# 14 Heating Deprivation in the Southern Cone

## Sensitivities and Resilience Shaping the Vulnerability Experience

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### 14.1 Introduction

Energy poverty is common in the Southern Cone and regions with cold climates, such as Argentina and Chilean Patagonia. Energy deprivation and air pollution are evidence of this condition in these regions. Several studies concern air pollution from firewood use (Calvo et al., 2022; Schueftan et al., 2016). Still, heating deprivation remains a field that requires further exploration (Navarro-Espinosa & Thomas-Galán, 2023). Heating deprivation is a fundamental aspect of people's lived experience, as it shapes the conditions that increase vulnerability and precariousness (Reyes et al., 2019).

The definition of energy poverty presented by RedPE (2019) allows for a situated approach to the phenomenon. According to this definition, a household is in energy poverty when it does not have equitable access to quality energy services. That is, adequate, reliable, non-polluting, and safe services to cover fundamental needs to sustain its inhabitants' human and economic development. In this sense, energy needs and services are defined in a specific temporal and spatial context and under specific socio-cultural conditions (Cortés & Amigo, 2022). In turn, we will refer to heating deprivation as the condition in which a household cannot sustain a minimum tolerable thermal comfort temperature. Therefore, heating deprivation is the result of two states. One is the material inability of the building to maintain a minimum tolerable temperature due to its poor thermal isolation. The second is the physical and economic inability of the household to produce the heat necessary to sustain a minimum tolerable temperature because of budgetary constraints and a lack of physical access to energy resources and heating technologies.

The conditions and manifestations of energy poverty and heating deprivation vary according to households' geographical, socio-cultural, and economic conditions. It is relevant to observe the shared characteristics of the central-southern areas of Chile and Argentina, the southernmost countries of the continent with socio-historical and climatic similarities. The present ecological and climatic crises are similarly affecting the general conditions of life in the region (IPCC, 2022). Moreover, these conditions are experienced differently from other countries in Latin America, which may share common social-political characteristics but differ in their climatic conditions. Furthermore, while finding similar climatic conditions in countries from the global north, their livelihoods fundamentally differ, particularly in the extent of inequality and multidimensional poverty levels (IPCC, 2022).

In this chapter, we explored the concept of vulnerability conditioned by heating deprivation in the central-southern regions of Chile and Argentina. We interpreted it as a significant component in shaping the lived experience of energy poverty (Middlemiss & Gillard, 2015). The central-southern areas of Chile and Argentina feature a long winter season (ranging from four to eight months), which constrains the population from maintaining healthy minimum

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temperatures inside the home during this period (Cardoso & González, 2019; Schueftan & González, 2015). Despite having similar environmental constraints, state responses differ between the two countries. While Chile has had a long history of radical neoliberal policies resulting in a weak state in implementing effective social policies, Argentina has been more effective in introducing energy subsidies for residential natural gas. This primary policy has been absent in Chile. However, the similarity between the two countries lies in the infrastructure, where thermal insulation is not standard in the housing stock. Households tend to resolve issues around comfort with coping strategies and significant overconsumption of cheap fuel sources (Cardoso & González, 2019).

Deprivation constitutes a specific experience of permanent negotiation in the face of heating or budget restrictions (Anderson et al., 2012). Therefore, people may perceive situations of vulnerability differently in their everyday lives (Adger, 2006). Observations from a vulnerability approach (Thomas et al., 2019) aid in understanding this condition as a "state of being" that extends beyond the indicators that allow us to quantify it (Middlemiss & Gillard, 2015). This viewpoint accounts for the lived experience of energy poverty in this way (Hargreaves & Longhurst, 2018). Our objective is to understand the factors that shape the energy vulnerabilities of populations exposed to heating deprivation. We will examine heat care and regulation practices to better understand how they shape sensitivities and response capacities to living in a low-temperature house. We carried out a bottom-up and qualitative analysis of the practices, which considered their complexities from the understanding of the people (Eisfeld & Seebauer, 2022; Middlemiss & Gillard, 2015).

### *14.1.1 Energy poverty: a three-dimensional approach*

The phenomenon of energy poverty is multidimensional, encompassing issues of access, equity, and quality of energy (Urquiza et al., 2019). Observing the deprivation of heating in these three dimensions allows us to distinguish the complexity of its expressions in socio-cultural, socio-technical, and socio-ecological spaces (Cardoso et al., 2022). This approach to energy poverty, developed by RedPE (2022), makes it possible to link these three dimensions, as shown in Figure 14.1.

