

Infrastructures of unevenness:
Structural drivers and embodied experiences of energy deprivation
in Budapest's residential buildings

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Abstract

Hungary's housing situation is characterised by stark disparities and socio-spatial unevenness. Based on 3,5 months of ethnographic fieldwork in the inner districts of Budapest, in the focus of this thesis is the structural drivers and manifestations of energy deprivation in the historical multiapartment residential buildings that characterise the built fabric of the inner-city. My work conceptualises energy deprivation as a social, political, and inherently material concern, as it is the technical quality and infrastructural condition of buildings where the problems of unaffordability, discomfort and the poor energy performance of dwellings become most pronounced. Situating my work in a Marxist theoretical tradition, I will draw on human geography scholarship and critical urban theory to discuss how the manifestations and drivers of energy deprivation overlap with other dimensions of the housing crisis in Budapest. Besides serving as a productive site for examining how social and spatial inequalities are entrenched and reproduced, I aim to demonstrate how a focus on materiality and infrastructure is a helpful interrogative tool for a more nuanced analysis of how processes of uneven development are grounded in the built environment.

Keywords: energy deprivation; infrastructure; uneven development; urban transformations; housing inequalities

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Introduction

Mr Varga, a retired man nearing 80, was waiting on the street for his friend to join him for their weekly card game in a nearby pub. To pass the time, he was standing on the edge of the sidewalk and gazing up at the building on the other side, which was covered in scaffolding and undergoing renovation. On my walk in the 6th district of Budapest, I had just finished interviewing a building administrator overseeing the management of over a hundred multiapartment buildings in the inner-city, whom I had contacted to gather information on her perspectives of energy deprivation levels in Budapest. We had talked about the growing number of households struggling to cover their housing expenses, as evidenced by the accumulation of utility arrears and overdue payments. Then she shared some of the usual challenges and difficulties that come with the maintenance and repair of the historical building stock characterising the built fabric of Budapest. Having heard about the immense coordination and funds required to overhaul even just one section a multiapartment building, I was curious to find out how the residents of this building managed to plan and implement this large-scale renovation project. *‘They’re not improving it, just making it inhabitable again, after these idiots ruined it’¹*, Mr Varga remarked, after I approached him and found out he is one of the residents of the building. As it quickly turned out, the construction was not an outcome of a strategic renovation plan conceived and budgeted for well in advance, but a post-disaster reconstruction project, after parts of the roof collapsed and whirled with it some of the structural elements on the façade. Then it struck me that I had read about this building in the news about a year ago. I remembered reports stating that the attic was bought by an investor to convert it to a loft, but a fire broke out during construction, compromising the structural integrity of the roof. It received heavy media coverage because the falling building parts caused considerable damage and

¹ All quotes from my interlocutors appearing in the text were translated from the original (Hungarian) by me.

injured people passing by (Iván-Nagy & Bozzay, 2022). I entered into a conversation with Mr Varga, who was among the residents whose apartments were not damaged in the accident, and as such did not have to be temporarily relocated by the local government. Propelled by curiosity, I asked about his living conditions, and explained in detail that I was doing research on this phenomenon called ‘energy deprivation’, to understand the difficulties households face when it comes to attaining sufficient levels of domestic energy. To which Mr Varga, somewhat confused, replied *‘My darling, I can’t be bothered to think about gas prices when the roof is about to fall on top of me.’*



1. Figure: Close-up of the remains of the collapsed roof structure of the Jókai Street residential building. (Photo by Zsófi Szollár / Index.hu)

In Hungary, precarious housing conditions are problems affecting a significant fraction of the population, with close to three million of the country's 9.6 million residents experiencing at least one aspect of housing poverty (Csepregi, 2022). Studies have highlighted the increasing number of households facing difficulty in securing affordable and good quality housing, in the context of high inflation levels, growing household expenditures and stagnating/falling real incomes (Gagyi et al. 2019; Csizmady et al. 2022). This state of Hungary's housing crisis is a prolonged one: despite multiple changes in government since the privatization and marketization of housing in the early 1990s, the current housing situation continues to face much of the same social challenges three decades later (Czirfusz & Jelinek, 2021). The dysfunctionality of Hungary's housing situation is multifaceted, and the angles from which the severity of the crisis could be analysed are numerous, expanding far beyond affordability issues. To make sense of the structural contradictions that characterise housing in Hungary, in the focus of my thesis is a specific and distinctive dimension of the housing crisis: the forms and manifestations of energy deprivation in the multiapartment residential buildings of Budapest's inner-city neighbourhoods.

In Hungary, as in other post-socialist countries, there is growing evidence of the widespread incidence of energy deprivation (Bouzarovski et al. 2016a; Hegedüs, 2019). The first comprehensive assessment of the problem in Hungary was published in 2010 (Tirado-Herrero & Ürge-Vorsatz, 2010), confirming that households have to spend a disproportionately high share of their expenditures on energy costs compared to other EU countries, all the while per capita income levels lag well behind the European average. The unaffordability of household energy has been a widely thematized and politicized issue since the liberalization of energy prices in the 1990s (Takácsné Tóth et al. 2019), with the share of households with arrears on their utility bills having reached 25% in 2013 (Weiner and Szép, 2022). In response to the high number of households struggling to cover their energy bills, the government launched its 'utility

reduction' (*rezsicsökkentés*) campaign in 2013, resulting in the introduction of state-regulated energy prices for certain utility items instead of market-based tariffs. As a result, the price of electricity, water and gas has been unchanged² since 2013. Although the utility reduction campaign remains the single most important state-imposed instrument aiming “to reduce energy poverty and to decrease the energy expenditures of households and the exposure of the residential sector to the price volatility of energy products” (Tóth et al. 2023), there are several shortcomings of it that make it a highly controversial measure. While the reduction of energy prices for domestic consumers lowered many households’ energy burden, it did so very selectively, ultimately resulting in higher savings for more affluent households (Sebestyén-Szép, 2017). An additional concern raised by energy and social policy experts was the (since fulfilled) prognosis that if the capping of utility prices is not paired with proper energy-conscious education and targeted subsidies for energy efficient building renovations, the campaign will yield counterproductive results (Weiner and Szép, 2022; Bajomi, 2021).

The above critique is based on the premises that energy deprivation is not reducible to an issue of affordability, and as such it cannot be addressed effectively by intervening into a single variable (the price of energy). It is a multidimensional phenomenon (Nussbaumer et al. 2012; Dubois, 2020), that manifests diversely on a household level, arising out of the specific conjunctures of “multiscalar path-dependencies, state industrial policy and the interaction of fixed and mobile infrastructure networks” (Buzar, 2007, p.6). The severity and forms of energy deprivation is contingent upon a variety of factors such as tenure type, socioeconomic status, household structure, and spatially fixed determinants such as geographical location, building materials, and the types of energy infrastructure and appliances used in the home. At the same

² In July 2022, due the dramatic increase in international energy prices as a consequence of the Ukrainian-Russian war, the government slightly modified scheme: the reduced prices only remained up to the level of 'average household consumption' (144 m³/month for natural gas), above which the market price has to be paid (Fülöp, 2023).

time, energy deprivation is also shaped by a broader set of deeply entrenched historical path-dependencies and place-based factors that underpin and perpetuate the problem (Bouzarovski et al. 2017).

In the focus of my thesis is how these place-specific local factors come into contact with broader systemic processes, resulting in energy deprivation in the inner-city multiapartment buildings of Budapest. Many of the difficulties that households face around attaining sufficient levels and quality of domestic energy services emerges out of the conflictual interaction of the mechanisms of neoliberal urban transformation with place-based, spatially determined factors, such as the physical and material characteristics of multiapartment buildings. Most of the buildings in the inner-city districts of Budapest were built more than a century earlier, and the overwhelming majority of them have not received comprehensive renovation works since the reparations of the second World War's aftermath. In the 1990s, the reconfiguration and re-scaling of the system of urban governance and the mass privatization of the housing stock resulted in a socially and spatially uneven housing system dominated by private homeownership (Hegedüs et al. 1994). The reshuffling of property relations meant that along with ownership rights, the responsibilities of maintaining and renovating the aging and deteriorating housing stock have been delegated to individual households, and to a much smaller extent, local municipalities (Dániel, 1996; Tagai, 2019). At the same time, the retreat of the state from direct interference in the housing sector also entailed that urban development and housing provision became increasingly exposed to and subordinated under the logic of market-based mechanisms. In many areas of the inner city of Budapest, the finance-driven urban (re)development resulted in particularly flagrant spatial manifestations and a dramatic transformation of certain neighbourhoods. Currently, the omnipresence of entrepreneurial and touristic capital is a defining characteristic of Budapest's inner districts, and a perpetual source of conflict and frustration for long-term residents. In some neighbourhoods, so heated is the discourse around

the ‘uninhabitability’ of Pest for original residents caused by the heavy concentration of entertainment venues, and that, in my conversation with residents, it often seemed to outweigh other social problems. While it might seem that other issues pale in comparison to the problems caused by party-tourism in downtown Budapest, littering and noise pollution in the inner city of Budapest only represents the tip of the iceberg. There are numerous other, albeit more latent ramifications of rampant commercialization and private capital-driven urban restructuring, dialectically intertwined with the financialization and increasing commodification of the housing sector.

Drawing on my findings from anthropological research carried out in Budapest, this thesis is guided by the following questions: how does energy deprivation intersect with other dimensions of the housing crisis in Budapest? What does a focus on infrastructure and materiality add to our understanding of energy deprivation, i.e., how does it shed light on less obvious aspects of the phenomenon? What role does the infrastructural and material arrangement of the built environment play in sustaining socio-spatial unevenness within inner-city multiapartment buildings?

After outlining my methodology and the conceptual orientations I followed during my research, in the first chapter, I will offer a perspective on the broader political and economic processes underpinning the housing and energy crisis in Hungary. I will argue that the profound legal and institutional reconfiguration of Hungary’s energy and housing sector during the region’s post-socialist transformation had lasting effects on residential welfare, as it was following the removal of state subsidies on energy prices that energy unaffordability in Eastern Europe materialised as a pervasive social problem.

In Chapter 2, I will scale down to discuss how the legacies of post-privatization housing allocation and neoliberal restructuring impacted the social landscape of the inner-city of Budapest, transforming local politics, social protection mechanisms, property relations and

urban spatial organisation. Partly due to the uneven logic of privatization and exacerbated by the ongoing financialization of the residential property sector, the socioeconomic makeup of residents in inner-city multiapartment buildings is extremely heterogeneous. By focusing on the legal and administrative challenges around the collective management and maintenance of multiapartment buildings, I will pinpoint some of the far-reaching consequences of the unequal composition of residents within buildings, and the power imbalances that arise from clashing interests and uses of units.

Finally, in Chapter 3, I will illustrate the tensions that arise out of the conflictual interaction of the increasingly splintering and fragmentary character of domestic infrastructure upgrades, with the empirical reality of the legal and technical regulations underpinning the maintenance and renovation of energy distribution infrastructure in multiapartment buildings. In addition, to provide examples of how infrastructures contribute to the production of socio-spatial unevenness, I will draw on the personal narratives of residents experiencing forms of energy deprivation in inner-city condominiums.

