: 1=yes	<0.7=0.0; <0.8=0.33; <0.9=0.67; >=0.9=1.0
	High levels of access and quality in education	A32 Do you think that, in general, the schools in [RESEARCH AREA] prepare children well for their future?	Percentage: 1=yes	<0.4=0.0; <0.6=0.33; <0.8=0.67; >=0.8=1.0
3-point	Large intergenerational improvement in standards of living	I6 When your parents were the same age as you are now, do you think their standard of living was (a) Worse than yours is now, (b) About the same as yours is now, or (c) Better than yours is now?	1=worse; 2=same; 3=better	<1.5=1.0; <2=0.67; <2.5=0.33; >=2.5=0.0
	Predominantly favourable views on migration	C17 It makes life harder for those who stay behind	1=agree, 2=neither agree nor disagree, 3=disagree	<1.5=0.0; <2=0.33; <2.5=0.67; >=2.5=1.0
4-point	Abundant livelihood opportunities	B6 In general, do you find that earning a living and feeding a family in [RESEARCH AREA] is (a) Easy, (b) Manageable, or (c) Difficult?	1=very easy, 4=difficult	<2.0=1.0; <2.5=0.67; <3.0=0.33; >=3.0=0.0
	Predominantly favourable views on migration	RAIR Coding scale N. Attitudes towards international out-migration	1=very unfavourable; 4=very favourable	1=0.0; 2=0.33; 3=0.67; 4=1.0
5-point	High levels of access and quality in health care services	D4 Generally speaking, would you say formal health care in [RESEARCH AREA] is (a) Very bad, (b) Bad, (c) Fair, (d) Good, or (e) Very good?	1=very bad; 5=very good	<2.5=0.0; <3=0.33; <3.5=0.67; >=3.5=1.0
	High levels of access and quality in education	A31 Overall, would you say schools in [RESEARCH AREA] are (a) Very bad, (b) Bad, (c) Fair, (d) Good, (e) Or very good?	1=very bad; 5=very good	<2.5=0.0; <3=0.33; <3.5=0.67; >=3.5=1.0
10-point	High levels of well-being and standard of living	B17 All things considered, how satisfied are you with your life as a whole these days? Where would you put your satisfaction with life as a whole?	1=very unsatisfied; 10=very satisfied	<4=0.0; <5=0.33; <6=0.67; >=6=1.0
	High levels of poverty and inequality	I3 Think about the difference between rich and poor households in [RESEARCH AREA]. Where would you place your own household?	1=very poor; 10=very rich	<4=0.0; <5=0.33; <6=0.67; >=6=1.0

13.5.3 Calibration of coding scales from qualitative data collection

As mentioned in 13.3.2, the RAIR coding scales are discretely scaled from 1 to 4 with 1 representing the relative absence of the respective characteristics describing the state of things in the research area, and 4 reflecting its full presence. These scales can therefore easily be

translated into a 4-point scale with fuzzy scores (0.0, 0.33, 0.67, 1) where 1=0.0; 2=0.33; 3=0.67; 4=1 (see also Table 3 on Calibration rules).

13.5.4 Calibration of policy data

The policy data was collected at the national level and not at the research area level, meaning that all RAs in the same country would have the same value. However, the spread of values across the 26 research areas still gives us enough variation. Since the information collected here is mainly about the absence or presence of a specific policy, rather than the variation in it, crisp set calibration is employed here, with a 1.0 indicating the presence of a specific policy and 0.0 indicating its absence.

13.6 Skewness check

After calibrating all measures in the raw data set by defining anchors and threshold values for the 4-point fuzzy score scale, we have checked the distribution of fuzzy scores for all cases and for all measures for their skewness. A QCA good practice, the 80-20 rule, requires that fuzzy scores be relatively evenly distributed across cases, which means that at least 20 per cent of all cases should be neither 'in' nor 'out' of a particular set. After reviewing fuzzy scores for all measures, we had to adjust anchor values on a few measures to decrease skewness of fuzzy score distribution of these measures, resulting in acceptable levels of skewness (Cf. Table 4).

Table 4. Skewness check of fuzzy scores

Raw data scale	Name of Condition	*Skewness (#cases per fuzzy score)*			
		0	**0.33**	**0.67**	**1**
2-point	High levels of access and quality in health care services	3	6	7	10
	High levels of access and quality in education	3	3	8	12
3-point	Large intergenerational improvement in standards of living	2	14	8	2
	Predominantly favourable views on migration	2	10	11	3
4-point	Abundant livelihood opportunities	0	15	10	1
	Predominantly favourable views on migration	2	8	11	5
5-point	High levels of access and quality in health care services	6	6	10	4
	High levels of access and quality in education	2	4	11	9
10-point	High levels of well-being and standard of living	7	6	11	2
	High levels of poverty and inequality	10	9	7	0

13.7 Fuzzy score matrix

The MIGNEX QCA fuzzy score matrix is a 26 x 169 matrix that contains 4-point fuzzy scores for 169 measures, grouped into 49 sub-conditions, for the 26 MIGNEX cases (research areas). Table 5 displays an excerpt of the full fuzzy score matrix.