This framework recognises that a household reaches energy poverty when it falls below minimum thresholds in three dimensions, as shown in Figure 14.1. These thresholds are expressed materially in a physical, technological, and economical manner (González-Eguino, 2015) and subjectively as thresholds of tolerance and acceptance (RedPE, 2019; Urquiza et al., 2019). The quality dimension concerns the thresholds of acceptance and tolerance of the household members, which determine their energy needs, adequacy, safety, and health conditions. The economic dimension includes the economic thresholds of the minimum expenditures that allow each household to meet its energy needs. Finally, the access dimension relates to the physical and technological thresholds above which it is possible to meet the energy needs of each household.

When applying this approach to observe the conditions of heating deprivation, the following aspects are determinants in each dimension:

- Quality dimension (tolerance and acceptance thresholds): What minimum temperatures are tolerated and accepted by the household members? We will use the term a*ccepted temperature* to refer to the minimum condition of thermal comfort for the inhabitants of a household, which varies according to cultural and individual conditions. We will use the term *tolerated temperature* to refer to the temperature ranges outside of which there are higher disease risks.

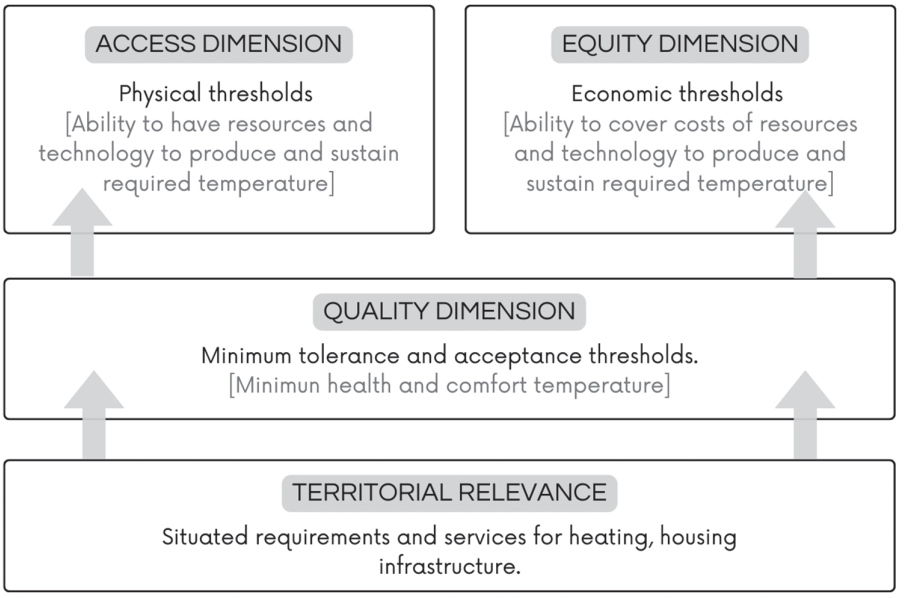


*Figure 14.1* Shows the three-dimensional analysis framework of energy poverty and its application in the case of deprivation of heating.

*Source*: Own elaboration based on RedPE (2019).

According to the World Health Organization, living spaces' minimum healthy conditions are 18°C to 24°C (World Health Organization, 2018). The heat demand is, then, a function of the temperature needs and the thermal performance of the dwelling, given by its material capacity to sustain a temperature over time.

- Equity dimension (economic thresholds): What minimum economic conditions guarantee a household's ability to have a heating service according to its needs? This dimension considers a household's income in relation to covering energy resources and technology costs to meet its minimum heating needs. In this regard, costs include the minimum expenditure on energy sources for heat supply and the investment in heating technologies or thermal insulation.
- Access dimension (physical and technological thresholds): What minimum physical and technological conditions guarantee a household's ability to have a heating service according to its needs? The minimum heat demand of a household will be satisfied to the extent that there is the capacity to have sufficient energy and technological resources adequate for producing the required heat, thus sustaining the minimum tolerated and accepted temperatures in safe conditions.