Background

Energy deprivation, alternatively termed as ‘energy vulnerability’, ‘energy poverty’ or ‘fuel poverty’, refers to a household’s inability to “attain a socially and materially necessitated level of domestic energy services” (Bouzarovski & Petrova, 2015. p.31), the targeting of which is increasingly becoming a priority on the policy agendas of the EU (European Commission, 2019; EPAH, 2021). Although previously, concerns around energy access and quality have been regarded as a problem specific to the Global South (Day et al. 2016), empirical research from the past three decades confirmed that, albeit in different forms, energy deprivation also prevails as a systemic problem in certain parts of the northern hemisphere (Lampietti & Meyer, 2002, Bouzarovski-Buzar, 2011). In her pioneering work on fuel poverty in the UK, Boardman (1991)

discusses that in Europe, the widespread incidence of energy deprivation coincided with the aftermath of the 1973 oil crisis, when a significant segment of the population was exposed to the unaffordability of skyrocketing hydrocarbon-based fuel prices. Of course, the so-called Global North is not a homogeneous geographical entity, but a region characterised by stark spatial and social unevenness. The recognition of the disparities in both the economic indices and energy consumption levels between EU-15 member-states and countries in the post-socialist region sparked research focusing on the varieties of energy deprivation specific to the former Eastern bloc countries (Bouzarovski & Tirado-Herrero, 2017; LaBelle et al. 2022). There is consensus that most post-socialist countries are well-connected to formal utility networks providing gas, water and electricity, however, there is significant variation in the quality and affordability of energy services that households have access to (Feldmár & Bajomi, 2022). The prevalence of all three factors commonly cited as the causes of energy deprivation (low household incomes, high energy prices and the poor energy performance of residential buildings) render households in Central Eastern European and former Soviet Union member countries particularly vulnerable (Buzar, 2007).

Although there is accumulating data suggesting that exposure to energy deprivation is a prevalent and multifaceted social problem in Hungary (Kőszeghy & Feldmár, 2019), its scope and dimensions remain under-researched. This is partly because many dimensions of energy deprivation hinge on subjective experiences that cannot be adequately gauged through quantitative approaches alone. While in recent years, considerable advancements have been made in the development of indicators that render energy deprivation a measurable phenomenon, many symptoms of it remain hidden or invisible (Buzar, 2007; Dubois, 2020). More importantly, as I hope to show, energy deprivation is not a discrete problem ‘of its own’ but a systemic issue, either stemming from, or embedded in other overlapping social problems. My research on the forms and drivers of energy deprivation in Budapest’s inner-city buildings

is informed by Buzar's (2007) relational perspective, according to which energy deprivation "can be understood both as a systemic process that lies at the intersection of economic, social and spatial policies [...], and as a lived experience, arising from the mediation of everyday life through a household's social and/or built environment" (2007, p.13). My approach was inspired by the anthropological scholarship on infrastructure and material studies (Buchli, 2002; Carse, 2016), which emphasizes the active involvement of the built environment and technological systems in producing, shaping and reproducing social, political, and economic relations (Appel et al. 2015). In their discussion of the structural drivers undergirding the problem in post-socialist countries, Bouzarovski et al. (2017) highlighted the need for treating energy deprivation as an inherently spatial phenomenon, as its exact forms and manifestations always arise out of the specific functions afforded by the environmental conditions, built structures and infrastructural systems within a given context.

Methodology

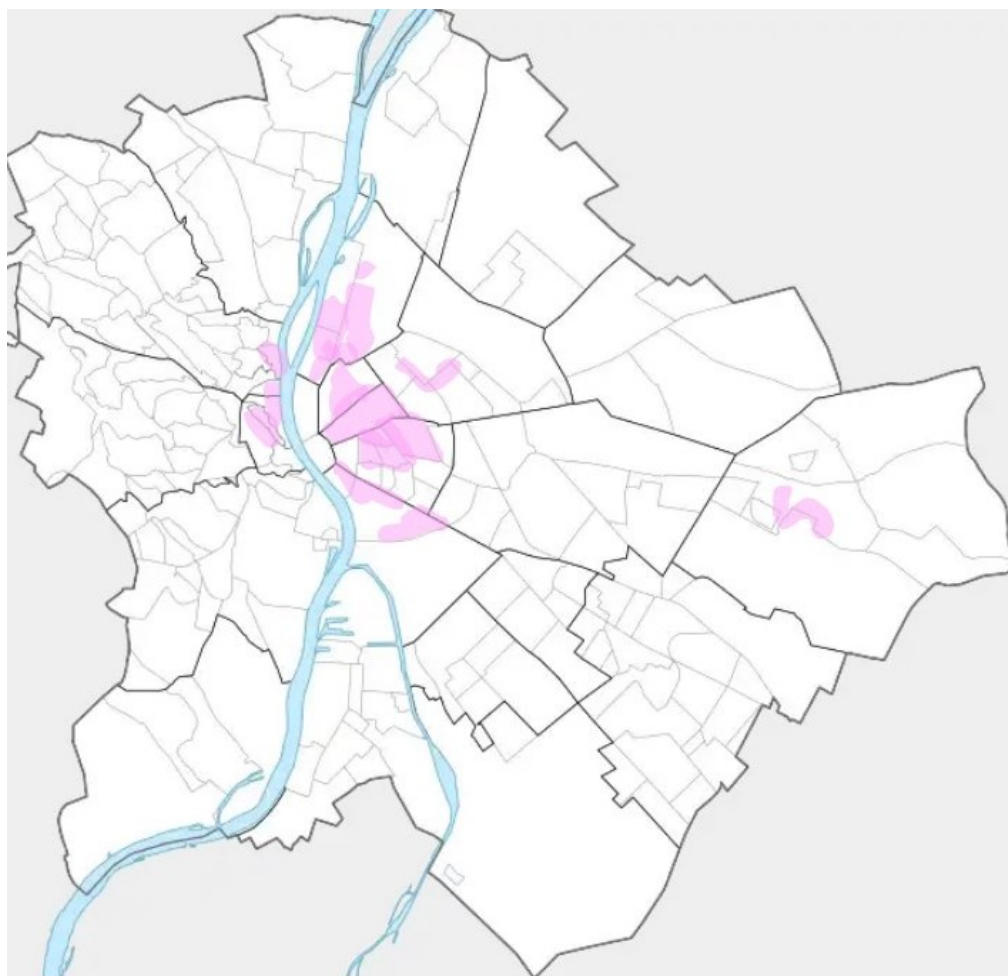
This thesis is a qualitative exploration of the drivers and lived experience of energy deprivation in Budapest's inner-city condominiums, through a focus on infrastructure and the materiality of the built environment. It is based on 3,5 months of ethnographic fieldwork carried out in Budapest in the winter months of 2024, preceded by two months of preliminary on-site observations between July-September 2023, and preparatory desk research between July-December 2023. At the core of my work is an acknowledgement of the spatial and material embeddedness of energy deprivation (Bouzarovski & Simcock, 2017), and the agency of the physical and material qualities of the built environment in co-constituting the phenomenon. Wanting my approach to reflect my commitment to this conceptualisation, I studied architectural and engineering handbooks (Csoknyai, 2013; Csoknyai et al. 2016; Municipality of the City of Budapest, 2016; Beleznavy et al. 2023) to learn about basics of buildings physics

and engineering, about the materials, structures and building modes of different residential buildings, and the factors influencing the energy performance of the home. To deepen my understanding of the legal, administrative and technical dimensions underpinning housing and energy poverty in Budapest's condominiums, I completed a 2-month course on multiapartment building maintenance and management.

Throughout fieldwork, I engaged in participant observation in the inner districts of Budapest: I attended events and workshops on energy-efficient renovations, spent time in markets, parks, courtyards, housing estates, and had informal encounters with gasfitters, electricians, plumbers and maintenance superintendents. I conducted semi-structured interviews with a wide range of actors, having reached out to municipality officials in multiple districts, housing and energy policy experts, building administrators, NGO volunteers and social service workers to get a sense of the broader contextual factors shaping energy poverty in Budapest. Mostly, however, I spent time on the streets of the inner city in Pest, to inspect the housing stock and find ways to talk to residents directly affected by energy deprivation. My approach was to take in as much of the districts on foot as possible, trying to cover as many streets as I could by walking around, and looking up and at the buildings to try to get a sense of the condition they were in. In a lot of cases, deterioration was already apparent just by looking at the façade of the buildings, in other cases, I could rely on the technical knowledge I gathered as part of the course on building management and maintenance, to help me locate points of obsolescence and technical faults.

Ultimately, I narrowed my focus down to 4 districts of central Pest: Lipótváros (5th), Terézváros (6th), Erzsébetváros (7th) and Józsefváros (8th). To identify residents directly affected by energy deprivation, I relied on the model of energy poverty segmentation worked out by MEHI. the Hungarian Energy Efficiency Institute (Sáfián-Farkas, 2023), according to which energy poverty impacts parts of the population who are 1) inhabitants buildings with low energy performance whose income level and social status does not indicate energy vulnerability but

the energetic characteristics and poor infrastructural conditions of their homes do; 2) low-income households with lack of sufficient funds or solvency to increase the efficiency of their homes (large families, pensioners, single parents, unemployed); or 3) households living in extreme poverty.



2. Figure: A rough visualization of the parts of the city I covered on foot during fieldwork: much of the 6th and 7th districts, significant areas of the 5th and 8th districts, small parts of the 1st, 2nd, 9th, 13th, 14th and 17th districts. (Map by author)

During fieldwork, I focused on members of the first two groups delineated by MEHI: inhabitants of buildings of wasteful energy performance (whose financial status might not indicate deprivation) and/or low-income households.

In total, I conducted 18 semi-structured interviews, of which 11 was done with residents, belonging to different socioeconomic groups both in terms of age, gender, ethnicity, occupation status and tenure type. There were two young women in their mid-20s living in private rentals; 5 of them were retired men and women (4 of them homeowners, 1 a social housing tenant). In addition, I interviewed members of two Roma families; a woman heading a household of three in a private rental; and an unemployed man sharing a municipality-issued social rental with his elderly mother. Throughout the text, the quotes that appear in italics are verbatim translations of conversations I had with my interlocutors in Hungarian. To protect the privacy of my interlocutors, when drawing on their narratives, I changed their names to pseudonyms.

Chapter One:

Energy deprivation in Hungary as a dimension of socio-material inequalities

Housing in Hungary is marked by stark socio-spatial disparities (Gagyi et al. 2019), not just in terms of access and affordability, but also in terms of the quality, type, amenities and location of dwellings. Research shows that housing precarity and energy deprivation are problems affecting a significant fraction of the population, with close to three million of the country's 9.6 million residents experiencing at least one aspect of housing poverty (Csepregi, 2022). Irrespective of political orientation, post-socialist governments' housing policies have had a history of operating "under the squeeze of momentary political interests" (Czirfusz & Jelinek 2021, p.131), failing to place social needs at the forefront of housing policy considerations and a lack of political willingness "to develop a housing strategy which would set out a long-term framework for political action" (ibid. p.130). In this chapter, I will outline the broader political economic trends and processes underpinning housing inequalities and energy deprivation in Hungary since the country's post-socialist transition. The reshuffling of property relations through the privatization of state-owned assets catalysed a dramatic transformation of the Hungarian social structure (Éber, 2020), and these relations continue to play a dominant role in sustaining social inequalities in contemporary Hungary.

