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Supplementary File

"We Don't Meet [Any]where Else, Just Here": Spatiality of Social Capital in Urban Allotments

1. Data construction

Two data construction methods were integrated into this study's research design: semi-structured interview and name generator survey. Here we use the term data construction as opposed to data collection or generation, to emphasize the construction of data as a creative act between the research team and participants. Our materials are comprised of primary data sourced in semi-natural social settings, indicating the "experiential and contextual" proximity of the research team to the data used in this research (Blaikie & Priest, 2019). Data was constructed as words at the source (during semi-structured interview), transformed to numerical coding soon after the source (name generator survey), and integrated as words (Atlas.ti) and numbers (TOSMANA) during analysis.

1.1 Semi-structured interview

Given the demographic structure of allotment gardeners in this urban allotment garden (UAG) network, interviews were conducted in English and Finnish, with additional informal conversations held in Russian. The corresponding author was present during all interviews; two research assistants provided language support during interviews, as needed. During each interview, 3 anchoring questions were posed to the participant, probing narratives and experiences about the participant's perspective of social interactions and atmosphere in their UAG. Following an initial discussion guided by the anchoring questions, the interviewer led the participant through a structured name generator activity. Spontaneous follow-up questions were also posed throughout the entire data construction session, to gain additional clarity on certain social ties discussed during both the semi-structured interview and name generator activity.

1.2 Name generator survey

The name generator activity was developed as an adapted version of the classic name generator method (Bellotti, 2016; Marsden, 2003), whereby participants were asked a structured series of questions about their social interactions (as employed by Weck & Hanhörster, 2015). Including:

1. *Name up to 4 people outside your household with whom you have:*
    a. *Shared garden-related advice with.*
    b. *Shared food from your allotment with.*
    c. *Shared gardening tools/resource with.*
2. *Name up to 4 people outside your household with whom you have:*
    a. *Given or received help with searching for housing.*
    b. *Given or received help during the COVID-19 pandemic.*
    c. *Given or received help navigating an administrative issue (ex. Healthcare services, taxes, language translation).*

The first set of questions probed 'getting-by' resources transferred within the physical boundaries of the micro-public; the second set of questions probes 'getting-ahead' resources transfers that transcend the physical boundary of the micro-public (de Souza Briggs, 1997). The topic of each question in the first set corresponds to the topic of each question in the second set (ex. Name someone you have shared garden-related information with vs. Name someone you have shared housing-related information with). The topics of the questions themselves are derived from research on resource exchanges within UAGs in the case region (Resler & Hagolani-Albov, 2021).

The goal of this activity was to map inter-ethnic/inter-class network contacts of gardeners, and specifically, how functional support and resources had been transferred between neighbors across social boundaries. Unlike the classic name generator survey, in this version participants were not asked to draw their own social networks, but instead, were guided through a structured series of questions related to examples of 'getting-by' and 'getting-ahead' support. All questions in the name generator survey investigate an action by the interviewee, for example with whom they have transferred resources, rather than, say, contacts with whom they *may* have such an interaction with. All names elicited during the survey were immediately assigned a numerical identifier, to protect the anonymity of the ego's social contacts (i.e., the alters). Data from the name generator survey was later used to operationalize the conditions 'LARGE' and 'DIVERSE' in the csQCA. Participant responses to the following prompts were used to identify the number of contacts each ego had formed within the micro-public, and to differentiate between bonding and bridging ties, and further, between 'getting-by' and 'getting-ahead' resources.