### *14.1.2 Vulnerability to heating deprivation*

We will consider the concept of vulnerability as the propensity of someone to suffer the adverse effects of a hazard, whether physical, social, economic, or environmental (Centro de Ciencia del Clima y la Resiliencia (CR)2, 2018; ONU, 2007). While there are various formulations of vulnerability, several scholars agree that vulnerability is modulated by sensitivity and resilience, with the latter composed of adaptive capacity and response capacity (Adger, 2006;

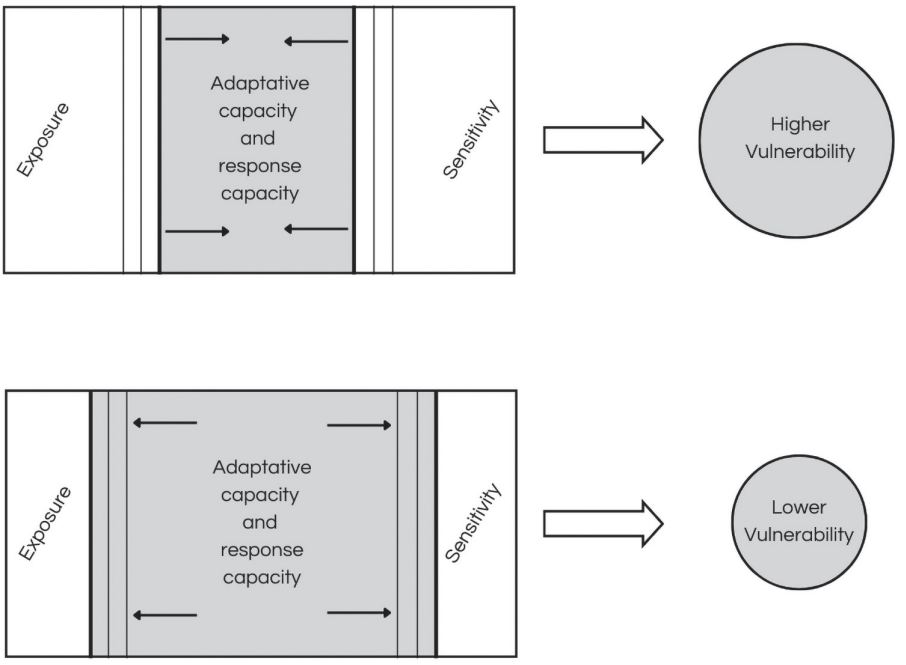


*Figure 14.2* When facing an exposure, vulnerability is modulated by sensitivity and the capacity to respond and adapt.

*Source*: Based on Thomas et al. (2019, p. 2).

Middlemiss & Gillard, 2015). Limited adaptive and response capacity combined with high sensitivity and exposure contribute to higher vulnerability. In comparison, higher adaptive and response capacities combined with lower sensitivity and exposure would contribute to lower vulnerability (Figure 14.2).

Sensitivity is often described as the ability to feel and manifest emotional and physical responses to stimuli (Mertens et al., 2020). Intrinsic factors making a territory or population susceptible to being impacted by a threat can affect sensitivity (Urquiza & Billi, 2020). Coping and adaptive capacities allow people to resist or repair the effects of an external disturbance, so it is possible to maintain or recover the equilibrium of pre-exposure conditions (Estévez et al., 2011). Finally, response capacity enables the ability to respond proactively to a shock, and anticipatory adaptive capacity allows one to act proactively and accommodate to mitigate the impact that will arrive (Adger, 2006; Urquiza & Billi, 2020).

## 14.2 Ethnography on living with heating deprivation in three sites

We analyse the data from three cases collected during different periods with similar objectives and common elements. We identified these elements for qualitatively interpreting the factors affecting vulnerability to heating deprivation in the three populations. We have conducted visits to each of the sites and the interviewees' homes. The ethnographic methodology consisted of contextualised dialogue with each of the families visited. We carried out semi-structured interviews and participant observation. In some cases, we added video tours, photographs, and house mapping to understand daily life dynamics further. We based on an interview schedule,

and the researchers spent time with community members in an everyday context for participant observation.