In the first section, I discuss how the reconfiguration of property relations in the housing sector produced a socially and spatially uneven landscape of housing opportunities, and a housing system dominated by private ownership. The privatization of housing also entailed that the state withdrew from being *directly* responsible for housing provision and maintenance. This means that accessing housing was mainly possible through market-based routes, leading to the growing interference of private financial institutions in the housing sector. Beyond housing, the post-socialist transformation of state-citizen relations coincided with wider structural changes in welfare provision at the service of implementing neoliberal policies. Therefore, in the second

section, I turn to outline how structural reforms in the energy sector and the liberalization of energy prices resulted in widespread affordability issues and the emergence of energy deprivation as a prevalent social problem. A review of the state's policies aimed at ameliorating hardships around energy affordability reveals that social protection mechanisms were limited to price interventions and allowances, falling short of addressing more deeply seated drivers of housing and energy poverty (MEHI, 2020). The implications of this are crucial, because they reflect a systematic omission of addressing the material dimensions co-producing energy deprivation, which to this day hugely contributes to the occurrence of the problem. In the closing section I make the case for the theoretical value of a focus on infrastructure and the materiality of the built environment for my research. I argue that given the material and spatial embeddedness of energy deprivation (Bouzarovski and Simcock, 2017), taking the materiality of built structures and energy infrastructure as my point of reference is particularly helpful for understanding the spatial-institutional factors that co-constitute the phenomenon, and how it relates to broader patterns of social exclusion,

1.1. The political economy of housing in post-socialist Hungary

The foundations of Hungary's housing system today were laid during the country's post-socialist transition to a capitalist political-economic system, when the overwhelming majority of the country's housing stock was privatized (Hegedüs & Tosics, 1998). The cluster of interrelated changes in the former Soviet bloc during the 1990s referred to as the 'post-socialist transition' necessitated the reconfiguration of the state and the role of government in regulating the emerging market economy. In this process of tighter international economic (re)integration, the Hungarian state was seeking out diverse strategies to ensure economic growth and relative political stability. A cornerstone of the transition (both ideologically, economically and in a

legal-administrative sense) was the dismantling of state socialist collective property regimes and the establishing an economic system based on private property. The state-led incentivisation of the acquisition of private property was perhaps most visible in housing policies and subsidies strongly favouring homeownership. Privatization had both economic and ideological aspirations attached to it, as private homeownership was seen as a prerequisite for creating a wide layer of propertied middle-class households, who would then serve as a strong basis for a democratic market society (Fehérváry, 2011). The widespread privatization of housing made it possible for sitting tenants to purchase the homes they have rented under socialism, or reclaim apartments that were confiscated and nationalized at the beginning of the socialist era (Hegedüs and Tosics, 1998; Chelcea, 2003). Despite fostering expectations of material security and improved quality of life, today it is widely held that the social benefits of privatization were extremely unevenly distributed, exacerbating previously dormant/repressed levels of social inequalities (Ferge, 2002).

This polarisation is partly because embedded in the selection process and eligibility criteria for homebuying were several inequality-inducing factors that replicated and exacerbated the inequities cemented by the socialist institutional mechanisms of housing provision (Bodnár, 1996). Staggering differences between the value and quality of re-impropriated dwellings meant that, in many cases, homeowners acquired properties in poor infrastructural conditions, or in unfavourable locations (Dániel, 1996). At the same time, privatizing the housing stock also entailed that the state withdrew from housing as domain of social welfare provision and minimized its role in the tasks of building construction, allocation and management. Thus, the responsibility of upkeep and renovating an ageing and technically obsolete housing stock was borne by individual households who had otherwise been already experiencing the diminishing of their resources (Tagai, 2019).

Besides the imbalances inherent in the system of state-socialist housing allocation, there is another structural explanation why privatization did not yield the socioeconomic results many had hoped for. While the restructuring of the housing sector was an integral part of the transition process, as Hegedüs and Struyk (2005) argued, housing itself was not the ‘engine of change’ but a *corollary* of a broader reconfiguration process paving the way to establish market-oriented institutions. The fact that rearranging property relations in the housing sector took place by transcribing wider macroeconomic and fiscal considerations into housing policies meant that changes in the housing system and the housing conditions of people were subordinated under these priorities. Restructuring was informed by neoliberal considerations worked out by international financial institutions, the primary aim of which was to create the conditions for economic growth and competitiveness to participate in the global economy (World Bank, 1991; Böröcz, 1999). There was an explicit orientation towards reducing or completely eliminating *direct* state control over a number of key sectors and public policy domains, and increasing the emerging market economies’ global competitiveness (Bohle & Greskovits, 2012). At the service of these objectives, new mechanisms of governance were set up: key actors of the socialist institutional system (such as central planning agencies and monopolistic public service companies) were dissolved, and political decision-making and responsibilities on key matters was decentralized towards local municipalities (Tosics, 2005). At the same time, the state-funded housing finance system also disintegrated, and the development of market-based system took place, with the appearance of private housing finance institutions (commercial banks, mortgage banks) (Hegedüs, 2011). “The massive influx of foreign banks into the country led to an extensive growth in the banking network” (Pósfai et al. 2018, p.12), and explosion of mortgage lending, intensifying the financialization of the housing sector³.

³ By financialization, I understand processes characterized by “the increasing dominance of financial actors, markets, practices, measurements and narratives, at various scales, resulting in a structural

The development of the Hungarian housing finance system and housing policies since the 1990s reflect the subsequent governments' unwavering commitment to institutionalizing private homeownership, first in the form of state-subsidised mortgages, later dominantly through foreign-exchange loans issued by private banks (Czirfusz & Pósfai, 2015). Throughout the late 1990s and early 2000s, as the public housing stock continued to shrink, the housing finance system was dominated by state-provided pro-homeownership instruments, such as loan subsidies, and a rapid increase in mortgage lending (Bohle, 2014). The country's accession to the EU in 2004 and the inflow of Western capital made it possible to borrow from international financial institutions in the form of foreign-currency loans (Gagyí et al. 2019). When the 2008 global financial crisis (GFC) hit Hungary, the housing sector had already been subsumed by debt-driven financialization (Hegedüs 2011). In the aftermath of the crisis, household indebtedness (including mortgage debts but also utility bill arrears, consumer and personal loans) became a prevalent financial condition of hundreds of thousands of households (Bródy & Pósfai, 2020). After momentary rescue-programs, by the time the housing market recovered in 2015, "private homeownership was again reinforced as the cornerstone of housing policy, heavily relying on a better fiscal background supported by EU subsidies and economic consolidation" (Csizmadý et al. 2019, pp.26-27).

While the pressure to create a market-friendly environment was external, or "transnationally constituted" (Drahokoupil, 2009, p.137), largely resulting from Hungary's dependency on foreign direct investment, it is important to highlight that establishing an efficient accumulation regime and the maintenance of relative stability requires considerable state inference (Gagyí & Gerócs, 2022). The legitimization of neoliberalism's market-oriented principles "requires and is reliant on socio-political steering" (Lendwai-Banton & Szelewa 2020, p.562), and the

transformation of economies, firms (including financial institutions), states and households" (Fernandez & Aalbers, 2016, p.72)

rearrangement of state-citizen relations by reconstituting welfare provision and patterns of redistribution. The agency of the state in steering financialization as a means of entrenching its power in order to sustain accumulation is palpable in the institutional logic of early housing privatization policies. One way to interpret it is “as a combination of aspirations for making-up markets, for liberating the state from the burden of maintaining social housing and for gaining political legitimacy through smoothing down the process of transition for a part of the population” (Szabó, 2018, p.10). This is to underscore that although the post-socialist state withdrew from being directly responsible for housing provision, it nonetheless retained considerable leverage in superintending the routes through which citizens can access housing (Bohle, 2014). Particularly in the post-GFC political-economic climate, and with the authoritarian tendencies of the right-wing government in power since 2010, understanding economic restructuring and the adopted financial mechanisms merely through the lens of dependency “downplays the domestic political functions of financialization and the agency of the state” (Karas, 2022, p.29). The current Orbán-regime’s pro-homeownership housing finance policies also reflect a political agenda shaped by broader macroeconomic and family policy considerations (Gagy, 2022), imposing housing measures that disproportionately favour members of more affluent strata with multiple children, and an institutional logic that shows “the systematic disregard of people living in housing poverty, unconditional ideological support for a housing system dominated by private homeownership, and the wholesale rejection of the public or non-profit rental housing sector” (Czirkusz & Jelinek, 2021, p.84). It invokes Wacquant’s observation that neoliberalism is not just a set of market-fundamentalist economic policies, but a “political project of state-crafting” (2012, p.71) whereby the rearrangement of patterns of redistribution is an instrument to “pacify and coopt segments of the population” and secure “asset-holding middle classes as a core electoral basis of the hegemonic party” (Karas, 2022, p.34).

1.2. Path-dependencies and changing welfare regimes

Although housing privatization represents the “most comprehensive retreat from a domain of public policy engaged in by governments in the CEE region” (Chelcea & Druta, 2016, p.529), it was certainly not the only sector that was discounted as an area of state intervention. In Hungary, energy deprivation materialized as a pervasive and visible social problem in the late 1990s, as a corollary of the structural reforms that gave way to market-oriented economic policies at the end of state-socialism.

Under the state-socialist regime, Hungary’s energy provision was under the sole authority of a vertically and horizontally integrated state-owned utility monopoly, dominated by the leverage of the ruling party (Mihályi, 2010). The state’s energy management and infrastructure development policies formed part of a centrally planned economy, predicated on (geo)politically and ideologically charged objectives. Control over energy production and distribution had been essential to ensure economic growth, establish the country’s heavy industry, and legitimize the political system. The USSR’s dominance in the supply of hydrocarbon-based fuels such as oil and gas to Eastern Europe served a pivotal role in maintaining the dependency of satellite countries on Russia (Kramer, 1991). This resulted in an unparalleled immensity of carbon-intensive energy production and consumption, while at the same time disregarding both the economic and environmental costs of fossil-based energy production (Ürge-Vorsatz et al. 2006). As aptly put by Buzar, the “socialist system’s poor environmental and economic record in the energy sector was a trade-off for its heavy emphasis on social welfare” (2007, p.19). Extensive social welfare was a cornerstone of state-socialism, as it reflected a formal commitment to the regime’s claims for redistribution and egalitarianism (Szikra 2009). In practice this meant that a wide range of services and goods were treated as ‘universal necessities’, and services such as housing, health, public transport, education, and importantly, energy consumption, were made accessible to the public through heavy

subsidization (Duke & Grime, 1997). While the technical quality of residential dwellings was substandard and quickly deteriorating, and the domestic appliances they were equipped with were also of poor energy performance, on the short run, cheap heating compensated for these structural inadequacies. Despite the poor quality and polluting character of fossil fuels and the relatively low standards of living, because there was no cost-concern around utilities, residential fuel consumption was extremely high (Ürge-Vorsatz et al. 2006).