Table 5. Fuzzy score matrix (excerpt)

Measure ID	A1_b01jobra_c4	A1_b06lhdcur_c3	A2_b05gvtjobs_c3	A2_b07lhdchg_c3	A2_b08lhdfut_c3	B1_b17lifesat_n	B1_i12ownhome_c3	B1_i13rooms_n	B2_i03relativedep_n	B2_i04finsitu_c3	B2_i08hunger_c4	B2_i09moneyaccess_d
	Condition1A		Condition 1B			Condition 2A			Condition 2B			
Cases												
Awe	0	0.33	0.33	0.33	0.67	0	0.67	0	0.33	0.33	1	0.33
Baidoa	0.33	0.67	0.33	0.67	0.67	0.33	0.67	0.33	0.67	0	0.67	0.33
Batu	0	0.33	0.33	0	0.33	0.33	0.33	0.33	0.33	0	0.33	0.33
Behsud	0.33	0.33	0	0	0	0.67	0.67	0	0.33	0	0.67	0.33
Boa Vista	0.67	0.33	0.33	0.33	0.67	0.67	0.33	0	0.67	0	0.67	0.67
Boffa	0.67	0.67	0.33	0.33	0.67	0	1	0.33	0.33	0	1	0.33
Chot Dheeran	0.33	1	0.33	0.33	0.33	0.67	0.33	0	0.33	0	1	0.33
Dialakoro	0	0.33	0	0.67	0.67	0	1	0	0.33	0	1	1
Down Quarters	0.33	0.33	0	0	0.67	0	0.67	0	0.33	0	1	0
Ekpoma	0	0.33	0	0	0.67	0	0.33	0	0.33	0.67	0.67	0.33
Enfidha	0	0.33	0	0	0	0.67	0.67	0.67	0.67	0.33	0.67	0.33
Erigavo	0.67	0.67	0.67	0.67	1	1	1	0.67	0.67	0.33	0.67	0.33
Gbane	0.33	0.67	0	0.33	1	0	0.67	0	0.33	0.33	0.67	0.67
Golf City	0	0.33	0	0.33	0.67	0.33	0.33	0.67	0.67	0	0.33	0.67
Hopa	0	0.67	0.33	0	0.33	0.67	0.67	0.67	0.67	0	0	1
Keti Bandar	0.33	0.67	0.33	0	0.33	0.67	0	0.33	0.33	0	1	0.33
Killis	0	0.33	0.33	0	0.33	0.33	0.33	0.33	0.33	0	1	0.33
Kombolcha	0	0.33	0	0	0.67	0.33	0.33	0.33	0.33	0.67	0.33	0
Moyale	0.33	0.67	0	0	0.33	0	0.33	0	0.33	0.67	1	0.67
New Takoradi	0.33	0.67	0	0.33	1	0.67	0.67	0.67	0.67	0.67	0.33	0.33
Redeyef	0.33	0.33	0	0	0	0.67	1	0.67	0.67	0	0.33	0.67
Sao Nicolau	0.33	0.33	0.33	0.33	0.67	0.67	0.33	0.33	0.67	0	0.33	0.67
Shahrake Jabrael	0	0.33	0.33	0	0.67	0.67	0.33	0	0.33	0.67	1	0.33
Shahrake Mahdia	0.33	0.67	0	0	0.33	0.33	0.33	0	0.33	0	0.67	0.67
Youhanabad	0.33	0.67	0.33	0	0.33	0.67	0.33	0.33	0.33	0	1	0.33
Yenice	0.33	0.33	0.33	0.33	0.33	1	0.67	0.67	0.67	0.33	0	1

13.8 Specification of the QCA model

After having arrived at a calibrated and fuzzified dataset, the specification of a QCA model includes the selection and operationalization of an outcome based on the research question as well as the selection of conditions based on adequate theoretical and empirical prior knowledge. Overall, MIGNEX aims to answer at least 12 specific research questions (see 13.2), meaning that there will be a portfolio of different QCA models based on each of these research questions. For illustrating the procedure of building a QCA model, we have selected Question

MIG1 'What combination of conditions explains variation in migration aspirations across areas of origin?' to demonstrate the specification of a MIGNEX QCA model and the respective Truth table. These steps basically involve 1) the selection and definition of a relevant outcome measure and conditions and 2) the operationalization of the outcome and conditions. The second step brings up questions regarding data measures to be used to capture the selected outcome/conditions, whether different data measures are to be combined and/or whether several conditions are to be combined.

13.8.1 Selection and Operationalisation of Outcomes

From the six possible migration-related outcomes analysed in the MIGNEX project, the QCA model we present in this handbook chapter focuses on the *presence or absence* of international migration aspirations across research areas. This asymmetrical analysis of both presence and absence of a condition is a unique feature of QCA.

Condition 22A ('High prevalence of aspirations for international migration') is defined as the 'extent to which international migration aspirations are widespread and well-developed.' From the available measures addressing this outcome, survey Item C3 ('Would you like to go and live in another country sometime during the next five years, or would you prefer to stay in [RESEARCH COUNTRY]?') was selected, because the MIGNEX project defines migration aspirations as a short-hand term for the conviction that migrating is preferable to staying (cf. MIGNEX Handbook Chapter 2).