i **Rural area in Argentinean Patagonia:** In the community of Laguna Blanca, in the province of Ro Negro (40° 43′ S and 69° 50′ W), with 180 inhabitants (35 families in total) and located in an environment of shrub-steppe, limited by an uncultivated region. The climate is arid and cold, with rain and snow concentrated in autumn and winter (Bustos, 2006). All the families in the village have incomes below the poverty level compared to cities in the region. Therefore, we can consider that they live on a subsistence level. The main activity is sheep and goat raising for wool, hair, and the self-consumption of meat. The houses are made of baked bricks, and the roofs and windows lack insulating materials, so they do not have good thermal quality beyond the heat provided by the fuel used (mainly firewood and gas) (Cardoso & González, 2019). We conducted interviews in Laguna Blanca during 2019 in January, April, August, and October, where we visited 20 families.

ii **Medium-sized cities in southern Chile:** The second case covers small and medium-sized cities in the Araucanía region of Chile that maintain, in terms of their public policies on air pollution and habitability, a functional relationship with the regional capital Temuco. The Araucanía region has 35 municipalities, 14 of which have 15,000 to 50,000 inhabitants (BCN, 2021). These medium-sized cities have some public services that cover the most relevant needs of the population, while for more sophisticated services, the people must travel to the regional capital. These cities present a cold season lasting more than six months of the year and rainy weather, which implies a high demand for heating in the residential sector, mainly covered by firewood consumption. The dwellings in these locations are predominantly semi-detached and detached houses made of lightweight materials (CDT, 2019) and without reinforced insulation. We conducted the ethnography mainly in the city of Victoria with 18 families between April and June of 2022.

iii **Elderly population in a big urban city:** The third case focuses on households inhabited by older people in the municipality of Quinta Normal, located in Santiago, Metropolitan Region, Chile. This district is entirely urban (INE, 2021) and presents the Mediterranean climate of Santiago (Pérez-Fargallo et al., 2020). The region also has a higher multidimensional poverty rate than the Metropolitan Region and scores higher in the Ageing Index (BCN, 2021). Among the homes visited were houses and flats with various construction materials, such as cement, brick, adobe, and wooden partitions, and roofs of metal sheets, slate (fibre cement), and tiles or shingles. On the other hand, the flats have brick walls and partition walls, and their roofs consist of the floor of the upper apartment. We conducted ethnographic interviews with ten families between December 2021 and December 2022.

We conducted ethnographies for each case according to the guidelines developed by Corona (2016). During this shared time, the researchers interacted with the interviewee and recorded the activities carried out in the so-called dialogue of knowledge (Gúber, 2004). From previous research, some families were already engaged, which allowed us to get to know new families in a snowball-type sampling. Aiming to assess the present results, we covered different subjects during the visits. In terms of in-house dynamics, the interviews covered heating strategies, personal and interpersonal dynamics of temperature regulation, heating technology use, and the dynamics of fuel substitution. Also, we covered subjective narratives such as perceptions of thermal comfort in housing and work/study places, stories and memories around heating practices, emotions and knowledge about heating and thermal comfort. Finally, budgeting dynamics

were also covered, as were decision-making and the impacts of heating costs, as well as willingness and capacities to invest in technologies and thermal insulation.

Using the previously described frameworks, we proceed through three stages of categorisation: open coding, axial coding, and selective coding (Strauss & Corbin, 1998). As a result, the segments and descriptions in Chapter 3 follow. In this way, the interpretation and analysis of the interviews illustrate the range of the biographical-narrative approach in connection to individual and group experiences (Gúber, 2004).

## 14.3 How does heating deprivation affect the vulnerability of the household members?

In our undertaking, we connect the analytical framework of the three-dimensional analysis of energy poverty with the thresholds and constituents of the vulnerability framework. The articulation of the frameworks is shown in the scheme set out in Figure 14.3. The frameworks' articulation allows us to identify the most critical factors influencing sensitivity to, and capacity to respond to, exposure under heating deprivation conditions. These factors will be determinants of the members of a household's vulnerability to heating deprivation.