This configuration changed dramatically with the end of state-socialism and the beginning of the transition to a market economy. Throughout the 1990s the state-owned energy monopoly was dismantled and the energy sector was privatized, along the lines of the neoliberal political economic paradigm. The market-fundamentalist principles driving the energy sector reform pushed for a fast-tracked liberalization of energy prices “to reflect their real marginal cost and thereby provide consumers with a positive economic incentive to conserve energy” (Kramer, 1991, p.14). The liberalization of energy markets and removal of state-subsidies from utility tariffs meant that the population became exposed to the market prices of energy, drastically increasing households’ financial burden of covering utility costs (Bouzarovski, 2010). The reluctance and/or limited capacity of formal social safety networks, including the state’s or municipalities’ social services, to competently address the growing prevalence of energy poverty, led to an unprecedented surge in the number of households having arrears on their utility bills, and/or struggling to keep their homes adequately warm (Thomson et al. 2019). It took fifteen years of escalating levels of socio-material deprivation for the state to launch a means-tested redistributive programme, providing a monthly housing allowance to eligible households to supplement their low incomes (Misetics, 2018). The allowance could be used to cover (parts of) different housing-related costs (rent, loan instalments, etc.), but it was dominantly spent on utilities. This policy measure considerably alleviated the energy burden of many, but only temporarily: in the twilight of the global financial crisis, “the sum of the

allowance consistently and increasingly lagged behind the actual increase in housing expenditure over the years” (ibid., p.24). Amidst the turmoil of the 2008 and its aftermath, although the unaffordable utility prices remained a hot topic of public discourse, it was eclipsed by the urgency of managing the foreign-currency loan crisis (Csizmady et al. 2019).

The 2010s represent a turning point in Hungary’s energy politics, as it marks a significant change in the regulatory framework for the natural gas and electricity markets (Isaacs & Molnár, 2017). Following the victory of right-wing conservative party FIDESZ in the 2010 elections, the government followed a conscious strategy to enhance its ownership within natural gas infrastructure operation and trade, as the party “has consistently criticized the privatization and aimed to re-establish stricter state control over the sector” (Deák et al. 2019, p.69). State interference and stakes in the energy sector grew increasingly stronger, and by the mid-2010s, having acquired of most shares in foreign-owned energy companies (or otherwise driven out competing utility companies), the Hungarian state become the largest stockholder in the gas sector (Takácsné Tóth et al. 2019). The re-nationalisation and re-centralisation of energy companies taking place since the early 2010s has to be understood as part of a broader authoritarian shift in Hungary’s market-oriented politics (Isaacs & Molnár, 2017). As of today, competition in the energy sector is virtually non-existent, as state-owned utility giant MVM supplies over 90% of residential energy (Maffei, 2023). At the same time, decision-making on several key energy-related issues have been transferred to the Prime Minister, including questions regarding energy carrier imports. All of this has significant consequences for residential wellbeing and energy use, as households account for the largest portion of natural gas consumption, and more than two-thirds of residential gas is used to generate heat, with heating being the largest utility cost item (Tóth et al. 2023).

The state’s efforts at reinserting itself into the energy sector culminated in launching a new social policy instrument in 2013: the ‘utility reduction programme’ (*rezsicsökkentés*). A

flagship of FIDESZ's public policy campaign for the 2014 elections (Szikra, 2017), and to this day the only measure implemented by the state in response to high rates of energy poverty, this instrument replaced the housing allowance which was discontinued in 2015 (Kováts, 2015). The utility reduction programme capped the prices of electricity and natural gas for residential consumers, indefinitely keeping them low at the 2013 rate (Weiner & Szép, 2022). While the price reduction of utilities decreased the overall share of energy costs in households' expenditures, it did so highly unequally. Contrary to the housing allowance previously in place, the utility reduction programme was applied universally for all residential consumers regardless of socioeconomic status (Csizmady et al. 2021). This means that the higher the energy consumption levels and expenditures of households were, the more savings it resulted in, making it a socially regressive policy instrument⁴.

What shines through from this brief overview of post-socialist governments' responses to high levels of energy deprivation countrywide is that noticeably, the measures implemented by the state to ameliorate energy deprivation mostly expanded to monetary support schemes. In saying this, I do not mean to disregard the importance of providing financial support to low-income households struggling to cover housing expenses. There is dire need for means-tested redistributive policy instruments that serve to mitigate the incidence and severity of energy deprivation, and poverty in general. But just as dramatic increases in energy prices alone do not explain the prevalence of energy deprivation, intervention into a single variable (e.g. the price of certain utility cost items) cannot meaningfully address the problem. Capping energy prices alone does not solve the issue of escaping heat, leaking windows, corroding pipes and mouldy walls. Energy deprivation is directly linked to the inhabited dwelling's energy performance,

⁴ A significant segment of the population was entirely excluded from the scheme: because the cost reduction was not applied for firewood, the approximately four million people in Hungary that rely on solid fuels for heating have not benefitted from the campaign at all (Bajomi et al. 2020; Csepregi et al. 2023).

which stems directly from the infrastructural condition and material qualities of the building (Feldmár, 2020). While there is certainly a correspondence between low incomes and energy poverty, it nonetheless does not straightforwardly conform with other income-based inequality measures. There is a much more complex interplay of multiple factors beyond income-expenditure ratios, such as residential energy inefficiency, the quality and structural fabric of dwelling, energy infrastructures and services such as heating systems and domestic appliances, spatial and temporal distribution of daily occupancy patterns, etc. (Buzar, 2007).

Researchers of energy deprivation in post-socialist contexts have consistently underlined that energy deprivation has to be seen a systemic socio-technical issue resulting from the interactions of both sudden surges in energy prices *and* the fixed infrastructural and spatial-institutional legacies inherited from the past (Tirado-Herrero & Ürge-Vorsatz, 2012; Bouzarovski et al. 2016). Energy deprivation is intimately linked to domestic energy efficiency, which ultimately is determined by “the ability of the built fabric, energy distribution installations and domestic appliances to minimize energy losses during the generation of useful warmth (Buzar, 2007, p.10). The ways in which changing political regimes and economic conditions prioritize or neglect certain dimensions of the material environment has far-reaching social consequences. What neoliberal social policies vis-à-vis housing and energy sector reforms overlooked has been precisely this, downplaying the importance of social assistance for demand-side energy efficiency improvement in Hungary, revealing the „structural bias of the state in the choice of transformation strategies, to the detriment of energy efficiency and social welfare” (ibid. 2007, p.13). Within the scope of the subsequent chapters, I will illustrate some of the far-reaching deleterious effects of targeting energy deprivation solely through price-based measures.

1.3. Energy deprivation through the lens of infrastructure and materiality

The aim of my thesis is to highlight the spatial and material embeddedness of energy deprivation in Hungary. My work is informed by anthropological scholarship of architecture and infrastructure, which conceptualises the built environment as durable embodiments of webs of power and also the material substrate of the social and political contexts we inhabit (Edwards, 2019). The built environment, however, is not just a metaphor (Ramakrishnan et al. 2021). The quality and performance of the built environment is not neutral, nor is it inert and decontextualized. As argued by Winner (1980), spatial and technical arrangements, like urban planning principles or systems of energy provision are socially determined, and always “contain explicit or implicit political purposes” (p.124). In its material turn, anthropological scholarship on infrastructure has highlighted the importance of theorizing infrastructures not as a passive base providing the material foundations for social life, but to see them as ‘relational and ecological’ (Star, 1999), woven into the ‘fabric of everyday life’, and shaping “how people relate to the city and to each other, affecting where and how people and things move across time and space” (Rodgers & O’Neill, 2012, p.403). As Edwards puts it, infrastructures are not just things, but “complex, adaptive sociotechnical systems, made up of many interacting agents and components” (2019, p.56), including technological and material elements, social and institutional arrangements, and human participants.

Following Buzar’s approach, I conceptualize energy deprivation as a distinct and complex dimension of social injustice, lying “at the intersection of economic, social and spatial policies, and as a lived experience, arising from the mediation of everyday life through a household’s social and/or built environment” (2007, p.13). It is deeply political, shaped by broader economic, environmental and geopolitical considerations about energy sourcing and distribution, infrastructure development and maintenance, and social policies (or the lack thereof) regarding subsidies, taxation, pricing and social assistance. Energy deprivation is also

a problem that is inherently material, as it is the technical quality and infrastructural condition of buildings where the problems of unaffordability and the poor energy performance of dwellings become most pronounced.

Hungary's total housing stock counts 4.4 million dwellings (of which 3.9 million are inhabited), and approximately two-thirds of buildings were constructed between 1945 and 1990 (CSO, 2018). The most iconic and enduring architectural legacies of the country's state-socialist decades is the omni-presence of large housing estates built using mass-produced, prefabricated concrete panels in urban areas, and the ubiquity of single-story detached family houses shaped like a cube (*Kádár-kocka*) in rural regions (Csoknyai et al. 2016). The residential buildings built under socialism are often cited for their low energy performance: the practices and materials used for construction were of poor quality, as emphasis was instead on quantity, plus the apparent abundance and widespread affordability of fossil-based energy carriers meant that thermal efficiency standards were not prioritized during construction (Feldmár et al. 2021; Hrabovszky-Horváth et al. 2013). While in terms of energy consumption, pre-socialist and socialist-era single-family houses are the worst performing representatives of the Hungarian building stock, the obsolescence and technical outdatedness of dwellings is an issue concerning the overwhelming majority of multiapartment buildings, particularly those constructed before the second World War.

A defining characteristic of Budapest's post-socialist urban development has been the reconstitution of political and administrative power in urban governance, decentralizing decision-making on a number of key issues to local municipalities (Tosics, 2005). While this reconfiguration initially fostered expectations about the efficiency and democratization of urban governance, in practice, the devolution of public service duties to local governments meant that local municipalities enjoyed relative political autonomy but were entrusted with responsibilities (including housing construction and management, rent and utility subsidies, or

comprehensive urban planning) far beyond their capacities, financial and otherwise (Jelinek, 2019). In Budapest, the newly formed local governments were handed over from the state a bulky inheritance: the publicly owned housing stock, with close to 400 thousand dwellings (Hegedüs et al. 1993), and with that the municipalities of Budapest were confronted with one of the most notable shortcomings of the state-socialist regime's housing politics: its decades-long incapacity to maintain the pre-socialist era housing stock. The residential buildings of the inner districts of Budapest was particularly derelict: while the state-socialist government put a high emphasis on housing provision, the state's eagerness in rectifying the housing shortage was mostly quantitative. Expanding the residential housing stock fell short of paying attention to the upkeep of already present buildings, and as such "little money went into the maintenance, let alone the upgrading of the old, turn-of-the-century housing stock" (Bodnár, 2001, p.71) that characterises the urban fabric of Budapest's inner districts. As such, in each municipality, the newly established "district landlord was expected to assume all responsibility for a housing stock where delayed investments created a severe renovation crisis" (ibid. p.78). As I will illustrate in the next chapters, while the prospect of gaining homeownership was relentlessly communicated as an ideal goal that citizens should aspire to (Fehérváry, 2011), for a significant fraction of the population, the devolution of transition costs put disproportionately high financial and maintenance burdens on understaffed and underfunded local governments, and ultimately, on households.