13.8.2 Selection and Operationalisation of Conditions

Analysis of alternative research questions (e.g., *MIG1-6* versus *DEV1-6*) requires separate theoretical rationales and specification of a QCA model involving the selection and justification of a unique set of conditions employed in the respective analysis. The selection of the conditions is therefore driven by theory rather than anything else, even though the number of conditions to be tested in a QCA model depends on the number of available cases and their diversity, i.e., how much variation the cases provide for in the analysis of set relations between conditions and the outcome. The selection of conditions requires theoretical understanding of the condition-outcome relationship and substantial background research.

An analytical challenge is the determination of the appropriate level of abstraction for defining conditions. For instance, if armed violence is prevalent in several cases (e.g., countries, regions, communities), but in some cases it is linked to politically motivated insurgency while in other cases linked to violent crime, it needs to be discussed and conceptually justified if the two types of violence are to be treated as a single condition rather than two separate conditions for crime and insurgency.

General selection principles are (cf. Czaika & Godin 2019):

- Theory and empirical case knowledge inform the selection of conditions.
- The number of conditions in each QCA model will be parsimonious (e.g., 3-5 conditions for our sample size of 25 research areas).

The operationalization of the conditions then involves the selection, and if applicable, the appropriate combination of measures. Choosing a measure should include considerations about the extent to which a measure, or a set of measures conjointly, reflect or 'match' the qualitative concept of the condition. One principle we may apply is, that whenever possible, we aim to use the RAIR coding scales, because they qualitatively cover the information of an

RA holistically in a broader manner than survey items could. However, even RAIR coding scales could be combined with survey-based measures, or for robustness checks, survey items could be combined to test sensitivity of QCA goodness of fit measures (consistency and coverage) for alternative operationalisations of a concept.

For our example (Model MIG 1) we have decided to start off with three conditions, in order to keep the truth table smaller (the number of conditions determines the number of truth table rows = possible configurations of conditions). Furthermore, depending on the consistency scores identified in the truth table, we get a clearer picture of whether we need to adapt the model and/or add further conditions. As Schneider and Wagemann (2010) have suggested, both the selection and definition of conditions and the outcome can change during the research process, based on preliminary findings. This iterative dialogue between the data and development of the truth table is a strength of the QCA method. This enables researchers to refine their model and integrate new conditions to embrace complex causality (Schneider and Eggert, 2014).

Keeping the above-mentioned selection principles in mind, we construct our Model MIG 1 (see also Table 4) with the following conditions:

Condition 21A: Well-established culture of migration

Conceptual rationale: A culture of migration emerges with growing and consolidating migrant networks. Migration of some community members changes the attitudes and perceptions towards migration of those that stay behind. Migration becomes engrained in the local culture and a rite of passage. Emigrants are social role models and individuals migrate due to the inability to fill a social role. In a culture of migration, individuals may feel triggered to migrate even if they do not have migrant networks or families and friends at destinations. Migration becomes self-perpetuating and 'the thing to do.' A range of studies have confirmed the importance of the culture of migration and individual's yearning to migrate to conform to cultural norms (Alpes 2012). Individuals often migrate even if they would have greater economic opportunities at home. Those that stay behind are often seen as lazy, losers, to have failed, undesirable as potential mates, and face feelings of shame and embarrassment. Men seem to disproportionately be affected by this cultural shame, as migration is linked to masculinity. Religion is another factor that influences migration norms and might make migration more or less likely.

We therefore expect that, if international out-migration is part of everyday life, discourses, experiences and institutions in the research area to a large extent, then this is likely to lead to the presence of migration aspirations. This condition is measured using the RAIR Coding scale *N. Attitudes towards international out-migration*, where a score of 1 is given if international migration, migrants and their influence are consistently described in positive terms in the research area.

Condition 16B: Optimistic expectations for the future

Conceptual rationale: People's perception of how their society and their own situation are changing over time might be as important for migration as their assessment of the current state of affairs. Analyses of migration can therefore benefit from incorporating ways of engaging with an uncertain future (Czaika 2015, Kleist and Thorsen 2016, Williams and Baláž 2012). Perceptions of change can broadly be considered in three ways: (1) assessments of how things have changed over a past period, up to the present; (2) expectations of how things will change in the future; and (3) perceptions of the current direction of change.

We expect that if resident's expectations for the future are marked by optimism rather than fear, then this likely leads to the absence of high migration aspirations in the research area. This condition is measured using the RAIR Coding *scale L. Overall atmosphere (hope/despair)*. A score of 1 is given if the general atmosphere in the research area is one of optimism, confidence or dynamism.

Condition 1A: Abundant livelihood opportunities

Conceptual rationale: Neoclassical migration theory (Harris & Todaro 1970) suggests that individuals and sometimes entire households migrate due to economic opportunities, such as availability of jobs and employment, at destination and/or lack thereof at the place of origin in order to maximise expected income (or utility). Quantitative studies find that bilateral migration flows respond to unemployment rates, wage differentials, and (lack of) job opportunities, even though magnitudes differ across individuals and countries. Micro level studies add that individual (un-)employment, job satisfaction, and anticipated career opportunities also drive migration aspirations. Unemployment might, however, decrease emigration aspirations due to poverty constraints.

We measure this condition with *Survey Item B6: In general, do you find that earning a living and feeding a family in [Research Area] is (a) Easy, (b) Manageable, or (c) Difficult?* The theoretical and directional expectation behind this is that the more difficult it is to secure one's own or one's family's livelihood, the more likely is a high prevalence of migration aspirations in the research area.