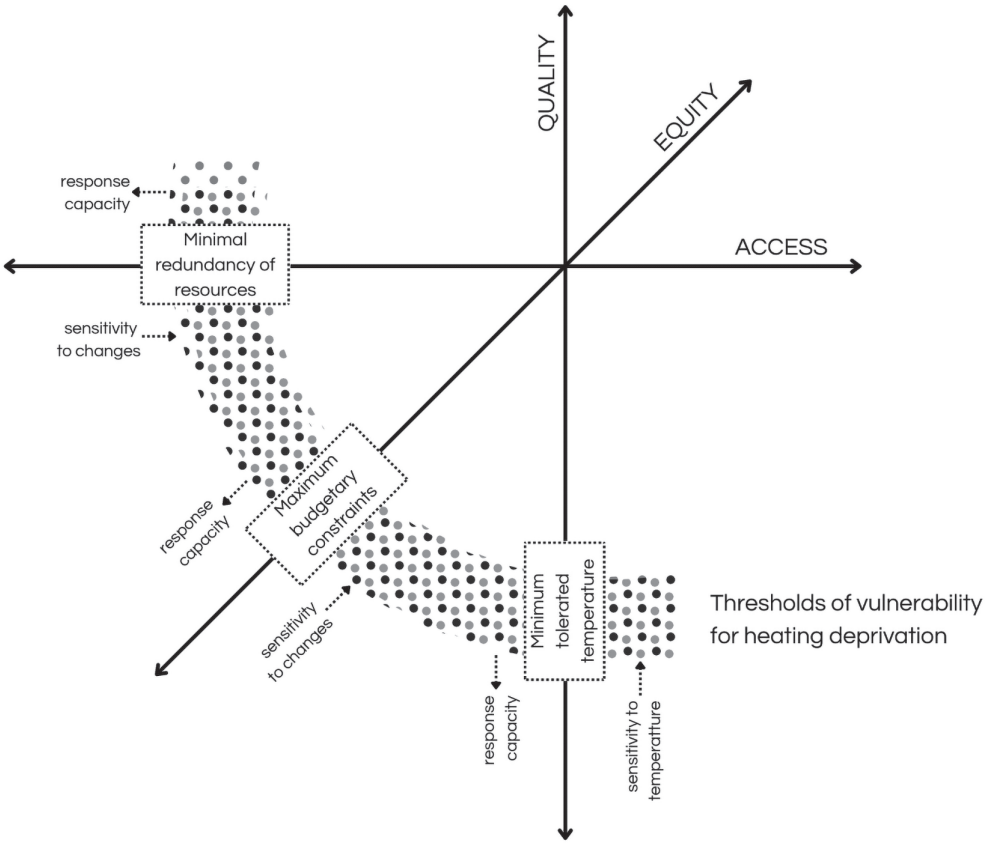


*Figure 14.3* Thresholds of vulnerability for the three dimensions of heating deprivation.

*Source*: Own elaboration.

In the quality dimension, vulnerability is modulated by temperature sensitivity, which affects health and comfort, and by adaptative and response capacity when exposed to temperatures below these minimum thresholds. In this sense, high sensitivity to low temperatures and a limited response capacity to such exposure increase individual and shared vulnerability. Therefore, heating deprivation is the inability to produce and sustain the minimum temperatures accepted or tolerated by the household members inside the dwelling.

The equity dimension is determined by the constraints on the household budget, which enable it to cover the costs of heat production and sustain the minimum tolerated and accepted temperature. Sensitivity to changes in budget and the capacity to respond to these changes set the vulnerability thresholds. High sensitivity to budget changes coupled with a low capacity to respond to budget constraints increases vulnerability. Heating deprivation results from the inability to adequately afford the resources and technologies necessary for heat production and maintenance, allowing household members to sustain the minimum temperature required. High vulnerability is primarily related to resignation processes in the face of budgetary constraints.

In the access dimension, the critical element will be the redundancy of alternative energy sources and technologies for heat production and sustaining temperatures above the minimum tolerated and accepted thresholds. Then, vulnerability is shaped by sensitivity to changes in the redundancy of energy and technological resources and the capacity to respond to a scarcity of accessible alternatives. A high sensitivity to changes in heating alternatives, coupled with a low capacity to respond to shortages, increases vulnerability. The experience of heating deprivation will result from scarcity, referring to energy sources or technologies for heat production or thermal insulation. In the face of vulnerability resulting from heating deprivation, modulated by the access dimension, household members rely on inadequate solutions to keep warm, putting their health and well-being at risk.

### *14.3.1 Quality dimension: low-temperature acceptance and tolerance thresholds*

#### *14.3.1.1 Practices affecting sensitivity*

Sensitivity to low temperatures is a subjective issue that is co-dependent with everyday dynamics. Although the lack of adequate temperatures was transversal, inhabitants are not manifesting their sensitivity similarly. Some people reported not feeling comfortable, and others, while noting that they are satisfied with the temperature in their homes, also mentioned they need to change their dynamics to make conditions in their homes tolerable.