3. Figure: The physicality of the moral abandonment of housing (Photo by author).

Chapter Two:

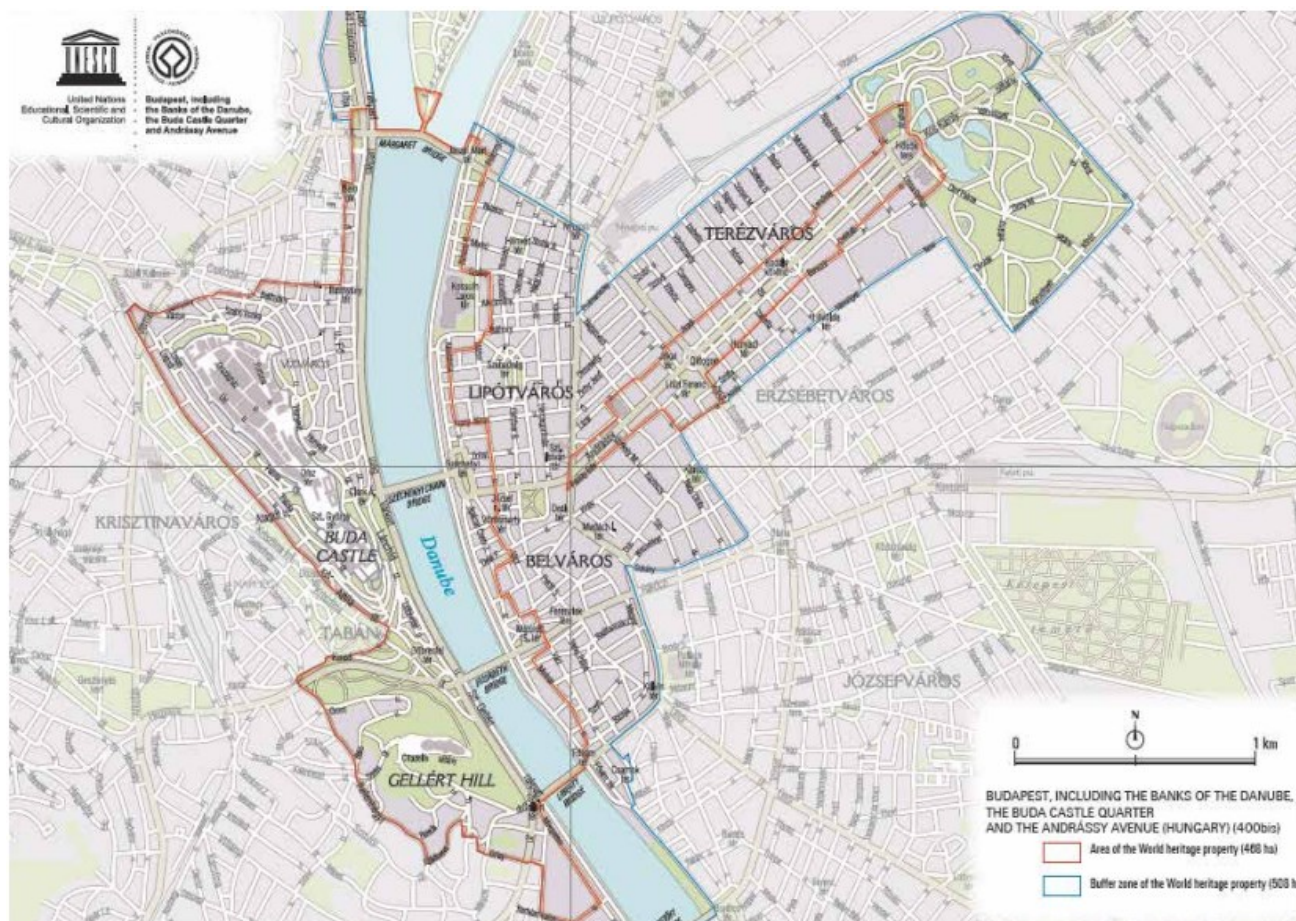
Energy deprivation in inner-city multiapartment buildings: local and global drivers

“In the usual streetscape, the glittering pockets of conspicuous consumption reign semivictorious over the dirty streets and dilapidated buildings. This mixture of wealth and poverty is by no means unique to Budapest or the postsocialist condition. Such coexistence, however, has never been so visible.”

(Bodnár, 2001, p.98)

The built environment of the inner-city neighbourhoods of Pest, and the historical core of the capital, is characterized by a peculiar duality. On the one hand, it has a spectacular architectural legacy and is known for its buildings of high historical and cultural value. The streets are lined with densely constructed 3-4-storey buildings, many of which are well over a hundred years old, influenced by the distinctive features and structures of classical architecture. The facades of the buildings are adorned with geometrical shapes, drawing inspiration from Renaissance-era *palazzo* architecture, combined with the stylistic elements of Gothicism and Baroque in an eclectic fashion (Gyáni, 1998). It is an area where real estate prices are among the highest, not just in Hungary (Duna House, 2024), but across the whole of the Visegrád region (Eurostat, 2024). It is also the commercial and entertainment centre of Budapest, overgrown with lavish consumption sites, high-end designer stores, fancy hotels, cool hostels, new wave cafés, and trendy bars attracting large groups of tourists all year round. On the other hand, often these very buildings are dilapidated and run-down, their exteriors showing tangible signs of material decay, in some cases structural instability. For a lot of buildings, obsolescence is readily apparent just by taking a look at the crumbling façade and rotting wooden window frames; in other cases, it is not immediately noticeable. There are less obvious cases, where amortization only materializes as one goes through the gates and looks at the inner courtyards, stairways, communal halls. Attention from the building's technical condition is often deflected by the

attractiveness of a commercial venue on the ground floor of the condominium. In fact, many venues purposefully take advantage of the run-down condition of the buildings, incorporating the ‘aesthetic’ of decay into their brands (Lugosi & Lugosi, 2008) as a means of justifying the substandard quality of venues⁵.



4. Figure: Map of Budapest's inner districts. The demarcation marks the neighbourhoods protected under the UNESCO World Heritage Convention and additional buffer zones under local cultural heritage protection. My fieldwork spanned the areas of Belváros-Lipótváros, Terézváros, Erzsébetváros, and Józsefváros. (Source: Terézváros Townscape Design Guide, 2018)

⁵ In the early 2000s, hospitality venues called ‘ruin pubs’ started to proliferate in the dilapidated buildings of the inner districts of Budapest, framing their entrepreneurial ventures as a form of cultural heritage preservation and urban regeneration. Sadly, the scope of this thesis does not allow for further elaboration on the development of the ruin phenomenon, but for more details, see: Lugosi et al. (2010).

In this chapter, through a historically informed analysis of urban development in downtown Budapest, I will argue that energy deprivation in inner-city multiapartment buildings and rampant commercialization are intricately intertwined. The deterioration and undermaintenance of turn-of-the-century buildings is an outcome of the interplay of the power-laden infrastructural legacies of historical and political processes, private-sector-driven urban development, social dumping in the form of the devolution of housing responsibilities to individual households, and the increasing interference of financial actors and mechanisms in the housing sector. The treatment of housing as an investment opportunity is at odds with, and downplays the role of housing in social reproduction. This, in turn, has far-reaching consequences for the care and maintenance of the built environment, as it greatly impacts residents' ability to improve the shared spaces within their buildings.



5. Figure: A sophisticated wrought-iron bannister spirals along a dilapidated staircase of a residential building in the 6th district (Photo by author).



6. Figure: Dimly lit hallway on the first floor of a building in the 7th district (Photo by author).

2.1. Built-in unevenness: a historical overview of inner-city development in Budapest

In the past decades, different neighbourhoods of downtown Budapest have been subject to creative varieties of state-induced, municipality-orchestrated and market-financed gentrification and displacement (Jelinek, 2011; Pósfai & Jelinek, 2019), resulting in a patchwork-like playground of private-sector driven investment strategies across the inner city. The transformation that cities like Budapest have been undergoing since the 1990s are richly documented, as they provided fruitful empirical material for studying post-socialist urban (re)development (Tsenkova, 2006; Sýkora & Bouzarovski 2012). The ‘rehabilitation’ of Budapest’s inner districts is ongoing and very selective. Partly due to the fragmented system of urban governance and the different political orientations of local governments, and partly because of the different temporal frames in which redevelopment took place, it is difficult to generalize about the scale and precise mode of urban redevelopment of central Pest’s different neighbourhoods. Some renewal projects were more comprehensive and violent than others, such as the state-induced slum-clearance of areas of the 8th district, Józsefváros, resulting in the development of a newly erected gentrifying neighbourhood (Corvin Promenade) and the displacement of low-income tenants (Czirfusz et al. 2015). Others unfolded differently, through the ‘functional repurposing’ of dilapidated historical districts, such as the Old Jewish Quarter of inner-Erzsébetváros in the 7th district (Csanádi et al. 2011) and the current municipality-backed ‘cultural revival’ of the 2nd district’s Margaret-quarter. Notwithstanding the heterogeneity of the scope, pace, purpose and actors involved, urban redevelopment projects across downtown Budapest share certain similarities in their underlying logic and driving forces.

After the breakup of the state-socialist chain of command in urban governance, key responsibilities of housing provision and social welfare were delegated to the newly formed local governments of cities (and, in the case of Budapest, self-governing districts) (Tosics,

2006). However, a general contradiction of the decentralization of political and administrative power in transitioning countries was that it was implemented “without ensuring adequate fiscal capacity there to deliver urban services and cope with the problems of post-socialist cities” (Tsenkova, 2006, p.23). This meant that local governments were constantly under pressure to draw in extra sources of revenue to be able to provide their services (Czirfusz & Pósfai, 2015). At the same time, they were faced with another paradox: the publicly owned, aging and rapidly deteriorating housing stock inherited from the state was of immense value, but continuing to operate them as social rentals would barely cover the costs of general maintenance, let alone the comprehensive renovation works that many of these buildings urgently needed (Hegedüs et al. 1993). The projected financial deficit arising from the maintenance of a vast social rental sector ushered most municipalities to get rid of as many of the dwellings as possible, and transfer ownership rights and the ensuing responsibilities onto individual households. It is important to mention that although pro-homeownership policies were initiated from above, the push for housing privatization was received positively by citizens. Private homeownership was a desirable objective on the demand-side, as it fostered hopes for enhanced material security amidst conditions of general uncertainty. It is also telling of the state-socialist institutions’ incompetence in sufficiently taking care of the building stock under their holding that a strong incentive for homebuying was citizens’ prospect of increased control over the management and maintenance of their dwellings (ibid.). However, as much as the preference for homeownership was widely shared by the population, the political promotion of homeownership did not translate into the widespread asset-based residential welfare it nurtured. This is because despite the cultivation of narratives of housing privatization as a ‘catalyst of social change’, as Struyk (1996) observed early on, it was primarily a ‘shock absorber’. It was in this context that the Housing Act of 1993 made it possible for sitting tenants to acquire ownership of apartments from local governments at favourable prices (Hegedüs & Tosics, 1998). But, as discussed in

the last chapter, the benefits of privatization were distributed extremely unevenly (Bodnár, 1996). Tenants of typically higher status living in better-kept and bigger apartments were the first to be able to switch tenure types, and the apartments that remained in the ownership of local governments were typically the ones that were hardest to sell due to their low market value and poor condition. Most apartments, however, often in substandard conditions requiring costly renovations, were sold to prospective buyers at a low price, regardless of newfound homeowners' financial capacities of carrying out such capital-intensive refurbishments or maintaining their homes on the long run (Dániel, 1996). By the late 1990s, the mass privatization of apartments resulted in a housing system dominated by private homeownership (countrywide, over 90 percent of dwellings are privately owned), the diminution of the social rental sector (Csizmady et al. 2022), and the relegation of low-income households into substandard dwellings (Csizmady et al. 2019).

