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The Chilean case**

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DOI

[10.1007/s10901-023-10094-2](https://doi.org/10.1007/s10901-023-10094-2)

Publication date

2024

Document Version

Final published version

Published in

Journal of Housing and the Built Environment

Citation (APA)

Cortés Urrea, V. A., Ersoy, A., Czischke, D. K., & Gruis, V. H. (2024). The potential of collaborative housing to tackle the social deficit of housing: The Chilean case. *Journal of Housing and the Built Environment*, 39(2), 697-725. <https://doi.org/10.1007/s10901-023-10094-2>

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The potential of collaborative housing to tackle the social deficit of housing: the Chilean case

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Received: 5 April 2023 / Accepted: 13 November 2023
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Abstract

In recent decades, various programs have been developed as part of Chile's housing policies to respond to the housing deficit. Most policies have so far focused on addressing the quantitative, qualitative, and urban deficits, neglecting the social dimension of housing. At the same time, the concept of collaborative housing has been referred to as a possible alternative to respond to these social challenges by fostering social cohesion, collaboration, and mutual aid. This article explores how collaborative housing can tackle the social deficit of housing. Here, we conceptualise this deficit as 'the lack of non-physical or intangible social characteristics given among residents of a project, such as trust, social cohesion, and a sense of community, necessary for housing to be considered adequate.' We examined the relation between these two concepts by developing a theoretical and empirical study. The first consisted of a theoretical framework and a review of literature on collaborative housing's response to the social deficit of housing. Second, we interviewed stakeholders from two study cases. We found that residents in both collaborative housing cases perceive an improvement in their social interactions, sociability, trust, and sense of community in their current homes compared to previous homes. Therefore, we conclude that collaborative housing presents opportunities to tackle the social deficit of housing.

Keywords Collaborative housing · Social deficit of housing · Study cases · Housing policy · Chile · Maestranza · Pequeños Condominios

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1 Introduction

A growing global housing crisis has led to an increasing housing deficit. The Latin American context is not alien to this problem. Many studies show that the housing deficit encompasses a quantitative dimension referring to the amount of housing available for the population, a qualitative dimension referring to the material of dwellings, and an urban dimension that encompasses the facilities and urban spaces available to the inhabitants (Ducci, 2009; MINVU & CEHU, 2009). However, the housing deficit not only implies a lack of quantity, quality, and urban spaces but also a lack of social architecture and non-physical characteristics (Borja, 2018; Jarvis, 2015; Paidakaki & Lang, 2021; Rodríguez et al., 2018). This deficit in the social dimension is what we term the *Social Deficit of Housing* (SDH). In recent decades, many programs have been developed by housing policies in the Global North and South to respond to the housing deficit. However, they have focused mainly on the quantitative and qualitative dimensions, neglecting the other dimensions of the deficit (Rodríguez & Sugranyes, 2005).

Housing programs in Latin America, specifically Chile, have seen the same pattern, as policies have mostly focused on the quantitative and qualitative dimensions (Rodríguez & Sugranyes, 2005; Ruiz-Tagle et al., 2021). In Chile, this dimension has been scarcely included in the policy narrative and merely addressed symbolically by the housing programs. In other words, creating housing initiatives that aim to respond to the social dimension are not applied as structural policy changes but are exceptions that are not continuously pursued over time (Cortés-Urra et al., 2023; Fuster-Farfán, 2019). Thus, most programs do not explicitly address the SDH. Currently, the government's *Plan de Emergencia Habitacional* (housing emergency plan) issued by the Ministry of Housing and Urbanism aims to build 260,000 homes within four years, including self-managed housing initiatives such as housing cooperatives (MINVU, 2022). Therefore, we argue that now there is potential to implement new approaches that respond to this social dimension in Chile.

In the international context, new housing approaches have been identified that could potentially tackle the SDH. These alternative forms of resident-led, self-managed and self-organised housing are known under the umbrella term of *Collaborative Housing* (CH) (Fromm, 2012; Lang et al., 2020). Some studies on CH developed in the Global North affirm that these initiatives have social characteristics such as promoting neighbourhood social cohesion, social interactions and mutual aid (Arroyo et al., 2021; Lang & Novy, 2014; Sørvoll & Bengtsson, 2018). This is because, unlike mainstream housing, CH includes social inclusion, solidarity, community life, and collaboration among its explicit values (Van den Berg et al., 2021; Vestbro, 2010). Nevertheless, these housing forms have not yet been conceptualised as CH in Latin America. Moreover, in the Chilean context, it has not yet been empirically investigated whether CH could help tackle the social deficit of housing. Following earlier work by Cortés-Urra et al. (2023), we argue that it is necessary to investigate whether some forms of housing, such as CH, can help reduce this problem. This article aims to explore the opportunities and limitations of CH and addresses the following research question: How can collaborative housing address the social deficit of housing in Chile?

We conducted two studies to address this question: (1) theoretical, consisting of the proposal of our framework and conceptual model developed to establish assumptions, and (2) empirical data collection, carried out through fieldwork, direct observation of residents in their homes, study case visits, and in-depth interviews (Morgan et al., 2017; Yin, 2018). Our theoretical and empirical findings show that even if not all collaborative housing

features strongly influenced each social indicator, it has the potential to help tackle the social deficit of housing. This paper is structured as follows. After this introduction, we present the *Theoretical framework* where we define concepts and propose analysis indicators. The following section puts forward our *conceptual model*, where we review literature on the response of CH to the SDH. The “*Methods*” section explains the steps followed in this research. Also, we present the two study cases: *Maestranza* and *Pequeños Condominios*. In the *Findings*, we show the results of the in-depth interviews conducted for the two cases and how these projects address the SDH. The “*Discussion*” section discusses our results and the lessons learned in this study. Finally, in the “*Conclusions*” section, we present a series of reflections and the implications of this research.

1.1 Background: the Chilean housing system

Since the 1970s, following the dictatorship, Chile has become a neoliberal state and has privatised public services, affecting the housing system (Hözl, 2018). In this period, a free market model was implemented based on ‘subsidiarity’, where the State relegates housing production to the private market (Angelcos & Pérez, 2017). The latter develops housing based on a standardised mass production system, mainly pursuing economic interests (Peñafiel, 2021). In this system, the laws leave a wide margin of action to the private market, land prices are the target of speculation and housing is commodified and treated as a ‘consumer good’, which creates a gap between the affordable supply and demand for housing (Castillo & Hidalgo, 2007). Consequently, private developers buy cheap land on the periphery that lacks infrastructure to build subsidised housing (Rodríguez et al., 2018).

Financing is done through a tripartite system considering end-users savings, state subsidies, and mortgages, as in most Latin America (Balchin & Stewart, 2001). Currently, Chilean citizens access housing in two ways, depending on the socioeconomic level of end-users (Fig. 1). On the one hand, high and middle-income inhabitants purchase homes with their resources and mortgages. On the other hand, low- and middle-income inhabitants access ‘social housing’ by applying for housing state subsidies (Balchin & Stewart, 2001)

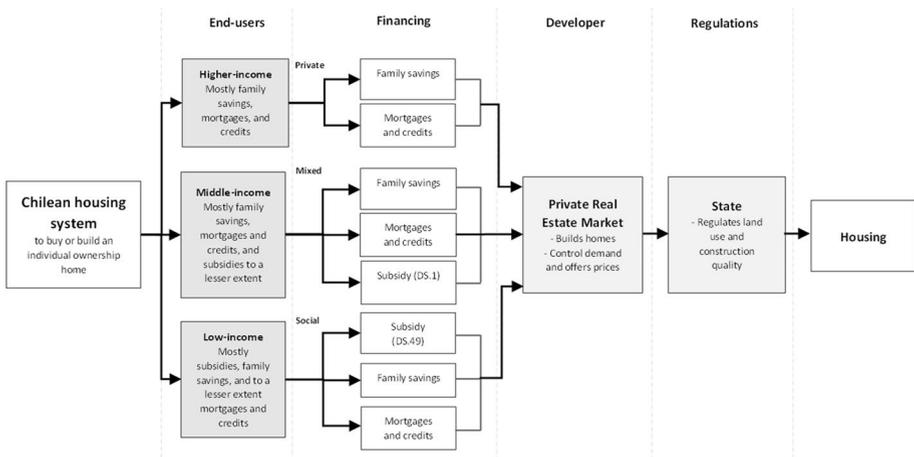


Fig. 1 Homeownership Chilean housing system. Source: authors

such as the *Fondo Solidario de Elección de Vivienda* (FSEV).¹ These subsidies provide partial economic support complemented by family savings and mortgages for purchasing an individual home (Ruiz-Tagle et al., 2021).