Interviewees often define sensitivity to low temperatures using a comparative benchmark. This benchmark results from comparing thermal conditions between houses and workplaces, between rooms in the same place, or between memories of other homes. Housekeepers and retired older adults who spend more time in the house consider themselves more aware of indoor temperatures than workers and students who spend their day elsewhere. Also, many reported that insulation conditions and temperatures were poorer in their childhood homes than they are today. Hence, they felt that the temperatures in their current homes were acceptable compared to their life history.

For carers, the needs of others shape temperature acceptance thresholds, as they attach significant importance to maintaining a comfortable temperature for people under their care. We also observed this situation in the case of caring for pets, especially in the case of older adults who consider the company of pets fundamental. Moreover, care work affects people's mental burdens. In many cases, the stressful conditions arising from the concern of being unable to

provide a "healthy home" for the household member/s under care meant an increased intolerance to the perceived cold inside the home. These cases have an essential gender component, as they are more common in women than men.

People's intrinsic conditions, whether physical, psychological, or cognitive, also shape sensitivity. Older adults and children below three years of age tend to have a high sensitivity to low temperatures, which is also expressed in more severe illnesses when exposed to low temperatures. People with chronic diseases report the same effects; being unable to reach comfortable temperatures means spending most of the day in bed during the cold season. These conditions can deepen vulnerability in a sense that goes beyond the energy poverty phenomenon towards multidimensional poverty, precarity, and disempowerment.

#### *14.3.1.2 Practices affecting adaptive and responsive capacity*

Coping strategies to deal with low temperatures are many and varied. They can range from concentrating the use of the house in a single room; wearing warm clothing; blanket choices; spending more time in bed; consuming specific foods and beverages (like the traditional drink "yerba mate"[1] in Argentina); and using complementary heating devices (like G*uateros*[2]). They are fundamental coping strategies in cold climate zones; interviewees commonly perceived them as a skill to overcome the cold.

Since poorly insulated buildings are one of the foremost causes of heat deprivation, housing interventions are essential to the government's strategies for responding to heat deprivation. These interventions depend on technical, administrative, and economic abilities. In this regard, it is common to adopt low-cost and easily accessible strategies, such as door and window interventions, to reduce air infiltration. In some cases, families buy weatherstripping for doors and windows. However, it is a widespread practice that instead of weatherstripping, they use homemade or temporary solutions from locally available materials, such as fabric, cardboard, or plastic, often reusing objects. Home retrofitting is less common, as it is limited to those who own their house, those who can make a significant investment, or those who know about and can apply for government grant schemes.

There are also intrinsic psychological, cognitive, social, cultural, and economic conditions that facilitate the ability to make decisions and strategies for living in a household at low temperatures. People with self-confidence can act decisively and seek solutions to heat deprivation. This mindset also alleviates feelings of helplessness, frustration, and stress. Having control over resources or the trust of other family members facilitates autonomy in decision-making about warming strategies. For example, when fuel prices rise, independence helps people act more quickly, coping better with uncertainty. Earlier family learning also facilitates decision-making. In the cases of rural areas and medium-sized cities, it was common to find strategies under narratives of learning related to local identity and coping skills that span generations.

Finally, networks and access to services also shape the level of technical knowledge about home heating and insulation and define thresholds of acceptability. The social mobility of younger generations makes it possible to recognise other thermal comfort thresholds and learn about different technologies and materials. This knowledge opens people's expectations regarding the possibility of having higher temperatures in their homes. On the contrary, low awareness of alternatives increases the resignation of living in cold housing. Geographical conditions intensified this aspect in cities with difficult access to public services or programmes, such as rural or medium-sized cities with functional ties to large cities.

### *14.3.2 Equity dimension: economic thresholds shaping budget restrictions*

#### *14.3.2.1 Practices affecting sensitivity*

Budgetary constraints appear as restrictions on heating expenditures or the inability to invest in home improvements or new heating technologies. The inability to cover the heating costs required to maintain a healthy minimum temperature in a poorly insulated building generates different responses that, in diverse forms, result in resignation. High heating costs lead families to choose between spending on health and food or heating, with the latter usually not being prioritised because it is not considered a primary expense. Resigning to the precariousness and deprivations of everyday life is crucial to the experience of vulnerability. They reduce sensitivities through over-adaptation to living conditions, resulting in the normalisation and de-problematisation of the state of heat deprivation. This situation is especially noticeable in older people with a low pension, where health expenses also become more significant, and in low-income households in rural areas.