The status of Budapest's inner-city housing stock was particularly ambiguous. The overwhelming majority of these houses of the inner city were built between the 1870s and the first World War, during a period of industrial-capitalist urbanization across the European continent. The materialization of Budapest as a modern capital city coincided with the urbanization trends of continental Europe in the late 19th century, pervaded by discourses of bourgeois urban development (Hanák, 1984) that envisioned the city as an integrated, rationally ordered environment (Graham & Marvin, 2001). The buildings and street structure of the inner districts of Budapest are products of meticulous planning processes according to elaborate building codes, inspired by Haussmannian urban planning principles. The developers of the city, the political-technocratic elite of Austro-Hungary comprised of civil engineers, politicians, and architects, known as the Public Works Council, proposed that the capital should be organized around wide Parisian-style boulevards (Hanák, 1988; Domonkos, 2021). While clearly serving practical purposes, this mode of construction also had ideological and

representative purposes: it was an opportunity to display the competitiveness and advancement of Budapest as a modern capital by creating a harmonious, consistent cityscape. More importantly, these buildings were instrumental in providing the material basis for social relations under the country's unfolding capitalist socioeconomic organization. Wealthy families were prompted to build lavish urban palaces in the capital to signal their status and the success of their embourgeoisement. As industrialization took off, the issue of housing the inflow of workers in the capital became increasingly pressing, and demand for expanding the housing stock was high. This situation provided a lucrative investment opportunity for landowners to build tenement houses with lots of apartments and rent them out for a profit (Hanák, 1988). These buildings were considerably less elegant than their urban palace counterparts, and the building materials used for their construction were typically of poor quality, but their exteriors were designed intentionally to carry considerable aesthetic appeal. While on the exteriors, contractors aimed for uniformity of style, the ornamented facades of buildings concealed a stark differentiation in the sizes and quality of apartments. Behind the exteriors, circular corridors (*függőfolyosó*) overlooking and surrounding an inner courtyard are lined with apartments of diverse sizes in a panopticon-like arrangement (Jelinek, 2011). The impetus behind this mode of building was to maximize the built-in land area and have as many apartments squeezed into one building as possible to increase the potential returns in the form of rent (Hanák, 1999 [1988]; Municipality of the City of Budapest, 2016).



7. Figure: A formerly municipality-owned building in the 8th district, that was sold in 2022. Although it currently awaits demolition, up until 2023 it housed multiple social housing tenants. The neighbouring buildings in similar conditions are still inhabited (Photo by author).

The apartments on the first and second floors, looking over the street front, were typically the biggest, with at least 4-5 spacious rooms and a balcony. These apartments were frequently occupied by the owner of the building or rented by upper-class families. The other apartments, located towards the back of the building, were rented out to lower income tenants (Vigh, 1998). Both in size and in terms of amenities, they were much more modest, often only one-room-one-kitchen dimly lit flats, with no private washrooms and poor ventilation. The lavatories opened from the communal hallways and were shared between multiple households living on the same floor (Gyáni, 1998; Bodnár, 2001).

The purpose of this brief historical intermission is to highlight that the built environment is inextricably bound up with processes of economic development, imbued with symbolic and political meanings. Buildings and infrastructures are tangible, durable structures capable of enacting “specific visions and theories of political and socioeconomic organization” (Carse, 2016, p.31). Critical urban theory has contributed greatly to illuminating that the built environment and built networks play “a key role in the emergence of spatial differentiation among and within cities by ‘sustaining sociotechnical geometries of power and social or geographical biases in very real - but often very complex ways’” (Graham, 2000, p.115, cited in Buzar, 2007, p.11). Inequalities based on class, race and gender are often quite explicitly inscribed into the built environment, enforced by the materiality of the urban space, playing “a concrete role in the sedimentation and workings of unjust relations, conventions and practices” (Rodgers & O’Neill, 2012, p.405). The urban architecture of the late 19th century and the buildings that mark the streets of central Pest are an outcome of historically specific form of socioeconomic organization, erected to bolster existing power relations. The fact that inner-city residential buildings in Budapest were *ab ovo* products of speculative investment means that the spatial organization and infrastructural equipment of apartments also reflect the race-to-the-

bottom logic of capitalist urban development. The housing arrangements within these buildings sedimented and reproduced the emerging social order and inequalities, not mitigated them.

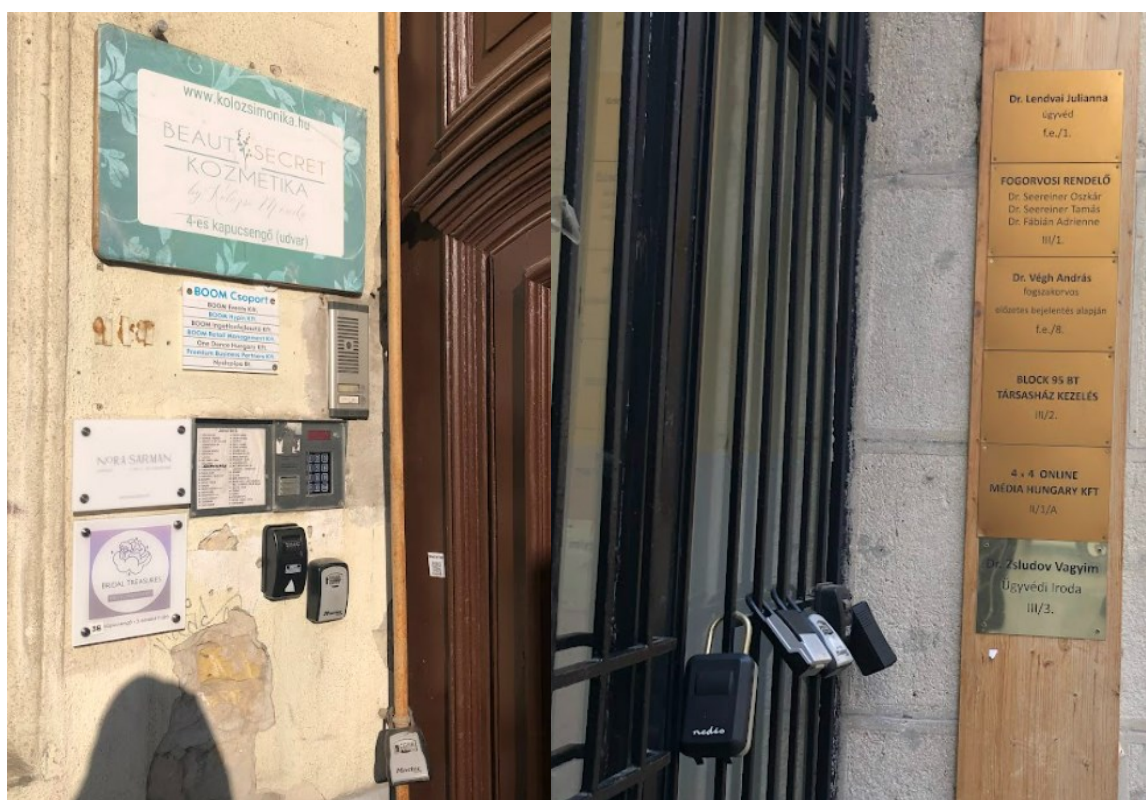
The spatial unevenness circumscribed by turn-of-the-century buildings, coalesced with the differentially distributed benefits of privatization resulted in a fragmented and extremely heterogeneous resident structure within multiapartment buildings. In the next section, I will discuss some of the far-reaching ramifications of the ‘fuzzy’ (Verdery, 1999) property relations present in inner-city condominiums.



8. Figure: A turn-of-the-century residential building on Teréz Boulevard, built in the years between 1890-1892. It was commissioned by Miksa Feledi, a wealthy high-status public servant, who was the owner at least 10 additional buildings in the inner-city (Photo by author).

2.2. The ramifications of uneven development and property relations in condominiums

The great variability in terms of the qualitative and quantitative dimensions of apartments means that the intra-building social makeup of residents is also remarkably diverse. The different apartments of a building are often inhabited by residents belonging to completely different social groups, including middle-class professionals and university students in private rentals, families and pensioners living in owner-occupied flats, and a few social housing tenants. Frequently, apartments in better condition are used for non-residential purposes; in fact, I hardly ever stumbled upon a multiapartment building in the inner-city districts that exclusively housed owners and tenants. Many apartments are used for commercial purposes, and have been converted and rented as offices, private medical praxes, beauty salons, and, not least, short-term private accommodations.



9. and 10. Figures: Multifunctional multiapartment buildings in Erzsébetváros (Photos by author).

The heterogeneous social and functional mix of multiapartment buildings imply a similarly diverse tenure structure, with far-reaching consequences that are rooted in the operative and legislative particularities of managing apartments in multiunit buildings as condominiums (Gerőházi et al. 2011). In Hungary, according to the legal framework regulating the operation of individually owned dwellings in multiapartment houses (Act CXXXIII of 2003 on Condominiums), property owners in each building form a community called the ‘residents’ association’ (*lakóközösség*). Co-owners in a condominium have the right to participate and vote in the building’s primary decision-making forum, the general assembly of residents (*közgyűlés*). It is the most important platform where matters related to the day-to-day operation, maintenance and renovation of the condominium are discussed and negotiated. The particularity of property relations within condominiums is that in addition to their privately-owned dwellings (which can be used for both residential and non-residential purposes), homeowners in a condominium also share joint ownership of the communally used areas and equipment of the buildings that the exclusive physical possession of which is not possible by an individual (Paulsson & Mitták, 2016). The sections of the building belonging to the communal ownership of residents include the external walls and façade of the building, staircases, hallways, the elevator, roof, chimney, courtyard, and the energy distribution infrastructure running through these areas, such as the electrical wiring of the house, gas and sewage piping, etc. The Act clearly sets out which structures of the multiunit building belongs in joint ownership and takes it as a given that they should be treated as such by residents, legally binding condominiums that these assets shall remain in joint ownership under any circumstance. This means that it is not possible to privatize these parts of the buildings, even if the general assembly unanimously voted for it. The degree to which residents can exercise their decision-making rights regarding the management of the building’s communal areas is dependent on the amount of their ‘intangible ownership shares’ (*eszmei tulajdoni hányad*), which is ultimately based on how big is the surface area of the units

that they own in the building. In addition to other housing costs, each household must contribute to the joint budget of the condominium by paying a monthly fee called the ‘common charges’ (*közös költség*). This sum is used to cover the costs of general maintenance and repair, common utility consumption (elevator, lighting), waste removal, insurance on the building, etc. Should the condominium be in the financial position to do so, the common charges could also go into the building’s renovation fund and/or used to pay back loans for previous investments. Like their voting rights, the amount of the common charges and the share that residents are entitled to of the communal property is also proportionate to the size of the unit(s) that they own. This means that the owner of a 120 m² apartment has to pay four times more in common charges than the occupant of a 30 m² one-bedroom-one-kitchen apartment, but the owner of a bigger apartment will also have greater leverage when residents have to come to an agreement on a matter at the residential assembly.