2 Theoretical framework: collaborative housing and the social dimension of housing

In this section, we define the concepts and indicators used in this research to identify the research gap and inform the conceptual framework that contributes to answering the research question to fill this gap. This section is structured in two parts. First, we propose the *Definition and operationalisation of Collaborative Housing* and its features. Second, we define the *Social Deficit of Housing* and present the *Social indicators of housing*.

2.1 Defining and operationalising collaborative housing

The concept of *Collaborative Housing* (CH) has been developed in the last decades by researchers from primarily the Global North. Fromm (1991) introduced the concept of *collaborative communities*, a term encompassing a wide variety of forms with shared facilities. In recent years, there has been some consensus, with CH being recognised as an international movement where housing is developed through collaborative processes (Twardoch, 2017; Vestbro, 2010). CH has some features that distinguish it from mainstream conventional housing. Future residents are driven by their conscious intention of sharing and living in close proximity with other households (Jarvis, 2015). In addition, they share visions for living in their homes and collaborate with external stakeholders to develop their homes (Thompson, 2020; Twardoch, 2017). The participation and collaboration levels can vary between projects and occur in the planning, management, design, or construction and extend to using and maintaining homes (Czischke et al., 2020; Fromm, 2012). Besides, the collective can make project decisions through member-based governance and democratic mechanisms. CH generally has spatial characteristics to foster the social dimension. These shared spaces can include patios, corridors, meeting areas, or, in some cases, kitchens and laundry areas (Bossuyt, 2022). In general, in these spaces, residents perform regular joint activities, such as having meals or organising the functioning of the community.

The conceptualisation of CH developed from a Global North perspective is a broad concept. Therefore, we propose an operational definition for the Chilean context to determine which projects can be considered CH. Based on the latest conceptualisation of Czischke et al., (2020, p. 6), we understand CH as follows:

A general umbrella term that includes a wide variety of self-organised and self-managed (initiated from bottom-up and top-down) collective initiatives adhering to the following four defining key features (Fig. 2). First, future residents' driver or motivation is the intention to live (together) with other households in a project. Second, there is a high level of participation where residents collaborate with different external actors (governmental, non-profit, private, and others) in developing and producing their homes (at any project stage). Third, the projects include shared (interior or exterior) spaces. Fourth, residents perform joint activities regularly.

¹ *Solidarity Fund for Housing Choice* is a Chilean subsidy for acquiring social housing.

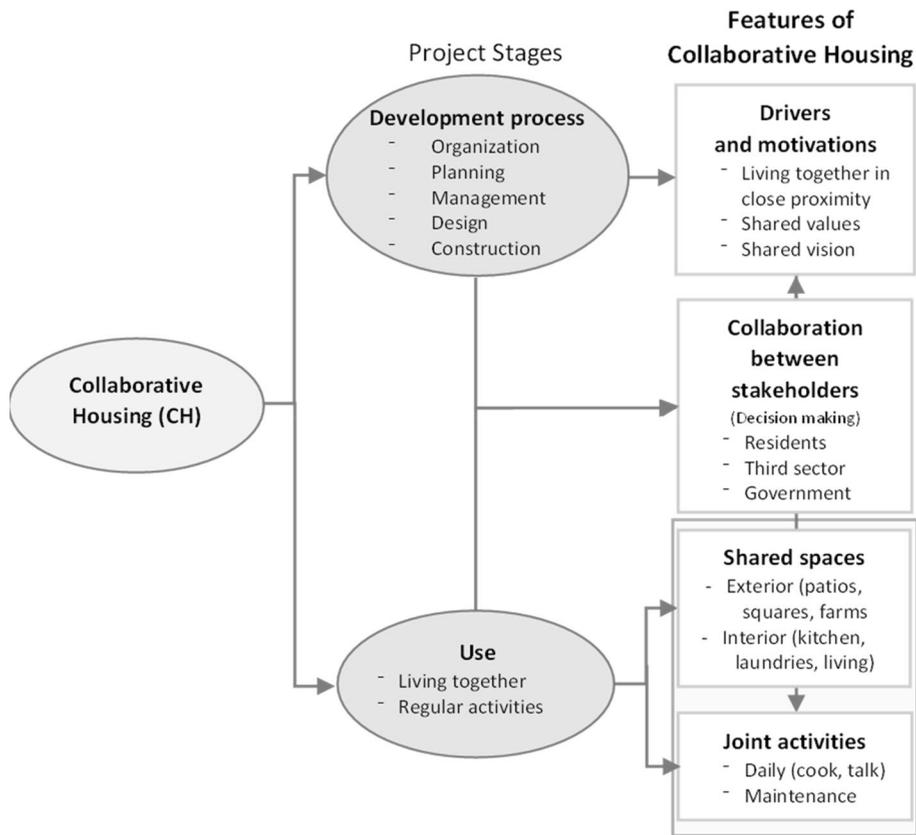


Fig. 2 Collaborative housing features. Source: authors

For example, as shown in Table 1, if in the forms there is no resident participation or collaboration in any project stage or future residents did not intend to live in a community, share spaces, or perform joint activities, they are not considered CH.

2.2 Social dimension and the social deficit of housing

The broad literature suggests that housing, although composed of physical dimensions, also extends to a non-physical social dimension (Borja, 2018; Paidakaki & Lang, 2021). In this article, building on Cortés-Urra et al. (2023), we understand the *Social Dimension of Housing as the social architecture or non-physical dimension experienced when inhabiting homes where ties and social relationships are built*. Furthermore, the lack of this social dimension is what we conceptualise as the *Social Deficit of Housing (SDH)*. In other words, we refer to the SDH as *the lack of non-physical or intangible social characteristics among residents of a project, such as trust, networks, social cohesion, and a sense of community necessary for housing to be considered adequate*. The Social Deficit could occur or be perceived because of a variety of reasons, including but not limited to the location of homes and the lack of residents' accessibility to their social networks and urban amenities at the macro scale, the lack of adequate urban spaces to socially interact at the

Table 1 Inclusion and exclusion criteria to define collaborative housing. Source: authors

Project stages	Inclusion criteria	Exclusion criteria
Management and development process	<p>Motivations and drivers</p> <ul style="list-style-type: none"> - Future residents intend to live together in close proximity and do activities as a group - Shared goals and values on how to live 	<ul style="list-style-type: none"> - Lack of intention from households to live together - No shared goals
Any project stage	<p>Collaboration and participation between stakeholders</p> <ul style="list-style-type: none"> - Future residents participate and/or collaborate in any project stage - Collective decisions 	<ul style="list-style-type: none"> - No residents participation or collaboration - No resident's decision power
Project use and joint activities	<p>Spatial</p> <ul style="list-style-type: none"> - Exterior and/or interior shared common spaces and facilities <p>Joint activities</p> <ul style="list-style-type: none"> - Residents are organised and carry out joint activities regularly 	<ul style="list-style-type: none"> - Individual housing that has no shared exterior and/or interior spaces - There are no joint activities

neighbourhood or local scale, or the lack of adequate spaces in homes to interact with family or neighbours at the micro-scale.