The investments required for well-insulated housing are far beyond the financial capacity of families whose income is insufficient to cover heating costs. As a result, looking for further improvements to the house or the heating system is frequently absent from the interviewees' narratives. Even when asked about plans to refurbish the house, most people prioritised other improvements over upgrading the thermal conditions, which they regard as a privilege or luxury. Where pensions are low, there is also a fear of increased housing maintenance costs for older people. People are more likely to choose cheaper building materials perceived as robust and durable, even if their thermal insulation conditions, such as brick, are inadequate.

#### *14.3.2.2 Practices affecting adaptive and responsive capacity*

The foremost circumstance guaranteeing the capacity to respond is good household economic conditions, which ease the risks of heat deprivation. In many cases, households have savings, financial resources, and capital of various kinds to cope with such pressures. Other factors, however, enable overcoming the resignation experience when faced with budgetary constraints. Healthy interactions with the environment enable decision-making, negotiation, and formation of support networks. Similarly, people with mental and emotional health access develop a higher tolerance for frustration, allowing them to cope and negotiate better with these conditions. In the opposite case, people experiencing depression perceived a lower capacity to act, feeling forced to resign to their household and economic conditions.

Autonomy in housing relationships also shapes this ability, so we can see that people who own their own homes, even when faced with budget constraints, are described as having a more remarkable ability to deal with expenses within the limits of their situation. On the other hand, tenants were resigned to these costs and conditions, even if budgetary constraints were less severe.

### *14.3.3 Access dimension: physical thresholds and redundancy for heating alternatives*

#### *14.3.3.1 Practices affecting sensitivity*

The sensitivity to abundance or scarcity in access to energy alternatives becomes visible in narratives about firewood. People commonly believed that firewood provided "better heat" or "longer heat". This perception is reinforced by accounts of the abundance of firewood in the environment in childhood memories, especially in rural areas, where people emphasise that

firewood was much more abundant in earlier times. In some cases, switching from firewood to pellets or LPG, which can also be more expensive, increases the feeling of scarcity.

Something similar to the above occurs in the case of access to technologies since people perceive the most modern or less polluting technologies as being scarcely accessible, as those who have access to them can usually do so through government subsidies or due to better economic conditions. Market conditions have also shaped sensitivities. The pellet market has had episodes where it has not been sufficient to meet demand, so many households are reluctant to apply for subsidies to replace wood-fired heaters for fear of shortages. In the same trend, there is a widespread fear of a lack of technicians with sufficient knowledge to install thermal improvements in houses, so families decide not to choose this option for concern of worsening the situation.

#### *14.3.3.2 Practices affecting adaptive and responsive capacities*

Households can respond to deprivation by diversifying energy alternatives to maintain minimum temperatures with access to well-heated spaces and available fuels. In the Argentina case, the children spend much of their time at school, where they also have lunch and have access to proper heating conditions, which they perceive as an opportunity to avoid the low temperatures at home. For Chile, the opposite is the case, with children reporting feeling cold in their schools, which increases the perception of a lack of alternatives to living in low-temperature spaces.

Concerning access to fuels, in situations of deprivation of clean fuels, the supply of lower quality but more available fuel is perceived as a response to heating deprivation, even if its consequences on health quality are detrimental. Households do not necessarily substitute a traditional fuel for a modern one but strategically use multiple fuels and technologies that add to or are complementary to traditional ones. For example, households adopting new technologies with different fuels do not eliminate fuelwood consumption. In rural areas, fuelwood users complement heating by burning cow dung and pruning material.

## 14.4 Living with heating deprivation, the permanent negotiation

Using the three dimensions of energy poverty to observe practices that affect sensitivity and resilience to heating deprivation has allowed us to recognise how different thresholds shape vulnerability. As shown in Figure 14.3, we observed that the experience of vulnerability to heating deprivation is constantly modulating. We detected this permanent shaping and negotiation by identifying practices that affect sensitivity, adaptive capacity, and response capacity in different dimensions. These practices are multiple, dynamic, situated, and intertwined with varying living conditions. However, we believe it is possible to establish critical aspects that determine vulnerability thresholds in access, equity, and quality dimensions under minimum tolerated temperatures, maximum budget constraints, and minimum redundancy of heating resources, respectively.