Owning property in a condominium therefore means that besides the homeowners’ right to possess, use and take care of their individual units, they also have a duty to assume responsibility for the communal areas of the building as co-owners, and participate in the collective decision-making processes about the building sections’ use and function (Gerőházi et al. 2011). Ideally, the right to private property in a condominium extends beyond an entitlement to use the dwelling, also presupposing homeowners’ physical presence in the building when needed, their active participation in general assemblies, the shared interest of residents in keeping their house in a good condition, and the capacity and willingness to negotiate where interests misalign. In this sense, private homeownership in a condominium complicates normative, liberal economic ideas of private property like Adam Smith’s conceptualization as ‘objects held in exclusive ownership’ or Henry Maine’s “bundle of rights” (Verdery, 1999). Each condominium basically functions as its own micro-society, operating with their own budgets, needs and preferences as a community, and settling disputes at a

democratic forum, the general assembly, to maintain reproduction within their house. The advantage of this arrangement lies precisely in the idea that the costs and responsibilities of building maintenance and caring for shared infrastructure are born collectively by the community of residents.

Unfortunately, the empirical reality of how residential communities operate shows a considerably less ideal-typical picture in Budapest's multiunit buildings. It is easy to see how an arrangement that endows those with more individual property with more control over communal matters can put certain residents at a disadvantage, even in areas where the social and functional makeup of condominiums is less heterogeneous. But the diverse sociodemographic and functional profile of Budapest's inner-city neighbourhoods complicates matters immensely. Of course, the fact that apartments in condominiums house residents of different social groups and/or are used for purposes other than housing is not the problem. On the contrary, the ability of people with diverse backgrounds to come together in an attempt to reconcile differences would be the sign of a lively, well-functioning democratic system.

Problems emerge once the role of housing as a site of social reproduction and 'condominium-as-community' becomes subsumed under a different logic. As outlined in the previous section, increasingly since the late 1990s, the inner districts of Budapest have been subject to a sort of laissez-faire urban restructuring, driven by the influx of private capital, predominantly in the form of foreign investments (Bodnár, 2001), and steered by the market-conforming practices of the state and local governments. While on the one hand, the newly emerged private housing finance system offered the credit-based prospect of homeownership to Hungarian residents, the liberalization of the banking sector also opened the door for international real estate investors (Hegedüs & Somogyi, 2016). Harvey (1978), to make sense of the global economic crisis of the 1970s and embed analyses of neoliberal restructuring in space, argued that the built environment plays an integral part in the accumulation process of post-industrial capitalism, as

the material physical infrastructure is an important spatial fix in which surplus capital can be invested. In their analysis of the role of housing in the current age of financialization, Fernandez and Aalbers (2016) put forth that the spurt of investments in the housing sector, and real estate more generally have to be seen as the ‘main collateral’ in temporarily solving the ‘capital absorption problem’ of the West. This line of thought was adapted to the case of the Hungarian housing sector by Pósfai and Nagy (2018), arguing that the availability of a large pool of foreign capital seeking new investment opportunities translated into a credit boom in the freshly liberalized markets of post-socialist countries. Coinciding with global trends of post-industrial urban restructuring and the quest of transnational surplus capital for a spatial fix (Smith, 1984; Brenner & Theodore, 2002), the derelict built environment of the inner-city offered a cavernous rent gap (Smith, 1979) to be closed by speculator-developers (Aalbers, 2008; Sokol, 2013). This resulted in the growing presence of a heterogeneous set of actors looking to buy property in Budapest’s housing market as an investment opportunity (Pósfai et al. 2017). In the inner districts, this process of housing commodification has been particularly rampant, going hand-in-hand with the commerce- and tourism-led conversion and redevelopment of historical neighbourhoods (Csanádi et al. 2006; 2011). Currently, after temporary setbacks during the 2008 crisis and the Covid pandemic, touristic and entrepreneurial capital continues to fuel and shape the transformation of Budapest’s inner districts. International news outlets consistently list Budapest as one of the most popular ‘party capitals’ of Europe, offering “once-in-a-lifetime tourist hotspots” (Cresswell, 2024), and even Budapest’s official Tourist Information Centre invites visitors to come to “the world’s second-most nightlife-friendly city” (BudapestInfo, n.d.).

Reports on real estate market dynamics have ranked investment purposes as the primary motivation for property ownership in the past few years (Duna House, 2018-2024) Indicative of the extension of speculative property investment into the residential sector is the proliferation

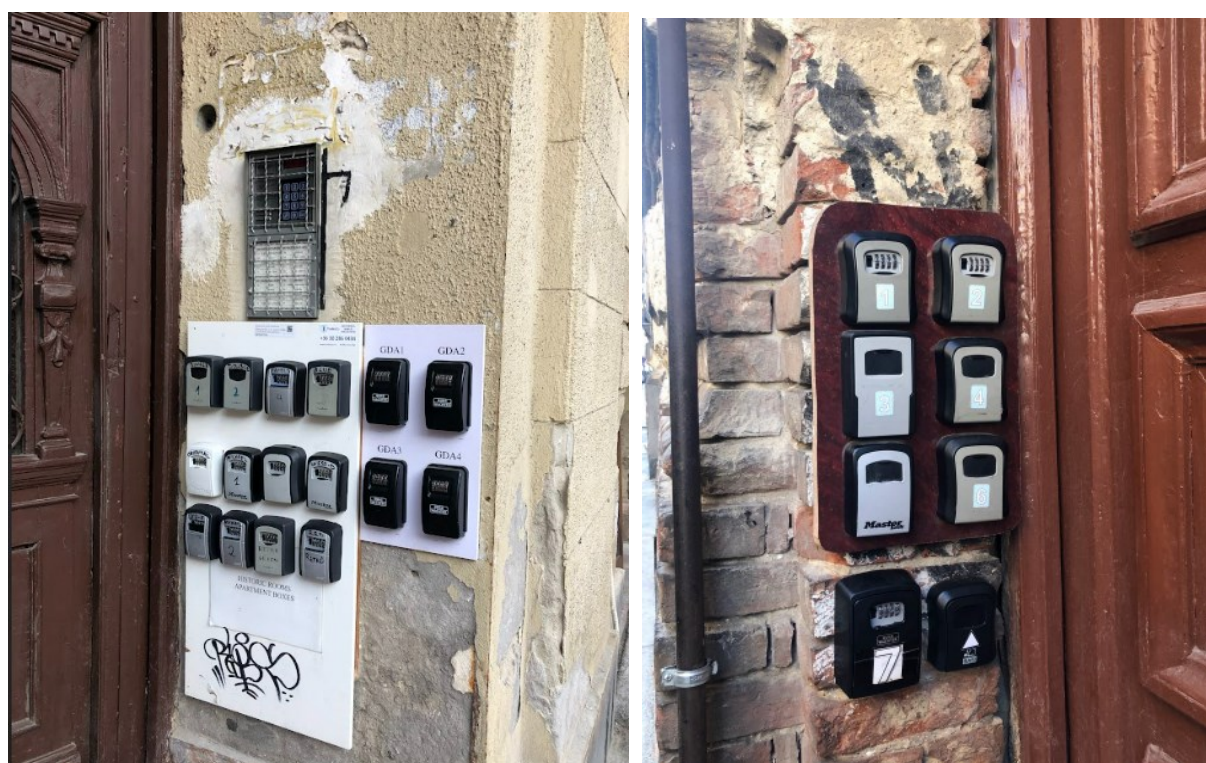
of short-term private rentals within the condominiums of Budapest's inner-city. On the platform of AirBnb, there are over 14 000 available apartments for Budapest, and there are multiple property managers with over a 50-100 listings (AirDNA, 2024), pointing to the increasing concentration and professionalization of short-term accommodation rentals. As the pictures I took during fieldwork illustrate (*Figures 10-13.*), the burgeoning of commercial rentals is taken to such an extreme in some condominiums of Terézváros and Erzsébetváros (6th and 7th districts), that they sweepingly outnumber apartments housing long-term residents. It was shockingly common that I entered buildings, in which out of 30-40 apartments, only two of them housed original owners, a few more long-term tenants, the rest operated as private accommodation and offices.

In my interviews with the local government officials, an employee at the 7th district's municipal office confirmed that

AirBnbs in Inner-Erzsébetváros, this is an absolutely real problem. I say this on the basis that I took part in the census as a volunteer last year and there were several houses that were more like haunted ghost-houses than condominiums. On Wesselényi Street there was one house with twenty-four or twenty-eight flats. And I just couldn't get in to see the residents because nobody was home, so I asked the building manager, whose number was outside on the doorbell, if there were any residents in the house. He said there were 2 and told me who they were by name because the rest operated as a hostel or Airbnb by foreign investors. But the house next door here on Nyár Street is also a twenty-four-unit house, of which there was one municipal tenant, 3 long-term tenants and all the other sublets are Airbnbs flats. (Interview with an employee of the Municipality of Erzsébetváros)

While the stakeholders managing these tourism-led property investments are by no means a homogeneous group, and they employ highly diverse business strategies (for a typology of key actors and investment models, see: Wijburg et al. 2023), their 'buy to let' investments in short-term rentals in many cases culminates in adverse social outcomes. One of the more apparent social consequences of the fragmentation of apartment uses in many buildings is the high rates of fluctuation and the lack of neighbourliness among residents. The importance of a sense of community within condominiums and its gradual disintegration over the years was a prominent

theme in my interviews with older, long-term residents. However, there are additional, less straightforward mechanisms at play, stemming from the logic inherent in the legal framework of condominiums, for one, the technical and spatial differentiation circumscribed in turn-of-the-century multiunit buildings, and exacerbated by investment-driven practices. In the next section, I will turn to discuss the transposed consequences that speculative real estate investment practices entail for the long-term residents of condominiums.





11-14. Figures: Lock boxes installed on the exteriors in inner-city buildings in Inner-Erzsébetváros, to provide easy access to the apartments for arriving guests (Photos by author).

2.3. The material imprint of speculative investment

A lot of people buy property as an investment in the district and then they don't live here. So, then we have two trends in the apartments with lots of rentals: one is that the landlord has the money, so he can afford to pay higher common charges and he also has a vested interest in having a house in a good condition. So he can spend money on renovating the house. But then other landlords say that since they don't live here, they don't care about maintenance. And many building managers [közös képviselő] complain that the attendance rate is 10% at residential assemblies. Because rentals are rented out to tenants who don't have voting rights, and the owner himself doesn't give a shit about the assembly. (Interview with an employee of the Municipality of Terézváros)

As the above observation of a municipality employee suggests, the illusion of a democratic community within a condominium quickly disintegrates once speculator-investors acquire a quasi-monopolistic position in the building. According to the Hungarian legal framework, unless stated otherwise by the Condominium Act, regulations of intra-building relations must

be set at the condominium level. This means that the residential community's capacity to carry out the comprehensive, financially, and logistically daunting renovation works that turn-of-the-century building structures require ultimately comes down to condominium co-owners' ability to reach a consensus on the matter. If the units owned by investment-driven buyers outnumber the property in the ownership of long-term residents, the majority of voting rights will also be concentrated in the hands of rent-seeking actors, skewing the outcome of decision-making in their favour. Seeing that there is a fundamental contradiction between housing-as-commodity, through which profit can be realized, and housing-as-home, a site of social reproduction (Harvey, 2014), interests, preferences and financial capacities will diverge on matters regarding the upkeep and renovation of the building. This has enormous implications for the maintenance and repair of shared infrastructure in the condominium, as even slight modifications of the building sections in joint ownership (e.g. painting the walls in the hallway or installing a new light fixture above the gate) must be collectively agreed upon by a simple majority at residential assemblies.