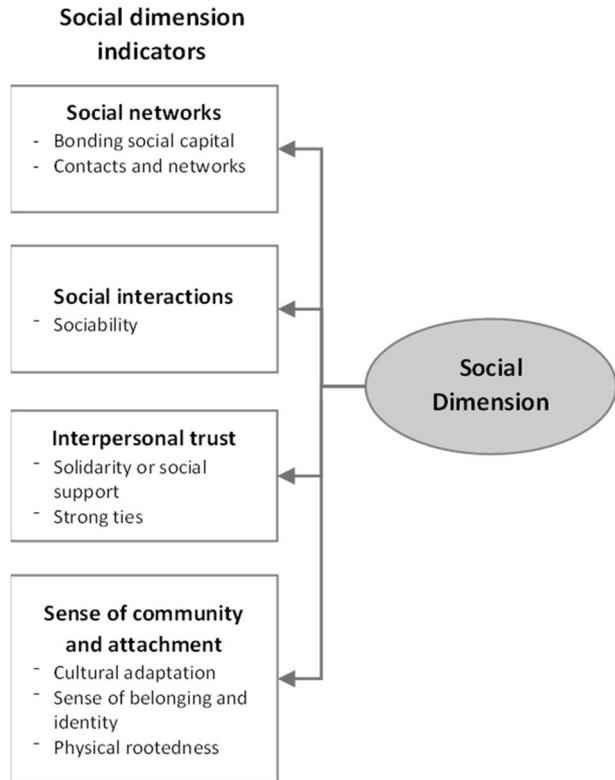
In Chile, the SDH could occur, for example, because of the form of distribution of subsidized housing or specific eradication and re-settlement government programs, which locate families in the urban peripheries far from service areas and social ties. In many cases, the option provided by these programs is either non-voluntary or represents a sub-optimal choice for the residents due to the lack of better opportunities in view of their underprivileged socioeconomic situation. Residents are then forced to redefine their social relations and connection with the built environment (Zumelzu & Barrientos-Trinanes, 2019) and could suffer a breakdown of their social ties (Rodríguez et al., 2018), a weakening of social cohesion and capital (Hözl, 2018; Wormald & Sabatini, 2013) and isolation (Garrido & Kornbluth, 2015). Since the 1970s, some of these policies have been replicated in Latin America, including plans such as *land liberalisation* in Mexico and *mass double-up relocation* in Argentina (Castillo & Hidalgo, 2007; Greene & Mora, 2020; Rodríguez & Sugranyes, 2005). Given this, for example, in Chile, a significant part of the inhabitants living in informal housing would not apply for state subsidies because this option would imply living on the periphery far from their social ties (Beswick et al., 2019; Greene & Mora, 2020).

2.3 Social indicators of housing

We propose our indicators to identify the *social dimension* in housing based on a policy review by Cortés-Urra et al. (2023). In addition, we use studies on *neighbourhood social cohesion* (Méndez et al., 2021) and *social sustainability* concepts (Janssen et al., 2021) to define our indicators, as the social dimension is a concept that shows similarities. We use Latin American studies on *neighbourhood social cohesion* developed by CEPAL (2022), Méndez et al. (2021) and Rodríguez et al. (2018). From this concept, we included characteristics such as a sense of belonging, physical rootedness, strong ties, trust, solidarity, and sociability. From the international literature on *social sustainability* and its non-physical dimension of the social structures of communities, we include social networks, interaction, and a sense of community and attachment (Eizenberg & Jabareen, 2017; Janssen et al., 2021). Furthermore, we also include bonding social capital as a sub-indicator, as referred to by Woolcock (2002). Below we define the four leading indicators that compose the social dimension of housing in this study: *Social networks*, *Social interactions*, *Interpersonal trust*, and *a Sense of community and attachment* (Fig. 3).

- A. *Social networks* social ties between families and neighbours who share similar demographic characteristics within a group (Bram, 2010). This indicator can be measured by analysing the frequency of visits, closeness with contacts, and content of relations (Méndez et al., 2021; Woolcock, 2002). In this article, we consider that the measured intensity is proportional to the strength of each social indicator, e.g., a higher frequency of visits and activities than in previous homes means a stronger social network.
- B. *Social interactions* everyday encounters, conversations, and activities are shared amongst community members. This indicator is often measured by analysing the frequency of social interactions and the relationship between shared spaces and the daily encounters or spontaneous meetings among residents (Goodchild, 2000; Williams, 2005). For example, more activities and spontaneous encounters than in previous homes imply stronger social interactions.

Fig. 3 Indicators of the social dimension of housing. Source: authors



- C. *Interpersonal trust* the degree of solidarity, social support, and trust between people living in a community. Trust can be measured in terms of shared ideologies and values and the perceived feeling of trust with neighbours when performing regular activities (CEPAL, 2022; Méndez et al., 2021). For example, a stronger feeling of shared ideologies and more collaboration with neighbours than in previous homes implies stronger interpersonal trust.
- D. *Sense of community and attachment* the extent to which residents adapt and identify themselves as belonging to a place or a community. The sense of community and attachment can be measured in relation to the feeling of belonging, identification, and people's cultural adaptation to a particular context (Méndez et al., 2021; Rodríguez et al., 2018). For example, a stronger feeling of belonging than in previous homes implies a stronger sense of community and attachment.

2.4 Conceptual model: collaborative housing addressing the social deficit of housing

We use our theoretical framework to inform and build our conceptual model and answer our research question. In this section, using the conceptual model, we theoretically explore the opportunities and limitations of Collaborative Housing to address the Social Deficit of Housing. We then explore this relation empirically with the help of interviews. In our conceptual model, we used each of the 'CH features' to cross them

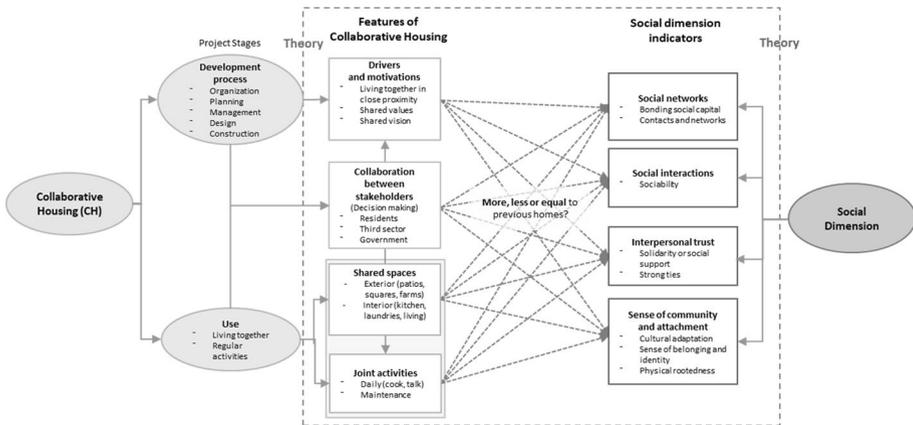


Fig. 4 Conceptual model of collaborative housing and the social deficit of housing. Source: authors

with our ‘social indicators,’ as shown in Fig. 4. We analysed, e.g., if ‘the intention to live together’ may influence ‘social interactions’ or if doing ‘joint activities’ relates to building ‘interpersonal trust’ among the residents. Furthermore, we wanted to determine if CH residents feel that social indicators are stronger, less strong, or equally present compared to their old homes.

International literature shows that CH, unlike mainstream housing, has social characteristics that could tackle the SDH. These characteristics include promoting social cohesion (Van den Berg et al., 2021), solidarity (Sørvoll & Bengtsson, 2018), social interactions (Williams, 2005), mutual aid (Arroyo et al., 2021), and a sense of belonging and community (Guity-Zapata et al., 2023; Ruii, 2015). In CH, future residents as managers of their homes, organise their community, co-design projects and create networks between actors (Brysch, 2019; Fromm, 2012; Ruii, 2015). McCamant (1999) and Fromm (2012) conclude from their empirical studies that CH is a strategy for social repair. Oosterlynck et al. (2016) and Sørvoll and Bengtsson (2018) show the presence of internal solidarity within projects and externally with the broader community in CH. Carrere et al. (2020) found in CH that doing joint activities such as caring and eating together regularly increased the residents’ sense of well-being and trust. These indicators are positively influenced if the architectural design encourages social architecture with shared spaces and facilities (Jarvis & Bonnett, 2013; Khatibi, 2022).