Condition 2A: High levels of well-being and standard of living

Conceptual rationale: While there is mixed evidence on the relation between migration and poverty, consensus emerged indicating that it is generally not the poorest who migrate (Skeldon 2002). Material and non-material relocation costs are the reasons why the poor are constrained to migrate, even more in situations of crises. However, it is not just absolute deprivation, but also relative deprivation - i.e., feeling poor in comparison to one's reference group within or across countries - that drives migration.

Therefore, while the relationship between standard of living and actual migration decisions might be ambiguous, we expect low levels of well-being to positively influence migration aspirations. We measure this condition with *Survey Item B17: All things considered, how satisfied are you with your life as a whole these days?* This measure more broadly covers life satisfaction and well-being rather than poverty/standard of living.

13.8.3 Possible Combinations of Sets and Conditions

Specifying a QCA model also includes considerations surrounding the possible combinations of sets and conditions. Should several sets be combined to reflect the condition, and if so, how? Do we want one or several measures to reflect the condition? How do we combine measures? Generally, conditions can be operationalised in several ways (see Figure 2). A one-measure condition is used when the measure at hand adequately represents the qualitative concept. For example, for the model specified in this handbook chapter, the measure from the RAIR Coding Scale *N. Attitudes towards international out-migration* is deemed adequate on its own, to represent the condition of a well-established culture of migration. What is more, for some themes, we may only have one measure available. However, sometimes two (or more) measures can be combined using logical AND/OR combinations, or even more complex techniques such as building an index.

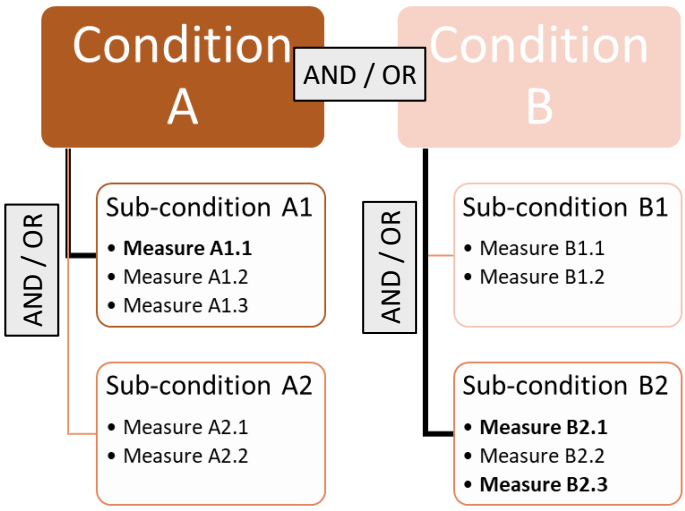


Figure 2 Measurement of conditions: one measure condition vs. logical combination of sub-conditions and measures

In QCA, three logical operators can be used to combine sets: the logical AND, the logical OR, and the logical NOT (cf. Schneider and Wagemann, 2012, pp.42-55)). In set theory, the resulting combination is called a conjunction/intersection (AND) or disjunction/union (OR) of different sets. The logical AND (*) operator requires that we take the minimum score across the sets to be combined while for the logical OR (+) it is the maximum score. The logical NOT is also called set negation and covers all cases not covered under the set definition.

Decisions concerning the combination of measures and conditions requires clarity about how the qualitative concept is to be defined and represented. These operators are necessary and useful, if we are for example interested in the set of research areas which display both high levels of wellbeing AND abundant livelihood opportunities. We can then assign this conjunction an overarching qualitative concept, such as 'enhanced well-being'. Since abundant livelihood opportunities and high levels of well-being and standard of living represent a similar theme, we combined *Condition 1A: Abundant livelihood opportunities* with *Condition 21: High levels of well-being and standard of living* using a logical AND. This basically just means, that the lower calibration score of the two can be used as the fuzzy score for the new condition. By combining these two sub-conditions we have created the condition 'livewell' and have therefore constructed one condition/set out of two sub-conditions/subsets.

In the following table the data and measurement for the outcome and each condition of Model MIG 1 are specified:

Table 6 Conceptualisation and Operationalisation of QCA Model 'MIG1: Aspirations'

Outcome/Condition	Data and Measurement	Name of Condition
Outcome: **Migration Aspirations** **(*presence/absence*)**	Survey Item C3 Would you like to go and live in another country sometime during the next five years, or would you prefer to stay in [RESEARCH COUNTRY]?	'aspiration1'
Condition 21A: **Well-established culture of migration**	RAIR Coding scale N. Attitudes towards international out-migration	'migculture'
Condition 16B: **Optimistic expectations for the future**	RAIR Coding scale L. Overall atmosphere (hope/despair)	'atmosphere'
Condition 1A: **Abundant livelihood opportunities** **AND**	Survey Item B6: In general, do you find that earning a living and feeding a family in [Research Area] is… (a) Easy, (b) Manageable, or (c) Difficult?	'livewell'
Condition 2A: **High levels of well-being and standard of living**	Survey Item B17: All things considered, how satisfied are you with your life as a whole these days?	