1.3 Demographic questionnaire

Each ego was then asked to fill out a demographics questionnaire for each alter elicited during the name generator survey (N=97) (see Yousefi Nooraie et al., 2020). The demographics questionnaire included the following questions:

1. *How often do you have contact with this person?*
    a. *Rarely (1-2 times/year or less)*
    b. *Occasionally (Once every second week to once every three months)*
    c. *Frequently (daily to once a week)*
2. *What is this person's gender?*
    a. *Female*
    b. *Male*
    c. *Non-binary*
    d. *Prefer not to say*
    e. *Other*
3. *How and where did you meet?*
4. *What is their occupation?*
5. *Where does this person live?*
    a. *Same neighborhood*
    b. *Same city*
    c. *Same country*
    d. *Outside of the country*
    e. *I don't know*
6. *Is this person an allotment gardener?*
    a. *No*
    b. *Yes, their allotment is located in: _____*

7. *What is this person's currently employment status?*
    a. *Employed*
    b. *Underemployed*
    c. *Employed*
    d. *Student*
    e. *Retired*
    f. *I don't know / other*
8. *What is this person's highest level of education*
    a. *Comprehensive school*
    b. *High school / vocational school*
    c. *Bachelor's*
    d. *Master's*
    e. *Continued education*
    f. *I don't know / other*
9. *Foreign background information*
    a. *They attended primary school in Finland*
    b. *They came to Finland at a later stage in life*
    c. *I don't know / other*
10. *What is this person's mother tongue?*
11. *What language(s) do you speak with this person?*

Data from these demographic questionnaires was later reduced during analysis to categorize each social tie as either a bonding or bridging tie. During our csQCA, this dichotomization was used to identify 'boundary crossing' social interactions and operationalize our assessment of how diverse a participant's garden-based social network is (I.e., the condition DIVERSE).

2 Data reduction and analysis

After data construction was completed, all qualitative materials from the semi-structured interviews were transcribed and professionally translated to English; all quantitative materials from the name generator survey and demographics questionnaires were digitized. Once reduced, these data sets were analyzed using thematic analysis and crisp-set qualitative comparative analysis (csQCA).

2.1 CsQCA: Building the data table

Following the 6-stage procedure outlined by Rihoux and Ragin (2009) for conducting csQCA, we began by building the data table. Four gardener characteristics (i.e., conditions) relevant to our outcome of interest were identified; two sourced from social capital theory ('DIVERSE' and 'LARGE') and two sourced from the thematic analysis codebook ('ARRIVAL' and 'EST'). Before proceeding, we confirmed that the chosen conditions adhered to the general rule that 'variables must vary,' (Rihoux & Ragin, 2009), namely, that a minimum of 1/3 variation was present in our observed cases for each condition. Once confirmed, we proceeded to construct a raw data table, which includes condition data for each of our observed egos (N = 12) (see Table 1).

To synthesize the information from the raw data table into the second stage of the csQCA (the truth table), the raw values were translated into the binary language of csQCA – namely, dichotomized using the Boolean algebraic language of 0 and 1 (Rihoux & Ragin, 2009). This required the research team to identify relevant binary thresholds for each condition's

coding, using empirical case specific knowledge as well as theoretical knowledge. Relevant dichotomization thresholds were formulated by all members of the research team, with the support of Rihoux's (2009) 'good practices' for dichotomizing conditions. Specifically, all thresholds were justified with substantive and/or theoretical grounds, and all conditions were coded so that their presence [1] could be theoretically associated with a positive outcome [1] (Rihoux, 2009). For example, if a case had the value [1] for each condition, it would be theoretically assumed the outcome would also be [1]. Condition thresholds were set as follows (see Table 2). The dichotomization thresholds were then applied to the conditions for each case in the raw data table (see Table 3).

2.2 CsQCA: Constructing the truth table

After dichotomizing the conditions, we were able to construct the truth table. The truth table synthesizes the raw data into different configurations; its construction was aided by the csQCA software TOSMANA and accompanying QCA add-in for Excel (Cronqvist 2019). Unlike the raw data table, each row in the truth table does not correspond to data from one case, but instead, each row represents a specific configuration of observed conditions that were associated with the same outcome. Therefore, one configuration may be (and was) observed among many cases. The truth table, and the 6 unique configurations that emerged, are shown in Table 4. Several iterations of condition sets were tested during stage 1 and 2 of this analysis to conclude with a contradiction-free truth table. Strategies employed included adding an additional condition, removing conditions that did not display at least 1/3 variation, and reconsidering thresholds based on substantive and theoretical reasoning. This process resulted in a truth table with zero contradictory configurations of conditions.