Besides finding theoretical evidence on opportunities for CH to tackle the SDH, we also found challenges and limitations. Although CH promotes group cohesion and solidarity, the social dimension is limited in some cases because it does not extend to all project residents or expand beyond it. This could create ‘closed communities’ or a feeling of isolation in residents (Droste, 2015). Sørvoll and Bengtsson’s (2018) findings from Danish cases complemented this, showing threats such as ‘home-owning individualism’ and ‘housing market conflict of interest’ undermine solidarity. Other challenges are developing affordable projects to achieve internal cohesion and social mix (Bresson & Labit, 2019) and maintaining linkages between residents and external actors over time (Lang & Novy, 2014). Despite these limitations, we assume from our review that CH could significantly increase the social dimension and help address SDH.

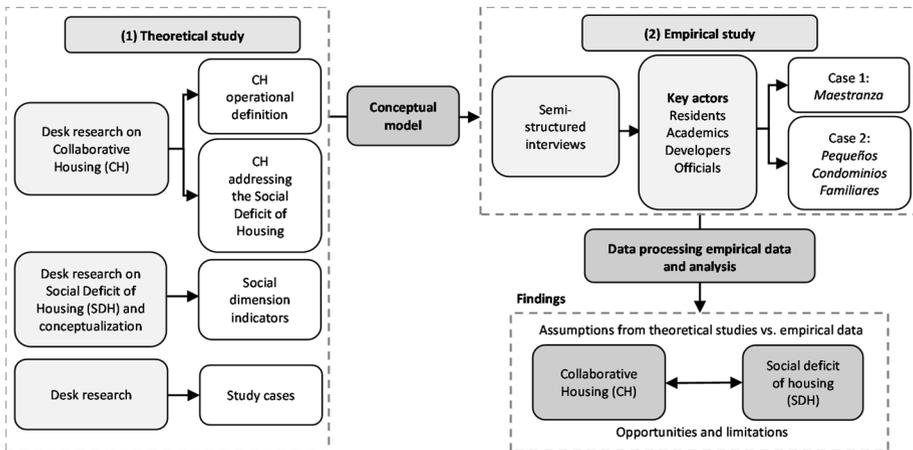


Fig. 5 Methods. Source: authors

3 Methods

This article explores the opportunities and limitations of CH to tackle the SDH through a qualitative phenomenological-hermeneutic approach. This research was organised into two studies. An overview of these studies can be seen in Fig. 5. We collected qualitative data through direct observation and 22 in-depth semi-structured interviews during a field study conducted between June and August 2022. We followed the sample size for phenomenological studies proposed by Guest et al. (2006) and Marshall et al. (2013). We then deductively interpreted the participants' lived experiences and perceptions and applied the analysis indicators (Creswell, 2009; Fuster, 2018). We interviewed key actors face-to-face, including 14 residents, three academics, three developers, one project manager and one official of our two cases. The interview protocol consisted of two types of interviews (for residents and external actors) with open-ended questions. The interviews were conducted after the affiliation's ethical committee's approval. Each interviewee participated voluntarily in the research and was informed about expectations, the study's objectives and the meaning of the terminologies used. Non-resident participants were recruited personally via email, and residents were recruited with help of developers and managers, using snowballing to recruit more residents. The interviews lasted one hour on average, were conducted by the first author in Spanish (the native language of the interviewees), and were recorded with the participant's written informed consent, transcribed and anonymised. The interviews were complemented with direct observation since the interviews were conducted in the resident's homes.

We first interviewed the academics and developers to obtain shadow data for comprehensive insights beyond residents' individual experiences (Morse, 2012). Second, we verified these perceptions and life experiences with residents (Creswell, 2009). While personal information was not explicitly asked, data such as age and gender were inferred from how residents spoke about themselves (e.g., pronouns, history of housing). The residents were grouped into three age ranges: young adults (18–26 years), adults (27–59 years), and older adults (above 60 years). The proportion of representativeness for case 1 was 85/15% (women/men), and for case 2 was approximately 67/33% (women/men) (Table 2). This

Table 2 Participants interviewed from collaborative housing study cases in Chile. Source: authors

Nº	Case	Category	Name	Gender	Age range	Family composition
1	Case 1: Maestranza	Residents	Resident 1	Female	Older adult	Resident 1, partner, and child
2			Resident 2	Female	Young adult	Resident 2, parents, and young brother (grand-parents live in another apartment)
3			Resident 3	Female	Older adult	Resident 3 (daughter is applying to second project)
4			Resident 4	Female	Adult	Resident 4, partner, and child
5			Resident 5	Female	Adult	Resident 5, son and daughter-in-law
6			Resident 6	Female	Older adult	Resident 6, partner, young son, and elderly father (daughter applying to second project)
7			Resident 7	Male	Adult	Resident 7, partner, and child
8	Ukamau movement		Manager 1	-	-	-
9	Architectural firm		Developer 1	-	-	-

Table 2 (continued)

Nº	Case	Category	Name	Gender	Age range	Family composition	
10	Case 2: Pequeños Condominios (PCs)	Residents	Resident 8	Female	Older adult	Resident 8 and partner (apartment 2: niece with partner and child)	
11			Resident 9	Male	Older adult	Resident 9 and partner (apartment 2: niece with partner and child)	
12			Resident 10	Female	Adult	Resident 10, partner, and child (apartment 2: mother-in-law and son)	
13			Resident 11	Female	Older adult	Resident 11 and son (apartment 2: son, daughter-in-law, and child)	
14			Resident 12	Male	Adult	Resident 12 and mother (apartment 2: brother's family)	
15			Resident 13	Female	Adult	Resident 13, young children, and elderly brother (apartment 2: daughter, partner, and children)	
16			Resident 14	Female	Older adult	Resident 14 and grand-daughter with husband and child (apartment 2: grandson with partner and child)	
17			Consolida	Developer 2	-	-	-
18				Developer 3	-	-	-

Table 2 (continued)

Nº	Case	Category	Name	Gender	Age range	Family composition
19	Key informants in both cases	Government	Official 1	-	-	-
20		University of Chile	Academic 1	-	-	-
21		Pontifical Catholic University of Chile	Academic2	-	-	-
22		University of Chile	Academic 3	-	-	-

difference in proportion is because a greater percentage of women than men live in the cases and were willing to participate in the interviews.

Although interviewees answered considering the situation of their entire family nucleus, it is important to clarify that there is a possibility of bias and distortions in the findings. The interview process stopped for both cases when the collected data reached the saturation point. Subsequently, we classified the collected data using our conceptual model. Then, we analysed and coded this data using the indicators from our conceptual model with Atlas Ti. We interpreted answers about perception of the presence and intensity of each social indicator compared to previous homes. We considered that a stronger intensity of indicators means a positive influence on the social dimension (Fig. 4). We then interpreted the interviewees' experiences in terms of the social indicators as a proxy for the potential of CH in tackling the SDH in the Chilean context.

3.1 Study cases

We identified the two cases after fieldwork and interviews with stakeholders in 2019 when these projects were under construction. During this fieldwork, our participants identified a pool of six possible Chilean forms with a collaborative approach. From these forms, including housing cooperatives, assisted self-build, self-build and informal housing, and collective and micro-settlement social housing projects, three forms met the defining CH inclusion criteria (Table 1). In addition, we added a fourth criterion to measure the social dimension: that residents have been living in their project for at least two years. Only two CH forms had built projects older than two years meet this criterion. These two cases are *Maestranza* and *Pequeños Condominios* (PCs), which are located in Santiago, Chile.