13.9 Truth tables

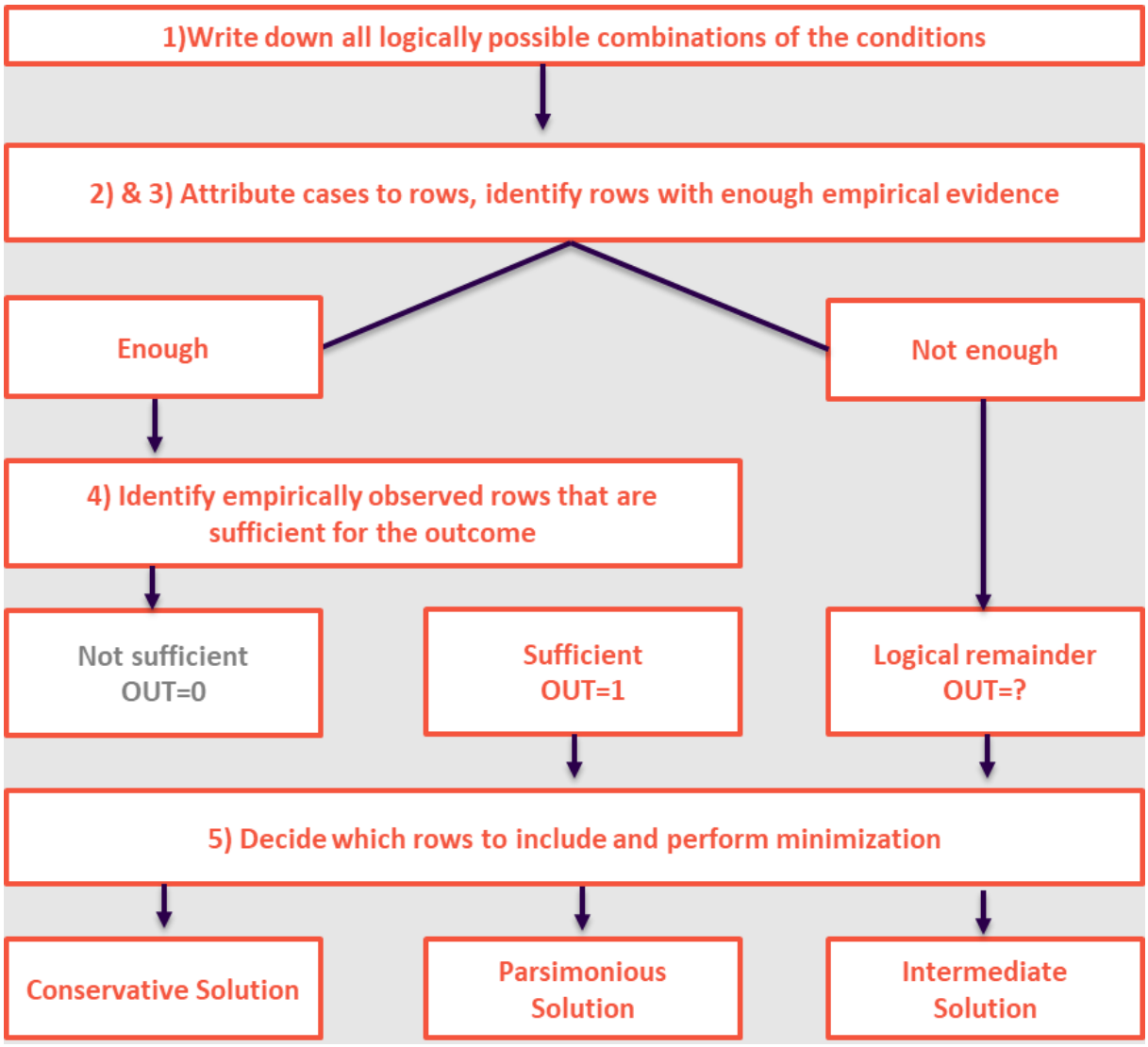
A truth table comprises all logically possible combinations of conditions. In fact, each truth table row represents one of the logically possible AND combinations of conditions. In a QCA with k conditions, there are 2^k possible combinations of conditions. Each case belongs best to only one truth table row. Each truth table row can contain one, multiple, or no empirical cases. However, each case belongs best to only one truth table row.

The truth table shows possible configurations, but it also provides information about the empirical distribution of cases, and their connection to the outcome. Therefore, each row of the truth table is also a statement of sufficiency, meaning that it specifies the combination of conditions which are sufficient or not sufficient for the outcome to occur. A truth table row can either be sufficient for the outcome (output value = 1), not be sufficient for the outcome (output value = 0), or be a logical remainder (output value =?) (cf. Oana, Schneider, Thomann 2022). Logical remainders are those combinations of conditions which are theoretically possible and therefore present in the truth table, but which have no cases attached to them and are thus not empirically instantiated.

Constructing the truth table consists of four steps: 1) Noting down all logically possible combinations of the conditions, 2) For each case, determining the truth table row to which it fits best, 3) For each truth table row determining if it contains enough empirical evidence, and 4) For the truth table rows that contain enough empirical evidence, determining whether it is sufficient for the outcome (meaning whether the qualitative fuzzy score is above the 0.5 anchor) (see also Figure 3). While this can theoretically be done manually, we are using the R software to construct the truth table[1] (and for all following data minimization, enhanced analysis, sensitivity analysis etc.).

[1] We make use of the function truth Table() in package QCA. Dusa, Adrian (2019). QCA with R. A Comprehensive Resource. Springer International Publishing.