2.3 CsQCA: Boolean minimization and consideration of logical remainders

The next stage of the csQCA, Boolean minimization based on the idea of maximum parsimony, was then performed in TOSMANA to reduce these complex formulas (i.e., the configuration of conditions) into their shortest and most parsimonious expressions (Rihoux & Ragin, 2009). For example, in an expression where one causal condition differed, yet the outcome remained the same, that condition can be removed to create a more parsimonious expression. The process of Boolean minimization does not consider cases themselves, but rather configurations of conditions that result in the same outcome (i.e., one row in the truth table). Therefore, Boolean minimization can be conducted both (1) with only empirically observed cases, or, (2) with all theoretically possible configurations, including those which we have not observed – which we refer to as logical remainders (LRs). As we have included 4 conditions in our truth table, there are 2^4 (16) theoretically possible configurations. Our empirical observations, however, only correspond to 6 of these configurations. The remaining 10 configurations, for which we do not have observed cases, represent the study's LRs (Rihoux and Ragin 2009). Including the LRs in the csQCA allows us to make a 'simplifying assumption' (Rihoux and Ragin 2009) about the outcome of the LR if they behaved in the same way the observed cases did.

Thus, our Boolean minimization procedure was applied 4 times; to the configurations with outcome [1] with LRs, to the configurations with outcome [1] without LRs, to the configurations with outcome [0] with LRs, and to the configurations with outcome [0] without LRs (see Tables 5-8). For Tables 6 and 8, the software only made assumptions with certain LRs, in the cases where the assumption shortened the minimal formula.

The resulting minimal formulas (with LRs) for outcome [1] and outcome [0] are thus, as follows (Appendix A):

Outcome [1] with LRs: DIVERSE*LARGE+DIVERSE*EST+LARGE*EST → [1]

- This minimal formula means that the presence of a diverse and large garden network OR the presence of a diverse network and established plot OR the presence of a large network and an established plot are sufficient for the scaling outcome.

Outcome [0] with LRs: [diverse+large]+[diverse+est]+[diverse+est] → [0]

- This minimal formula with LRs means that the absence of a diverse nor large network OR the absence of a diverse network nor established plot OR the absence of a large network nor an established plot are sufficient for the non-scaling outcome.

164 **Tables**

Table 1. Raw data table.

Case	ARRIVAL (Late-stage arrival in Finland)	DIVERSE (# of bridging ties)	LARGE (# of contacts)	EST (years)	SCALES
1+2	1	1	3	20	0
3	1	0	1	5	0
4+5	1	4	5	10	1
6	1	1	5	15	0
7	1	1	5	0.3	0
8	1	1	4	11	0
9	0	2	11	3	1
10	1	1	6	0.3	0
11	0	3	4	0.3	0
12	1	0	4	10	0

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Table 2. Dichotomization threshold for each condition.

	Thresholds for dichotomization	
Condition	**1**	**0**
ARRIVAL	Participant attended primary school (or equivalent) in Finland	Participant did not attend primary school (or equivalent) in Finland.
DIVERSE	Participant has formed 2 or more bridging ties within the physical boundary of the garden	Participant has not formed 2 or more bridging ties within the physical boundary of the garden
LARGE	Participant has formed 5 or more social contacts within the physical boundary of the garden	Participant has not formed 5 or more social contacts within the physical boundary of the garden
EST	Participant had tended their current plot more than 1 full season	Participant had not tended their current plot for more than 1 full season

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Table 3. Raw data table, with dichotomization thresholds applied to all four conditions.

Case	ARRIVAL	DIVERSE	LARGE	EST	SCALES
1+2	1	0	0	1	0
3	1	0	0	1	0
4+5	1	1	1	1	1
6	1	0	0	1	0
7	1	0	1	0	0
8	1	0	0	1	0
9	0	1	1	1	1
10	1	0	1	0	0
11	0	1	0	0	0
12	1	0	0	1	0

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Table 4. Truth table.