3.1.1 Case 1: Maestranza

Maestranza is a resident-driven social housing project initiated in 2011 by the *Movimiento Social de Pobladores Ukamau*,² comprising low-income families from *Los Nogales* neighbourhood located in the *Central Station* district (González, 2021). The project was financed with the FSEV housing subsidy and the Supreme Decree-Law DS.49.³ The 424 apartments were completed in October 2020 after 10 years of the resident's struggle (Fig. 6). Apartments are individually owned, while shared spaces are co-owned. Future residents developed *Maestranza* in collaboration with stakeholders throughout the project's design, management, and construction stages (González, 2021). This collaboration consisted of democratically deciding on the project, i.e., one vote per household, and co-designing the project with the architectural studio of Fernando Castillo Velasco⁴ and Cristián Castillo Echeverría.⁵ Finally, *Maestranza*'s design features have been recognised as the 'best social integration project' in 2021 (Premio Aporte Urbano, 2021). The project includes shared

² Movement of Chilean settlers who fight for the right to housing and the construction of a neighborhood as an indispensable social unit (González, 2021).

³ Instrument intended to regulate the FSEV and the subsidy allocation for vulnerable families.

⁴ National Prize Architect, former mayor of *La Reina* district and rector of the Pontifical Catholic University of Chile, who focused on developing housing through collaborative processes.

⁵ Architect and activist for the right to housing in charge of the architectural and construction company Alpinku.

spaces and facilities that unite the entire complex, such as meeting rooms, terraces, and a network of horizontal corridors.

3.1.2 Case 2: Pequeños Condominios

The *Pequeños Condominios* (PCs) from the *Peñalolén* district of Santiago (Fig. 7) were developer-driven and initiated in 2015 by Consolida, a construction company and *Sponsoring Entity* (Consolida, 2021). In 2018 Consolida convoked low-income households interested in living in PCs that met the FSEV requirement of belonging to a low socioeconomic level and the ‘Micro-settlement program’ requirement of having savings and owning a land site of 9×18 m. Thus, land is financed by the households (homes are located on their site), and construction is financed by the FSEV and household savings. Furthermore, the current homes should be considered uninhabitable and demolished because they lack adequate quality. Initially, households were reorganised to co-own the land (i.e., shared rights to the land and co-ownership tenure of the future condominium), and the existing homes were declared uninhabitable. Consolida administrated, developed and built the PCs, while households managed the paperwork and, through mutual aid, vacated the old homes, distributed the new homes and organised the maintenance (Consolida, 2021). Although current regulations restrict resident participation in the design, PCs consider shared spaces for households to meet spontaneously in their daily lives. These spaces include shared patios, barbecue areas, parking, and sometimes shared interior spaces.

4 Findings: collaborative housing and the social deficit of housing

Our Findings are organised based on our analysis by the four features of CH, namely *Drivers and motivations*, *Collaboration between stakeholders*, *Shared spaces and Joint activities* in relation to the indicators of the social dimension: *Social networks*, *Social interactions*, *Interpersonal trust*, and *Sense of community and attachment*. Below, we present our Findings for each case, including quotes from the interviewees that represent the main tendencies of the responses.

4.1 Case 1: Maestranza

This sub-section presents the results of *Maestranza*, which are summarised in the Appendix section in Table 3.

4.1.1 Residents’ motivations and drivers

The primary motivation of *Maestranza* households was the idea of living as a *community*. Academics 1 and 2 and Manager 1 explained that residents collectively refused to move to the periphery. Developer 1 said that families self-organised around the project to fight for housing. Resident 7 confirmed this:

We all started with a need for housing (...) we fought for this project. [During the process], we realised that living in a community and caring for each other is necessary.

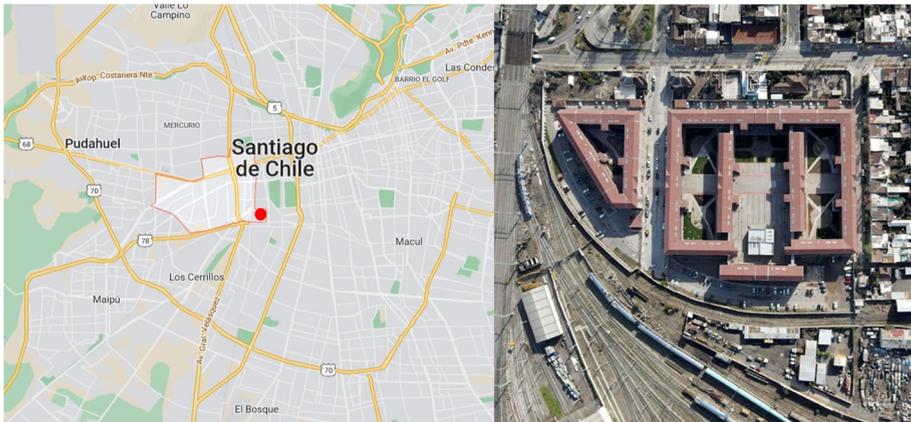


Fig. 6 Maestranza project site in Santiago, Chile. Source: Google maps and Premio Aporte Urbano (2021)

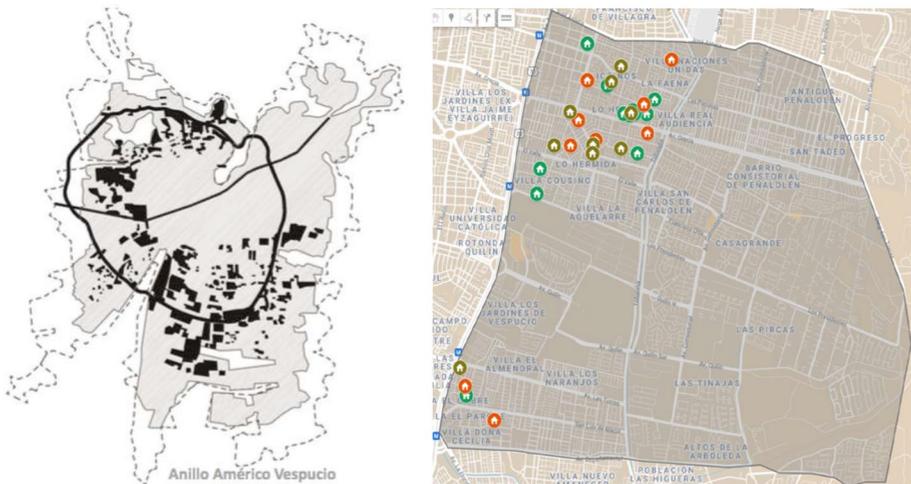


Fig. 7 Pequeños Condominios projects site in Santiago, Chile. Source: Consolida (2021)

Most participants stated that their motivations were to stay in their original neighbourhood (*sense of attachment*) to keep their *networks* and *social interactions* while preserving their independence. These networks were maintained even when home distribution was based on participation, not their preferences. Residents 5 and 6 referred to this:

My daughter is waiting for the project's new stage to come too. [We wanted] to live with the family in different apartments. (...) We intend to build a community.

Developer 1 explained that the group formed to fight for housing and began to coexist socially and politically, creating *social interactions* and *sociability*. Resident 3 explained:

To [socially]connect and build trust, people must share values, and we share common values.

Finally, according to Manager 1, residents feel proud to live in Maestranza because they feel a *sense of community and attachment* to the project. Resident 4:

We were born and grew up [here], (...) here is where we were formed and belong to this district. (...) We are an organised community that we want to maintain over time.

4.1.2 Collaboration between stakeholders

In the early project stages, households' participation was mandatory. In this process, residents built external and internal collaborative *social networks*. The networks with external actors execute the technical, social, architectural, and political project management. Internally, decisions about the location, financial procedures, and project maintenance are consensually made through voting in assemblies, strengthening most residents' *sense of community*. Resident 2 highlights:

We participated in the project's decision-making, voted for the design, and developed our regulations (...) [this] was essential to creating community.