Figure 3 Truth table algorithm: Constructing and logically minimising a truth table



Note: Based on Oana, Schneider, Thomann, 2022, p.100

We construct the truth table using the fuzzy data matrix for the selected/combined measures of the chosen conditions. Furthermore, we also need to decide on thresholds for the following:

- **Levels of consistency/ inclusion score (incl):** The consistency measure reflects the degree to which empirical evidence supports the claim of a sufficient (set-theoretic) relationship between conditions and outcome and indicates how much it deviates from a perfect sufficient relationship (cf. MHC6). Consistency can range between 0 and 1 and the higher the value, the more consistent the empirical pattern is with the statement of sufficiency.
- **Proportional reduction in inconsistency (PRI)**: This is a measure to identify simultaneous subset relations in the analysis of sufficient conditions, which may occur with fuzzy-set data when a configuration is both a subset of the outcome and a subset of the non-outcome, which would be a logical contradiction. The PRI value should not be close to 0.5, because then we cannot consider the given set as sufficient for a given outcome. The higher the PRI score, the better.

- Minimum **number of cases** in a row before it is classified as a logical remainder

In our example, we have set cut-off values for the consistency level ('incl') at 0.8 and for PRI above 0.51. We have also specified that each truth table row needs to display at least one empirical case. With this information in place our truth table for Model MIG 1a ('Presence of aspirations') shows eight truth table rows. The columns display the three conditions, whether they are deemed sufficient for the outcome ('OUT'), the number *n* of cases that hold a membership of higher than 0.5 in each row, the consistency level ('incl') and PRI score, and the names of the cases that fit best (with a score above 0.5) in a configuration of the three conditions.

In this example, we see that there are no cases which are assigned with the combination of conditions being sufficient for the outcome at the cut-off values specified. This could be because of contradicting cases and we will be followed up by a sensitivity analysis subsequent to the truth table analysis, which means that a truth table can still change if alternative cut-off values are tested and chosen, highlighting again the iterative back-and-forth process that is QCA.

Table 7 Truth Table for Model MIG1a: Presence of aspirations

Conditions							
migculture	**atmosphere**	**livewell**	**OUT**	**n**	**incl**	**PRI**	**Cases**
0	0	0	0	4	0.606	0.356	Down Quarters, Awe, Batu, Keti Bandar
0	0	1	0	1	0.693	0.336	Enfidha
0	1	0	0	3	0.598	0.273	Gbane, Dialakoro, Kombolcha
0	1	1	0	2	0.597	0.141	Yenice, Erigavo
1	0	0	0	7	0.642	0.413	Sao Nicolau, Killis, Shahrake Jabrael, Behsud, Shahrake Mahdia, Boffa, Redeyef
1	0	1	0	1	0.722	0.377	New Takoradi
1	1	0	0	5	0.653	0.402	Golf City, Boa Vista, Baidoa, Ekpoma, Moyale
1	1	1	0	3	0.665	0.300	Hopa, Chot Dheeran, Youhanabad

Constructing the truth table for the negated outcome of Model MIG1b ('Absence of aspirations') in the same way shows that there are five possible combinations of conditions which are sufficient for the outcome (OUT=1). This means that the selected conditions and their operationalisation explain the absence of aspirations in a research area better than the presence of aspirations.

Table 8 Truth Table for Model MIG1b: Absence of aspirations

Conditions							
migculture	**atmosphere**	**livewell**	**OUT**	**n**	**incl**	**PRI**	**Cases**
0	0	0	0	4	0.782	0.643	Down Quarters, Awe, Batu, Keti Bandar
0	0	1	1	1	0.844	0.663	Enfidha
0	1	0	1	3	0.849	0.726	Gbane, Dialakoro, Kombolcha
0	1	1	1	2	0.933	0.858	Yenice, Erigavo
1	0	0	0	7	0.747	0.586	Sao Nicolau, Killis, Shahrake Jabrael, Behsud, Shahrake Mahdia, Boffa, Redeyef
1	0	1	1	1	0.831	0.622	New Takoradi
1	1	0	0	5	0.767	0.598	Golf City, Boa Vista, Baidoa, Ekpoma, Moyale
1	1	1	1	3	0.856	0.699	Hopa, Chot Dheeran, Youhanabad

13.10 Conclusion

The aim of the QCA analyses in the MIGNEX project is to refine our understanding of the multiple effects that development processes can have on migration outcomes, as well as explain the way that complex configurations of migration and non-migration factors may shape development outcomes. This handbook chapter has introduced the broad range of data collected in the project and has specified in detail the measures that were selected for operationalising QCA conditions and how they are calibrated in the QCA research process. This includes the matching of measures to combined conditions, preparing the raw data matrix and calibrating the raw data into fuzzy score data matrix. Calibration refers to the definition of the degree of set membership for all conditions and outcomes based on raw data that describe condition and outcome characteristics of all cases. Having a fuzzy data matrix with a total of 169 fuzzified measures enables us to specify and build QCA models for a broad variety of research questions that MIGNEX aims to answer for both causal directions of the migration-development nexus.