Case	ARRIVAL	DIVERSE	LARGE	EST	SCALES
11	0	1	0	0	0
9	0	1	1	1	1
1+2; 3; 6; 8; 12	1	0	0	1	0
7;10	1	0	1	0	0
4+5	1	1	1	1	1

Note: To assess the quality of the truth table we confirmed that a mix of positive and negative outcomes were present among the configurations; we then confirmed that each condition displayed at least 1/3 variation (Rihoux and Ragin 2009).

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Table 5. Outcome [1] without LRs

Case	ARRIVAL	DIVERSE	LARGE	EST	SCALES
11	0	1	0	0	0
9	0	1	1	1	1
1+2; 3; 6; 8; 12	1	0	0	1	0
7;10	1	0	1	0	0
4+5	1	1	1	1	1
Outcome: 1NOLR					
#Implicants:1					
DIVERSE*LARGE*EST	0	9, 4+5			
#Solutions: 1					
DIVERSE*LARGE*EST					

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Table 6. Outcome [1] with LRs

Case	ARRIVAL	DIVERSE	LARGE	EST	SCALES
11	0	1	0	0	0
9	0	1	1	1	1
1+2; 3; 6; 8; 12	1	0	0	1	0
7;10	1	0	1	0	0
4+5	1	1	1	1	1
Outcome: 1					
#Implicants: 6					
ARRIVAL*LARGE	0	9			
arrival*EST	0	9			
arrival*DIVERSE	0	4+5			
DIVERSE*LARGE	0	9;4+5			
DIVERSE*EST	0	9;4+5			
LARGE*EST	0	9; 4+5			
#Solutions: 3					
DIVERSE*LARGE					
DIVERSE*EST					
LARGE*EST					

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Table 7. Outcome [0] without LRs

Case	ARRIVAL	DIVERSE	LARGE	EST	SCALES
11	0	1	0	0	0
9	0	1	1	1	1
1+2; 3; 6; 8; 12	1	0	0	1	0
7;10	1	0	1	0	0
4+5	1	1	1	1	1
Outcome: 0NOLRs					
#Implicants:3					
arrival*DIVERSE*large*est	0	11			
ARRIVAL*diverse*large*EST	0	1+2;3;6;8;12			
ARRIVAL*diverse*LARGE*est	0	7;10			
#Solutions: 1					
arrival*DIVERSE*large*est+ARRIVAL*diverse*large*EST+ARRIVAL*diverse*LARGE*est					

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Table 8. Outcome [0] with LRs

Case	ARRIVAL	DIVERSE	LARGE	EST	SCALES
11	0	1	0	0	0
9	0	1	1	1	1
1+2; 3; 6; 8; 12	1	0	0	1	0
7;10	1	0	1	0	0
4+5	1	1	1	1	1
Outcome: 0					
#Implicants:3					
diverse	0	1+2;3;8;12;7;10			
large	0	11;1+2;3;6; 8;12			
est	0	11;7;10			
#Solutions: 3					
diverse+large					
diverse+est					
large+est					

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Appendix

Appendix A. Configurations of conditions sufficient for both scaling outcomes.

Scaling outcome	Minimal formula	Pathways to outcome
Scaling	DIVERSE*LARGE+DIVERSE*EST+	Egos who have a diverse *and* large social network
	LARGE*EST → [1]	Egos with a diverse network *and* established plot
		Egos with a large network *and* established plot
Non-scaling	[diverse*large]+[diverse*est]+	Egos with neither a diverse *nor* large social network
	[large*est] → [0]	Egos with neither a diverse network *nor* an established plot
		Egos with neither a large network *nor* an established plot

Notes: Following the language conventions of Boolean algebra, the "*" symbol indicates "and,"; the "+" symbol indicates "or". Conditions coded in capital letters indicate the condition's presence; conditions coded in lower-cased letters indicate its absence (Rihoux & Ragin, 2009).

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