Currently, collaboration and *social interactions* occur naturally compared to previous homes. Resident 1 exemplified their mutual support:

One night, when I had a pre-infarction, the community saved me and took me to the hospital.

Developer 1 and Manager 1 suggested that *interpersonal trust* was built through collaboration, e.g., during the struggle and protests for housing. Residents 4 and 5 explained that the movement had united them:

Before, I knew people for years but did not trust them. (...) Now yes, if something is lost here, people, give it back to you. (...) [There are] several neighbours with whom I became friends and [visit] frequently.

Finally, Developer 1 explained that families collaborate to stay in their area of origin (*sense of attachment*):

Maestranza arises from the [collaborative] process of the community itself; they are the protagonists from the beginning. [They] are the ones who find the space in which they want to settle, which is a space in their original territory.

4.1.3 Shared spaces

Developer 1 affirmed that Maestranza's design encourages community living, trust, social interactions, and cohesion more than mainstream housing. The residents wanted to encourage *community living and social networks*. Hence, the building is accessible through horizontal corridors and includes shared spaces such as headquarters, civic areas, squares, and patios. Developer 1:

The homes can be used as a regenerator of the social fabric. One of Maestranza's objectives was that the project would be different. It would not be only housing units, but (...) the centrality would be placed in the shared spaces.

Residents 3, 5, and 6 confirmed the above statements:

Everyone meets in the corridor (...), thus preserving their relationships. You always meet and talk to people, even if you do not participate much. If you need something, everyone is always there. (...) Parents can continue working from home (...) while a neighbour performs the caretaker role, and families' cohesion and sense of community increases.

Although the families have different lifestyles, most coexist well. Some residents previously lived in doubled-up or rentals in overcrowded conditions, and their *sociality* has improved. Residents 3 and 6:

Where I live is quiet, and there are no problems with loud music. (...) Life has improved 100%. Seven families used to live in one house, and now we have an apartment just for us. (...) If we have issues, we discuss them and fix them.

Finally, *attachment* and families' *community life* have been influenced by collective work, such as improving shared common areas. Resident 4:

Where I originally come from, I could not put even a little plant, and I had to ask permission for everything. Now I am free to do so [and] we organise to improve the shared spaces.

4.1.4 Joint activities

The residents are connected and have a *social network* to help each other. Resident 3:

We all know each other. If you look outside now, it looks like everything is closed (...), but everyone is looking and knows what is happening. Everything is taken care of here; even neighbours are hired to clean and care for the garden.

Most households *socially interact* in shared spaces regularly. In case residents did not want to join, as happened during the COVID-19 pandemic, they were still included. Residents 1 and 7:

We started eating together daily because there was still no gas. We all contributed and ate breakfast and lunch together while the children played. (...) If neighbours did not go down [to share], they could participate in the activities from their balconies.

Manager 1 highlights that during Covid-19, households made communal pots as an element of social unification, which helped residents build and strengthen *Solidarity* and *trust*. Resident 1 confirmed this:

Now I have the confidence to say what I need and to help others. I gave up my house long ago to use it as a social headquarters so everyone could eat.

Although not all residents participate in the *community*, most are involved and contribute in the way they can. Resident 2:

Some people do not help cook at charity events, but they buy or publicise the sale.

Furthermore, some participants recognised power issues among the project leaders solved through democratic processes in the monthly assemblies.

4.2 Case 2: Pequeños Condominios

In this section, we present the results of Pequeños Condominios, which are summarised in the Appendix section in Table 4.

4.2.1 Residents' motivations and drivers

The main motivations for the PCs are adequate housing, family *social networks*, and *attachment to the neighbourhood*. However, the intention of living in close proximity or more independently differs for each household. Residents 13 and 14:

In our case, the motivation was to have our own home. Others do it because they intend to continue living together.

Developers and Academics explained that most households are motivated to keep their *networks and family social bonds*, and PCs have reinforced these links internally and externally. Residents 8 and 9:

[In our new home], my social life changed. Now people ask me where to go to have a house like this, so one also forms ties with [people] from other parts. (...) Our PC is 'everyone's home'; we like to spend birthdays together and barbecue in the pergola.

Even though families *trust* each other, most do not explicitly mention that motivations to live together build trust but mention the *sense of community*. Residents 10, 11, and 12:

We want to have a life together with the neighbours of the condominium, and each one maintains their privacy and supports each other when needed. (...) Living together helped us. We like [to do] different tasks (...) such as family care.

Academic 3 highlights residents' *sense of community, attachment, and social interactions*, which families have created living there for over 30 years. Most residents explained that if they had the opportunity to live in a better neighbourhood far from their district, they would not move. e.g., Residents 10 and 14:

I came to Peñalolen at nine, so I know the neighbours. (...) If they had given me the choice of another piece of land, I would have preferred it here.

4.2.2 Collaboration between stakeholders

Residents' collaboration in the PCs design is limited, initiated, and entirely performed by Consolida because regulations restrict it. Nevertheless, residents redistribute the land, manage maintenance, and know project processes through informative meetings. Residents 8 and 11 said that process participation helped build *community and networks*, generating opportunities:

I have never participated in a neighbourhood council. However, I did not miss any meetings during this project. I liked participating. (...) We could support each other by giving job information, which is a sense of community.

Most households feel that collaborating has increased *social interactions*, but some isolated cases have tensions. Developer 2 explained that some original landowners limited other households' participation:

Power is ceded by giving part of the land to be co-owned, generating internal conflicts.

Official 1 and Academics 1 and 3 stated that caring and collaborating in the vertical core have strengthened bonds of *trust* and *solidarity*. Externally, relationships of trust and bonding social capital were established with Consolida. Residents 8 and 9:

I feel appreciated, respected, and loved by the neighbours. We integrate [new neighbours] and help them [to adapt]. (...) I would go if [Consolida] asked me to give a talk to encourage other people about PCs. I am very grateful for them doing their best for the poorest people.

A large percentage of the Peñalolen population is not applying for subsidies due to their *attachment to the neighbourhood*. Developer 3:

[Households] prefer to live in poor qualitative conditions than apply for a subsidy for mainstream housing. (...) Families do not want to leave here because [for example] their grandmother cares for their children.

4.2.3 Shared spaces

The new homes have encouraged *spontaneous social interactions and networks* and a *sense of community* in PCs residents. Developer 2 explained that families recognise this influence. Resident 14:

Even though I had the same neighbours before (...), now they visit me, and I feel good. Shared spaces unite us and make everyone from the family visit here spontaneously.

Residents mentioned that *family sociability* has improved because formal (shared) spaces encourage spontaneous interactions. For example, Resident 13 mentioned that in new homes, they fight less, and Residents 8 and 12 agreed:

Our marriage improved because now we have more privacy. (...) Before, there was a bathroom for twelve people. Now we are four, and the bathroom is always unoccupied. (...) We meet every day [and] we think about what we will cook or buy, which is more than before.

Unlike the previous homes, some residents feel that shared spaces reinforce *internal solidarity* and *trust*, allowing them to care for the sick and children of their condominium neighbours. Even though most residents do not feel shared spaces influence *external solidarity*, they would not move from the neighbourhood if they had the chance. Following this, Residents 10 and 11:

When [the neighbour] was sick, I went with her to the doctor, and she took care of me when I was sick. (...) I would not change my neighbourhood, nobody bothers me here, and I do not [bother] either.

4.2.4 Joint activities

Most residents perceive that performing joint activities regularly increased their *social interactions*, but not all socially interact outside the PCs. Following this, Resident 11:

We greeted each other cordially (...) during project management meetings, but there was no community.

Official 1 explained that parallel to the PCs, the state program *I Want My Neighbourhood* (QMB) was carried out, and this helped consolidate (internal and external) *social networks*. Residents 8 and 13:

People mobilise when there is something to do. When they made the plaza for us, everyone went to see what and how we were doing.

Resident 14, who has not participated in the QMB, explained:

In our neighbourhood (...), a community feeling is being formed.