For illustrating the calibration process, we have focused on one of the migration-sided outcomes (aspirations for international out-migration). The procedure explained here is similar for other research questions that will be addressed in the MIGNEX project. The challenge in MIGNEX QCA analyses is to specify models which most adequately produce necessary and/or sufficient conditions for certain migration and development outcomes, respectively. Obviously, there are usually more than one condition or configuration of conditions that generate an outcome. The potential to identify multiple (equifinal) causes for a migration and development outcomes to be explained is a core feature of MIGNEX QCAs. These so-called solution pathways are generated through the logical minimization process, which represents the next step in the QCA research process and involves the elimination of redundant conjuncts that appear in the truth table. Our example employed in this handbook chapter conveys the explanatory power of alternative equifinal but also asymmetric QCA solutions. This is shown in our example where we can explain the absence of migration aspirations but not their presence. For researchers new to the QCA method (and maybe more

used to regression analyses), this asymmetry in explaining an outcome may be surprising but illustrates the conceptual richness and complementarity of QCA solutions.

The documentation of the QCA calibration process and specification of truth tables will be followed up by the actual QCA analyses on the various MIGNEX research questions as outlined in MIGNEX Handbook Chapter 6. Some of these QCA analyses will be presented in the two core MIGNEX background paper, D6.4 Background paper: QCA of the determination of migration processes, and D7.5 Background paper: QCA of the development impacts of migration.

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Annex 1. MIGNEX coding scales

Research area		Aspects of development					Potential vulnerabilities					Salience and characteristics of migration						External resource flows		
		Major infrastructure improvement	Mobile phone network	Prominence of international tourism	Educational expansion	Overall atmosphere of hope (4)/despair (1)	Extent of gender segregation and gender differences	Level of insecurity and violence	Visibility of police/military/security	Environmental degradation	Vulnerability to natural disasters	Salience of international out-migration	Attitudes towards international out-migration	Perceived feasibility of international out-migration	Presence of migration information campaigns	Gendering of out-migration (internal and international)	Strength of transnational ties	Importance of collective remittances	Prominence of micro-level international aid	Prominence of international investment
Coding scale letter		**A**	**B**	**C**	**F**	**L**	**G**	**H**	**I**	**J**	**K**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**D**	**E**
Awe	NGA2	4	3	1	2	2	4	4	2	1	2	1	1	2	1	4	1	1	2	1
Baidoa	SOM2	2	2	1	2	4	4	4	4	3	3	2	3	2	1	4	4	3	4	1
Batu	ETH2	3	3	4	3	2	2	3	3	4	1	3	2	3	2	4	4	1	2	4
Behsud	AFG2	3	4	3	4	2	4	3	2	2	3	3	4	3	1	3	4	4	3	3
Boa Vista	CVP2	4	4	4	2	3	2	2	2	2	2	2	3	2	1	3	3	1	2	4
Boffa	GIN1	3	4	2	3	1	2	3	3	4	2	2	3	2	1	4	1	2	2	4
Chot Dheeran	PAK1	3	4	1	3	3	3	3	2	3	1	4	3	3	1	4	4	3	2	1
Dialakoro	GIN2	1	3	1	3	3	3	2	2	3	2	2	2	1	1	2	1	1	3	1
Down Quarters	NGA1	2	4	1	3	1	4	2	3	2	2	2	1	2	2	4	2	2	2	1
Ekpoma	NGA3	2	4	2	3	3	2	3	2	3	2	4	3	3	4	1	4	3	1	3
Enfidha	TUN1	2	3	2	2	2	3	2	3	1	2	4	2	2	1	3	4	1	1	3
Erigavo	SOM1	3	4	1	4	4	3	1	4	2	2	3	2	2	2	4	2	1	3	1
Gbane	GHA1	2	2	1	2	3	3	3	1	4	3	1	2	1	1	1	1	1	3	3
Golf City	GHA2	2	4	2	2	3	2	2	1	3	2	2	3	2	1	2	2	1	1	3
Hopa	TUR1	4	4	2	1	3	2	1	1	3	3	2	4	3	1	4	3	1	1	1
Keti Bandar	PAK3	2	4	1	2	2	3	1	3	4	4	1	2	1	1	3	1	1	2	2
Kilis	TUR3	4	4	1	2	2	3	1	2	2	1	2	3	2	1	1	3	1	4	1
Kombolcha	ETH1*	4	3	2	4	3	3	2	3	1	1	4	2	3	3	4	4	2	1	4
Moyale	ETH3	2	3	3	3	3	3	3	3	3	3	3	3	4	3	4	4	1	3	1
New Takoradi	GHA3	3	4	1	2	2	2	3	1	2	2	4	4	2	3	4	3	2	1	2
Redeyef	TUN2	2	3	1	2	2	3	2	2	4	2	4	3	2	2	3	4	1	1	2
São Nicolau	CPV1	2	3	2	3	2	2	1	2	2	2	4	4	2	1	2	4	3	2	2
Shahrake Jebrael	AFG1	2	4	1	3	1	3	3	1	1	3	4	3	2	2	3	3	2	2	2
Shahrake Mahdia	AFG3	2	4	1	2	2	4	3	2	2	4	4	3	3	1	3	4	2	2	2
Yenice	TUR2	4	3	1	1	3	3	1	1	1	1	1	2	3	1	2	1	1	1	2
Youhanabad	PAK2	2	4	1	4	3	2	2	2	2	1	3	4	2	1	3	2	1	3	1

Based on qualitative fieldwork. See section 13.3.2 for details.