Living conditions under these thresholds, in their respective dimensions, are characterised by:

i High exposure to low indoor temperatures (resulting in risks to household members' physical and mental health);
ii Inability to afford energy resources or services, heating, or insulation technologies;
iii Limited access to energy resources, heating technologies, or suitable thermal insulation.

The combination of these living circumstances and the on-going negotiations with them shape how vulnerable a household's residents feel. Focusing on the different dimensions allows

us to recognise the problem as a dynamic process shaped by and shaping vulnerability (Eisfeld & Seebauer, 2022; Hargreaves & Longhurst, 2018). Analysing the thresholds denoting the vulnerability conditions in each dimension makes it possible to recognise the nature of these negotiations and their articulation with structural relations. Therefore, we break down what Kearns et al. (2019) have pointed out, "vulnerability as a cause and consequence of occupant behaviour is not only health-related but also social, including the nature of a person's social contacts and support, and their relationship status, particularly where these are volatile" (Kearns et al., 2019).

Both material strategies and cognitive responses characterise coping practices. Recognising the strategies allows for a diagnosis that assesses people's abilities to adapt to energy poverty without depoliticising the structural causes of these conditions (Middlemiss, 2020). Moreover, coping capacities depend on material strategies and attitudes, which are fundamental to sustaining self-esteem and dignity and reaffirming autonomy (Anderson et al., 2012; Clair & Baker, 2022). The "linked lives" effect, associated with the bonding and reciprocal influence between household members, also influences energy use. Thermal regulation practices are consistent with the relationship between household members and are simultaneously shaped by individual needs, solidarity, conflict, and consensus (Bolton et al., 2023). This dynamic configures a micro-level energy system adjusted to the internal logic of the household, to the definition of non-negotiable needs (such as those linked to health), and to ways of thinking and acting inherited from previous generations (Hargreaves & Middlemiss, 2020).

In any case, it is worth mentioning that not all adaptive and response capacities are expressions of resilience. While physical and psychological behaviours and accommodations seem to help cope with the problem, they can be maladaptive. This maladaptation means there are coping strategies that do not fulfil their purpose or have costs that affect other aspects of people's lives. Through maladaptation, habituation to environmental conditions and practices tends to harm well-being, ultimately preserve the condition, and even amplify the vulnerability of people's lives (Cardoso & González, 2019; Cardoso et al., 2022; Juhola et al., 2016). Vulnerability must account for physical and mental health and the economic and territorial contexts inhabited, as its consequences are individual and societal (Kearns et al., 2019). In this sense, orienting public policies towards reducing vulnerabilities by promoting technology and community solutions will help ease pressures and dependencies on environmental variations and global economies.

## 14.5 Conclusions

We have carried out an exercise to identify how vulnerability is formed from the sensitivity and response capacity to heating deprivation and the thresholds in the different dimensions that constitute energy poverty. Recognising these dynamics is relevant insofar as it allows for prioritising public policy measures and recognising the cases in which the population is even more vulnerable to energy poverty.

Applying a vulnerability lens allows us to understand the "lived experience" of those vulnerable to energy poverty and consequently diagnose its manifestation, which prioritises the statistics and allows for an insight into the problem beyond its techno-economic understanding (Hargreaves & Longhurst, 2018). We recognise the possibility of dialogue between the energy poverty framework and the energy vulnerability framework, which has facilitated this exercise.

The current socio-political crisis in the Southern Cone and the global socio-ecological crisis call for just actions that do not reinforce the contributing causal factors that instigated them in the first place. By observing the sensitivities and resilience that make up the vital experience of vulnerability in contexts of energy poverty, we get clues on how to face the current challenges from a territorially based and right-to-energy approach. This challenges the design of

specific actions, from state initiatives to community-based efforts, considering financing mechanisms, co-participation, and innovation. Policies should include the provision of information, agile financing mechanisms, investment in energy infrastructure, targeted subsidies, and the co-participation of users. A just transition that addresses the affordability of energy services must consider vulnerabilities and the context of the environment and territories that shape them.

## Notes

1 Which is derived from the plant *Ilex paraguariensis.*
2 Name given for Rubber hot water bottles in Chile.

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