PCs households have a family dynamic in which they carry out daily activities, such as family care, reinforcing the *feeling of trust, solidarity, and family cohesion* within PCs. Residents 9 and 13:

There are no problems. If there is a sick neighbour, we communicate. (...) We [continue] having lunch and doing things together daily, e.g., my granddaughter comes here daily.

Majority of residents state that doing joint activities has influenced their *sense of attachment, identity, and community*. Resident 8 pointed out:

I feel good; I am like the mom of the neighbourhood. If [the neighbours] need something or have any questions, they ask me, and I will answer.

5 Discussion

Our empirical findings from the two analysed cases align with our theoretical study on the opportunities and limitations of CH facing the SDH. From our theoretical framework, we conclude that CH shows potential to tackle the SDH in Chile despite some limitations. CH features encouraged sociability, social cohesion and networks, solidarity, and community life (Carrere et al., 2020; Czischke et al., 2020; Fromm, 2012; Sørvoll & Bengtsson, 2018). Our empirical research reinforces this, showing that although some CH features are perceived as weakly influencing social indicators, most residents considered that social indicators were strengthened compared to previous homes where they had lived. In the case of Maestranza, there is a stronger perception of the influence of CH on social indicators than in the PCs, since Maestranza's residents did not live together before. Hence, their intention to live together, creation of networks, collaborative processes, and sharing spaces are perceived more strongly. Our research suggests that the features of Collaborative Housing

may positively influence the social dimension of housing, therefore addressing the Social Deficit of Housing (Fig. 8).

In both study cases, participants perceived that residents' *participation, collaboration, and joint activities* significantly increased internal and external *social networks* (Lang & Novy, 2014). Residents mentioned that having a strong collaborative network could imply opportunities (e.g., job and study). In Maestranza, most residents did not know each other beforehand, and *doing activities and collaborating* in assemblies has led to them considering each other as their main support network. In line with Sørvoll and Bengtsson (2018), in PCs, households perceived that family networks were maintained by *shared motivations* and extended to the developers. However, these networks do not always extend to the surrounding neighbourhoods. Finally, in both cases, most residents state that *shared spaces* may have reinforced the social link.

In line with studies from Williams (2005) and Bresson and Labit (2019), in Maestranza, *social interactions* have been influenced by residents' *motivation to live together*. This differs from the PCs perception, where families already lived together. In both cases, spontaneous interactions and sociability are encouraged by having *shared spaces*, which leads them to interact frequently, do activities with neighbours, and in some cases create friendships. *Collaboration* influenced sociability in organisational terms more than creating friendly relationships. Finally, residents' interactions may strengthen when engaging in *joint activities*.

Interpersonal trust seems weakly influenced by the *motivation to live together*, as found in the theoretical study. Otherwise, aligned with Oosterlynck (2016) and Sørvoll and Bengtsson (2018), residents perceived that *trust* was mainly built by *collaboration*. Trust and mutual support already existed among the residents of the PCs. In Maestranza, *trust* was built thanks to the residents' political organisation. In both cases, participants state that *joint activities* such as care for the sick could increase solidarity. Although participants feel higher trust levels than in previous homes, it is still unclear whether *shared spaces* influence this indicator.

Finally, most residents' perception of a *sense of community* for Maestranza was strengthened by the four features of CH. In Maestranza, *Collaboration* and *joint activities* led residents to decide to stay in their area of origin, co-design shared spaces, and maintain their new homes (Ruiu, 2015; Sørvoll & Bengtsson, 2018). In PCs, residents feel that their *motivations to continue living together* and *sharing spaces* influenced their sense of belonging and family community compared to previous homes. However, as shown by Sørvoll and Bengtsson (2018), to what extent *spaces* create external community life is unclear. Finally, in the PCs, *collaboration* is perceived as barely influencing the existing sense of community, unlike in Maestranza.

Shadow data participants' (non-residents) and residents' responses did not show significant discrepancies or misalignments. Non-residents did not perceive how residents might feel in questions focused on trust or regular interactions, and they were curious about our research results. We draw some lessons from our empirical findings. On the one hand, while CH could help tackle the social deficit of housing, existing forms of CH in Chile are still a marginal part of the housing system. Until now, collective forms such as Maestranza and housing cooperatives are still treated as pilot initiatives, except for the PCs, of which Consolida has built 32 units until December 2023, and 205 more condominiums are planned to be executed by the government initiative in other regions of the country. On the other hand, our findings show that existing CH forms could maximise their potential to tackle the Social Deficit of Housing if CH's features are stimulated. This can occur with a top-down approach through policies that encourage collaboration and active

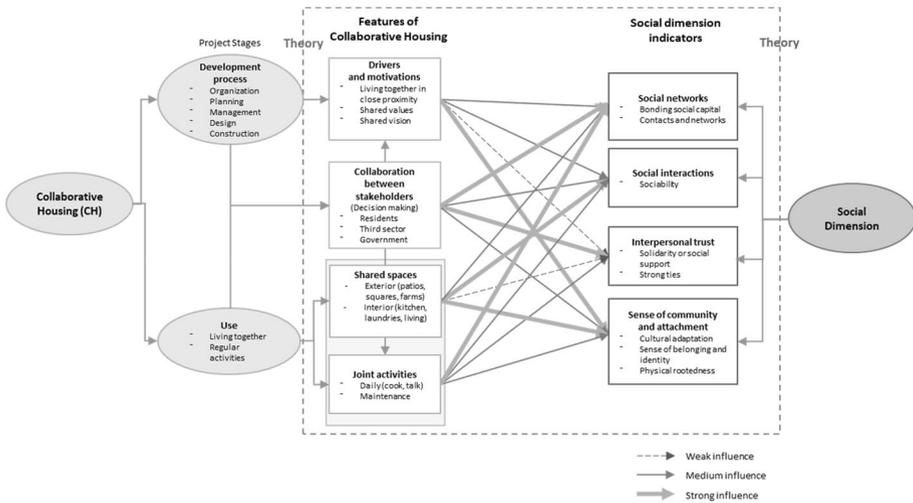


Fig. 8 Collaborative housing addressing the social deficit of housing in two study cases. Source: authors

residents’ participation in the housing process or bottom-up from residents in stimulating joint activities.

We suggest considering the following. First, from a top-down approach for CH to flourish in Chile, the government should recognise the social dimension in public policies, government instruments and housing programs. This can be done through complementary long-term ‘social support plans’ that are part of a structural policy change targeting existing housing programs or new plans for cooperatives, affordable rental housing, and PCs. Second, from a bottom-up approach, future residents could collaboratively organise joint activities that help them stimulate sociability and community life. Finally, to help tackle the Social Deficit of Housing, existing CH projects could encourage the use of shared spaces through collaboration and joint activities to increase social networks and interactions and create a greater sense of community and trust in the long-term.

6 Conclusions

This article aimed to explore the opportunities and limitations of Collaborative Housing in tackling the Social Deficit of Housing. To this end, we analysed the households’ experience living in two Chilean CH cases. Participants from both cases perceived an improvement in their social interactions, sociability, trust, and sense of community in their current homes compared to previous homes. Therefore, the social dimension was significantly strengthened. Aligned with the literature, our key findings confirm our initial assumptions. Although we observed some limitations compared to mainstream housing, CH reinforces the social dimension and presents opportunities to tackle the Social Deficit of Housing in Chile. Based on our empirical study, we conclude the following.

First, *collaboration between stakeholders* and *joint activities* strongly influenced the creation and strengthening of internal and external *social networks*. In CH, internal networks are also influenced to a lesser degree by *shared motivations* and *spaces*. However,

not in all cases do these networks expand outside the projects. Second, *social interactions* have been strongly influenced and encouraged by *shared spaces* and to a lesser extent, *joint activities* and *collaboration*. In the case of Maestranza where the households did not live together before, their *motivation* to live together has increased their interactions. In both cases, although CH promotes interactions, this does not expand beyond the project. Third, *interpersonal trust* is not highly influenced by *shared motivation* and *spaces*, contrary to what we expected on the basis of our theoretical study. However, we found that *interpersonal trust* is influenced by *collaboration* in developing and maintaining housing and *joint activities*. Finally, a *sense of community and belonging* is reinforced by the *motivation* of living together and *shared spaces*. For households that did not live together before, their perception is that *collaboration* and *joint activities* present a stronger influence than those who already live together.