Annex 2. Overview of QCA conditions

Table A1. Overview of QCA conditions

	QCA Condition	Definition
Livelihoods and economic opportunities	1A. Abundant livelihood opportunities	Extent to which the local area offers ample employment, business or other livelihood opportunities
	1B. Expanding livelihood opportunities	Extent to which the local employment, business or other livelihood opportunities are (perceived to be) expanding
Well-being and standard of living	2A. High level of well-being and standard of living	Extent to which residents experience a high level of well-being and standard of living
	2B. High level of poverty and inequality	Extent to which residents experience high level of poverty and socio-economic inequality
Health: access and quality	3A. High levels of access and quality in health care services	Extent to which residents have access to health care services and regard them to be of high quality.
	3B. Prevalence of good health	Extent to which residents and their families are in good health.
Education: access and quality	4A. High levels of access and quality in education	Extent to which residents have access to education and regard it to be of high quality.
	4A. High levels of educational attainment	Extent to which residents have high levels of educational attainment.
Social protection	5A. High level of social protection	Extent to which residents have access to social protection.
Infrastructure and utilities	6A. High levels of access to public infrastructure and utilities	Extent to which residents have access to basic public infrastructure and utilities.
Governance and institutions	7A. High quality of governance and institutions	Extent to which residents experience high-quality governance and low levels of corruption
Civic participation	8A. High level of civil rights and participation	Extent to which residents enjoys civil rights and actively engage in democratic life.
Insecurity and violence	9A. High levels of physical insecurity and violence	Extent to which residents fear or experience physical insecurity and violence.
	9B. Increasing physical insecurity and violence	Extent to which residents perceive physical insecurity and violence as increasing.
Environmental degradation and natural disasters	10A. High levels of environmental degradation	Extent to which residents are detrimentally affected by environmental degradation
	10B. High exposure to natural disasters	Extent to which residents are exposed to natural disasters and environmental shocks
International connectedness	11A. High level of international presence	Extent to which international actors and external resources are present and visible in the form of tourism, aid or investment
Culture, cohesion, and local attachment	12A. Large proportion of long-resident families	Extent to which residents and their parents are born in the research area.
	12B. High level of mutual trust	Extent to which residents feel that people in the research area can generally be trusted.

	QCA Condition	Definition
	12C. High levels of conservatism and conformism	Extent to which residents are socially conservative and conformist.
Gender relations	13A. High level of gender inequality	Extent to which men and women lead different lives under the influence of different norms.
Development interventions	14A. High levels of development intervention	Extent to which domestic and international development interventions are present in the area and in residents' awareness.
	14B. Positive assessments of development interventions	Extent to which residents hold favourable views on the importance and effects of domestic and international development interventions.
Local investment	15. High inclination to invest in local business	Extent to which residents have invested, plan to invest, or would be willing to invest in business activities in the research area.
Overall perceptions of change	16A. Positive assessments of recent development	Extent to which residents hold favourable views on how the research area has developed during the past five years.
	16B. Optimistic expectations for the future	Extent to which resident's expectations for the future are marked by optimism rather than fear.
	16C. Positive perceptions of change	Extent to which residents hold positive views on the general direction of change in their lives and in the research area.
In-migration, transit migration and integration	17A. High levels of immigration	Extent to which immigrants make up a large part of the resident population.
	17B. High levels of internal in-migration	Extent to which internal migrants make up a large part of the resident population.
Out-migration	18A. High levels of international out-migration	Extent to which there is a large outflow of international migrants from the research area
	18A. High levels of internal out-migration	Extent to which there is a large outflow of internal migrants from the research area
Return migration	19A. Large present of international return migrants	Extent to which a large proportion of residents have lived abroad.
Migrant transnationalism and remittances	20A. Widespread transnational ties	Extent to which a large proportion of residents have family members, relatives, or friends in other countries.
	20B. High intensity of transnational communication	Extent to which a large proportion of residents have regular communication with family members, relatives or friends in other countries.
	20C. High importance of remittances	Extent to which remittance inflows are widespread and important to household income.
Culture of migration	21A. Well-established culture of migration	Extent to which international out-migration is part of everyday life, discourses, experiences and institutions in the research area
	21B. Predominantly favourable views on migration	Extent to which residents hold favourable views on international out-migration and its effects of communities of origin.
Migration aspirations	22A. High prevalence of international migration aspirations	Extent to which international migration aspirations are widespread and well-developed

	QCA Condition	Definition
	22B. High prevalence of internal migration aspirations	Extent to which internal migration aspirations are widespread and well-developed.
Feasibility of migration	23A. High perceived feasibility of migration	Extent to which people in the research area see international migration as a realistic option for those who want to pursue it.
	23B. High prevalence of failed migration attempts	Extent to which experiences of failed migration attempts are widespread.
Migration policy	24A. Restrictive migration policy at major destinations	Extent to which restrictive immigration policies in major destination countries are obstacles for international migration from the research area
	24B. Prominent information campaigns to discourage irregular migration	Extent to which residents have been exposed to information campaigns intended to discourage irregular migration.
	24B. Active emigration policy	Extent to which national or sub-national government engages in active emigration management by either facilitating or constraining emigration
	24C. Active return and diaspora policy	Extent to which governmental and non-governmental actors engage with diaspora in facilitating remittances or return