Some limitations of this research were the sample variety in terms of gender and age and the length of time resident participants lived in the projects. A valuable contribution of future research would be to measure social indicators of the projects over time, increasing the families' residence period and the spectrum of residents with different characteristics. This could represent a variation in the interviewees' perceptions that reinforces or challenges our findings. Likewise, future research could compare CH cases from different contexts and their response to the social deficit of housing. Another valuable contribution to the field would be exploring scenarios and contextual conditions to propose strategies and policy guidelines for collaborative housing development. Finally, collaborative housing presents an opportunity to reduce the social deficit of housing in Chile and other contexts. However, for these forms to flourish, a social change is required in the mindsets of stakeholders such as government, resident groups, and private organisations, whereby they consider these forms as an alternative to traditional housing forms. On the one hand, public policies ought to make room for these forms through specific policies and housing programs, new regulations, and forms of financing. On the other hand, the creation of new instruments that facilitate the development of CH is required, considering incentives for developers and tools to support future residents interested in developing these projects, as well as programs that facilitate collaboration amongst residents.

Our research contributes to the current debate on collaborative housing developed in the Global North with an empirical study of two Chilean cases from the Global South. On the one hand, our conceptual model contributes to the CH field because it can be used as an analytical framework to study the presence of the social dimension in collaborative housing forms in general. On the other hand, our research results might be transferable to contexts with similar issues or characteristics, for example, contexts with similar housing provisions systems, cultures, and types of residents. Therefore, the opportunities and limitations of addressing the social deficit of housing could have potential relevance to collaborative housing in other contexts. Regardless of the distinctive features of collaborative housing in different places, new projects could learn from the failures or successes of these forms when addressing similar issues.

Appendix

Tables 3 and 4 show the summarised findings for our two study cases. Between parentheses is the number of resident interviewees who mentioned the given statement in some way (e.g. (6/7) means 6 of 7 residents).

Table 3 Summary findings case 1: Maestranza. Source: authors

Social dimension	Motivations and drivers	Collaboration between stakeholders	Shared spaces	Joint activities
Social networks	<p>Weak influence While most residents intended to live together and shared similar ideologies, only some (4/7) feel motivation influenced the creation of networks</p>	<p>Strong influence Most residents (6/7) feel they collaborate more than in previous homes, and this influences the creation of internal and external social networks</p>	<p>Strong influence Most residents (6/7) feel shared spaces encourage them to frequently meet, which leads to strengthened social networks</p>	<p>Strong influence All residents (7/7) undertake recreational activities and make decisions periodically; this leads to building alliances, and some feel neighbours as main social network</p>
Social interaction	<p>Strong influence Majority of residents (5/7) were motivated to maintain social ties, and while some influence in naturally increasing social interactions was implied, this was not explicitly stated</p>	<p>Medium influence Majority of residents (5/7) do activities regularly around organising project maintenance. While collaborating increases social interactions, there are still challenges regarding leadership</p>	<p>Strong influence All residents (7/7) interact spontaneously in shared spaces regularly and perceive an improvement in sociability compared to previous homes</p>	<p>Medium influence All residents can do activities together, but not everyone does. However, the majority (5/7) socially interact frequently within the projects, creating friendships and social cohesion</p>
Interpersonal trust	<p>Weak influence It is not clear to the residents that shared values and motivations have led to increased interpersonal trust</p>	<p>Strong influence All residents (7/7) perceive collaboration around the housing struggle, designing and securing the project has led to creating and strengthening trust that was not present in previous homes</p>	<p>Weak influence Some residents (3/7) perceived those shared spaces favour meeting, which may create a feeling of trust. However, trust is not associated with these spaces</p>	<p>Medium influence Most residents (6/7) feel that regular joint activities may increase trust between neighbours, but this has to be measured over the years</p>
Sense of community and attachment	<p>Strong influence Most residents are driven by the idea of living in a community and to fight for stay in the original district, and the majority (5/7) said that this had created a community</p>	<p>Strong influence Most residents (6/7) make joint decisions (e.g., stay in the original district) in monthly mandatory assemblies, share tasks, and co-design the project, creating community and a sense of belonging</p>	<p>Strong influence All residents (7/7) feel that having shared spaces encourages internal community living, but this does not necessarily extend outside the project</p>	<p>Strong influence All residents (7/7) carry out joint activities to preserve shared spaces. Although they do not explicitly perceive those activities have increased their attachment, they feel a strengthened community life</p>

Table 4 Summary findings case 2: Pequeños Condominios. Source: authors

Social dimension	Motivations and drivers	Collaboration between stakeholders	Shared spaces	Joint activities
Social networks	<p>Strong influence All residents (7/7) are driven by continuing living in close proximity to their family and neighbourhood. This has influenced the strengthening of their networks</p>	<p>Strong influence All residents (7/7) feel collaborating (e.g., managing land co-ownership) has increased internal and external networks</p>	<p>Medium influence Most residents (6/7) feel that formal shared spaces consolidate existing social internal networks, but they do not expand outside project</p>	<p>Strong influence All residents (7/7) feel that by doing activities, they maintain existing networks within their vertical core in the PCs, and some (4/7) extend externally outside the project</p>
Social interaction	<p>Medium influence Although most residents (6/7) do not express explicitly that their motivations increase existing social interactions, they recognise an influence in improving their social dynamics</p>	<p>Medium influence Even if there are family conflicts, most residents (6/7) have more social interactions, helping to maintain or care for children and elderly. In some cases (3/7), this extends outside of PCs</p>	<p>Strong influence Most residents (6/7) feel that sharing formal exterior spaces in PCs homes has encouraged spontaneous interactions and sociability</p>	<p>Medium influence Most residents (6/7) feel that frequent joint activities in PCs lead to increased natural and spontaneous social interactions</p>
Interpersonal trust	<p>Weak influence Majority of residents (4/7) do not perceive that shared values and the motivation to live together are influential in creating interpersonal trust</p>	<p>Strong influence The ties and trust in vertical core (PCs) were already strong despite some internal conflicts. Most residents feel (6/7) that ties were strengthened during the collaborative process for housing</p>	<p>Weak influence Some households (3/7) feel that formal shared spaces could reinforce trust and solidarity internally and, in some cases externally, but unclear to what extent</p>	<p>Medium influence Majority of residents (5/7) feel high level of trust within the vertical core, support, and solidarity in caring for children and sick relatives is enhanced in the PCs</p>
Sense of community and attachment	<p>Strong influence Most residents (6/7) already live together and are motivated to continue doing so in their original district, which reinforces their feeling of belonging, family community and identification</p>	<p>Weak influence All residents maintained existing family community and attachment to the neighbourhoods, but only some (3/7) feel that collaboration has influenced increasing these indicators</p>	<p>Strong influence Although shared spaces do not encourage community life outside the project, most residents (6/7) feel that shared spaces helped to maintain a sense of family community</p>	<p>Medium influence Majority of residents (5/7) feel that doing activities to maintain the PCs reinforces the existing sense of community and identity but that creating neighbourhood community life requires time</p>

Acknowledgements This article is based on a preliminary study presented at the International Conference European Network for Housing Research (ENHR): workshop on Collaborative Housing from 31 August to 02 September 2022 in Barcelona, Spain. The authors would like to thank all colleagues, academics, practitioners, housing developers, other housing professionals, and residents willing to be interviewed and participate as informants in our research.

Funding The National Agency for Research and Development (ANID) supported this research under grant PFCHA/DOCTORADO BECAS CHILE 2018-72190119.

Declarations

Conflict of interest The authors reported no potential conflict of interest.

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