By this I do not mean to imply that speculator-investors are actively and explicitly seeking to disempower other residents and undermine the 'democratic foundations' of condominiums. The tension here cannot be understood as simply caused by the malicious and self-serving intentions of profit-seeking actors encroaching on the harmonious cooperation of a group of residents. It also stems from the fact that the degree to which residents can exercise their power in a condominium is highly variegated, and is derived from how much property one owns. Tenants renting through the private rental market, or inhabitants of municipality-issued social rentals, for instance, are able to attend general assemblies, but unless authorized by their landlord, they do not have the right to vote, i.e. a say in what happens in the condominium. An additional structural problem hindering the efficient operation of condominiums is the asymmetry between the guarantees propertied individuals enjoy in exercising their ownership rights, vs. the lack of

adequate mechanisms that would keep them accountable to fulfil their other obligations as condominium co-owners. The fact that many investment-driven owners are physically absent from the buildings, and fail to attend and participate in the general assemblies of condominiums can also seriously impede collective decision-making, as it often results in a lack of quorum and possibility to proceed with implementation. But until the common charges are paid on time, other forms of ‘landlord passivity’ cannot be subject to reprisal, however detrimental it may be to the communal functions of the condominium. Therefore, what appears to be a framework to help reconcile individual vs communal interests in multiunit buildings, the Condominium Act practically reflects lawmaking’s systemic bias in protecting and upholding private property as the organizing principle of social and economic relations (Hann, 2007).

Also, as stated above, not all property owners buying for investment purposes outright refuse to contribute to the renovation of shared building sections. In fact, it is often the speculators that are the most eager to develop the condominium and invest in renovations that will increase the market value and aesthetic appeal of the building. The problem here, however, is that even in solvent residential associations, the majority of inner-city buildings have not received large-scale upgrades since the 1960s (Csanádi et al. 2011), and as such the accumulated cost of the required reconstruction works greatly exceeds the financial capacities of condominiums. The picture is complicated by the technical issue that the proper and thorough preservation and renovation of turn-of-the-century residential buildings in central Pest is a particularly complex, lengthy, and capital-intensive endeavour, in which historical heritage, energy efficiency and economic considerations have to be integrated⁶ (Municipality of the City of Budapest, 2016).

⁶ For example, given the districts’ strict zoning regulations and „heritage protection guidelines, the external thermal insulation of the façade can be ruled out in almost all cases” (Sugár et al. 2020)



15. Figure: A late-19th century multiapartment building standing between two, more recently constructed houses in the 8th district. Given the unique historical character of the facade, its reconstruction would be particularly costly and tedious (Photo by author).

Mrs Révész, a resident of the 5th district, is a recently widowed woman living on her own in an apartment purchased with her husband in the 1990s in the very heart of the city center. She lives in an elegant turn-of-the-century multiapartment building located on the affluent Váci Street, in what seemed like one of the better-kept condominiums in the area:

...we can still consider ourselves lucky, because back in the day we had people renting the cellars as a storage space and the condominium had more income, it was easier to take out loans. So, imagine, 20 years ago we could finally fix the roof that had been damaged in the second World War! Then recently we had to have a section of the circular corridor completely revamped because it was life-threateningly unstable. But with the scaffolding and redoing the iron support structures, it cost above 40 million Forints (around 104 080 Euros), and obviously it had to be done, but the house is severely indebted now. And you know, the other sections are still waiting to be renovated, the elevator is on its last legs, whole wall sections are crumbling in the stairway... I could go on. (Mrs Révész, 74, retired language teacher)

That said, even if residents successfully go through the tedious process of coming to an agreement, passing a resolution to renovate a section of the building, taking out a loan, covering the expenses, and against all odds, seeing the development project come into fruition, renovations are fragmentary, proceeding in minor increments, and put a long-term financial strain on individual households. Even in buildings in which maintenance and repair works did take place, only a minority of them expanded beyond interventions to eliminate life-threatening structural faults or aesthetic facelifts.

But in many condominiums, more prevalent is the attitude of investors who hold aloof altogether from contributing to the large-scale reconstructions of infrastructures in joint ownership, and instead focus solely on renovating property that is in their private ownership. While these upgrades sometimes involve measures that enhance the energy efficiency of the dwelling (like changing the windows and door), more often it is limited to cosmetic, surface interventions that increase the aesthetic appeal of the dwelling. The complex, costly and time-consuming nature and technical challenges of the thorough energy-efficient renovation of apartments in condominiums all contribute to investors' reluctance to finance comprehensive retrofits that might entail the installation of entirely new energy distribution systems.

As explained by a social worker at the social service centre of Erzsébetváros,

the Airbnb housing stock in the city centre is not about using energy-saving solutions, but about these glitzy-flashy [*“csilli-villi”*] surface interventions and interior design solutions. For Airbnb hosts it is much easier to install an AC and an electric heater next to these old convection heaters, because the tourists who come here can't really operate

these old appliances anyway. And that's why I call these sham investments [*látzabefektetések*], because they are cheaper, easier, not proper retrofits, but for tourists visiting for a few days, what matters is not energy efficiency but short-term comfort. From an energy point of view, it's horrendous, but that's not the impetus for investors, is my opinion. (Mrs. Földes, employee of Erzsébetváros Municipality's social services)

I find Mrs. Földes's observation crucial for multiple reasons: one, because it provides a fascinating new entry point into the deep-seated structural and material consequences of profit-driven real estate development and how it fits into the general tendencies of neoliberal urban transformations. It is reminiscent of the argument put forth by Graham and Marvin (2001), that the increasing permeation of global finance capital into urban planning altered the modernist logic of urban governance and comprehensive infrastructure installation, subjugating infrastructure development under a speculative logic.

Crucially, however, the promise of faster, short-term returns only partially explains the inclination of property owners, who otherwise have the financial means for renovation, to resort to alternatives that are cheaper and easier to install on the short run (like air conditioners and electric heating panels). An equally important factor buttressing these tendencies is the government's 'utility reduction' public policy instrument. The measure was originally introduced in 2013 to offer a panacea to the skyrocketing energy prices that put a disproportionately high financial strain on residential consumers. It was implemented by capping the prices of water, electricity, and gas for domestic consumption at the 2013 level, thereby decoupling them from their market price. I already mentioned that while the campaign considerably alleviated the energy costs of households (Szép, 2017), it did so highly unevenly: because there was no income-based differentiation in targeting, the savings in energy prices benefitted more affluent households to a much greater extent than low-income households who already had a propensity to cut back on energy consumption levels to save money (Bajomi et al. 2020; Weiner & Szép, 2022). However, an additional serious shortcoming of the program

was that the relative affordability of domestic energy created the illusion that, much like under state-socialism, there was no cost-concern around energy consumption. Because the price reductions were not paired with energy-saving education campaigns or state-subsidies that would incentivize energy-efficient retrofits, all it really resulted in was the encouragement of higher, possibly excessive energy consumption (Csizmady et al. 2021). Within this context, it is unsurprising that those who have the means to invest in appliances that increase comfort levels will not be discouraged by the amount of electricity these devices consume.

The second reason why the above quote is interesting is because I was told this by a social worker, a person whom I had originally approached with the hopes of learning more about the specific circumstances of residents that are typically said to be more vulnerable to energy deprivation. Accordingly, at the beginning of our interview, she explicitly stated that due to her line of work she can only provide me with her insights about those people who are on the radar of social services and are therefore likely already experiencing socio-material deprivation. The clientele of the local social services mainly consists of low-income households in difficult financial situations (like indebted families and solitary pensioners), and consequently, exposed to various aspects of housing poverty. Many of these households are impoverished, with arrears household costs and trapped in a debt spiral. *That's why I said that we only see a specific segment of the population, and my experiences are probably not representative overall.* Mrs. Földes added.

Very often social workers' relationship with their clients represents underprivileged groups' only, or their most sustained link to society, without which they would be even more marginalized. But given that many residents affected by housing and energy poverty live in extremely centrally located dwellings, the disenfranchisement of these households in Budapest's inner districts does not stem from their physical isolation. The fact that the social workers of Budapest's inner-districts are involved in condominiums where absolute housing

deprivation in one dwelling co-exists with the ultra-comfort provided by modern appliances in the other implies a highly fragmented and uneven landscape of housing opportunities and wealth distribution, not just between different districts and condominiums, but also within the same building. In the final chapter of this thesis, I will draw on inner-city condominium residents' experiences of energy deprivation and related struggles around housing, to discuss how socio-spatial unevenness and exclusion are reproduced and sustained on a household level.

Chapter Three: Affective infrastructures and experiences of inefficient homes

Mrs Kósa, a woman in her early 70s lives by herself in a municipality-issued apartment on the first floor of a 4-storey multiapartment building. The house is located on Wesselényi Street, a busy commercial street in the inner area of the 7th district of Budapest, Erzsébetváros. This neighbourhood, giving home to the Old Jewish Quarter, forms part of the historical centre of Budapest's downtown area, accorded the status of a UNESCO World Heritage Site (Rátz et al. 2008). While the built heritage of Erzsébetváros makes it an attractive cultural destination, what the district is increasingly becoming famous for, topping the list of must-visit touristic destinations in Europe, is its vibrant nightlife economy. Among locals, Inner-Erzsébetváros is colloquially referred to as the 'party district' (*bulinegyed*), referring to the dense concentration of entertainment and night-time venues around some of the oldest streets of Pest. As I was going to see Mrs Kósa, I passed through streets showing signs of rampant commercialization and touristification. It was late afternoon on a Saturday, and making my way through Wesselényi Street, the plethora of overpriced sites for conspicuous consumption, the stench of alcohol, fast food and urine, the sounds of food carriers' motorbikes, tour guides, tourists and traffic was almost overwhelming. On the ground floor of her building, a restaurant called *Gettó Gulyás* ('Ghetto Goulash', a particularly tasteless name for a venue operating in the historical area of the former Jewish ghetto) awaits costumers to try their traditional Hungarian dishes with a contemporary twist. Next to it, a fast-food place is serving a fusion of Greek dishes and Hungarian langosh, then a souvenir store selling Budapest merchandise. On the opposite side of the street, Mrs Kósa's window directly overlooks a 'unique and funky' artisanal beer bar with an impressive selection of overpriced alcoholic beverages. Once I enter the building, the noisiness of the street fades a bit, and I walk up to the first floor to meet Mrs Kósa. She is

wearing a thick layer of warm clothing: turtleneck with a vest, and on top of it a knitted cardigan. *It's usually better than this*, she said, as she let me into her apartment for an interview, *but now I think it's best to keep your coat on.*

In the inner districts of Budapest, the multi-scalar transformations that characterize the city's post-socialist urban development have produced a highly heterogeneous and polarized residential structure. In the previous chapter, I argued that the fragmentation of resident profiles, tenure types, interests and financial capacities have tangible consequences for the collective management and maintenance of condominiums. The incursion of financialization processes in the residential sector profoundly impacts investment priorities within the building, creating an imbalance between the abilities and leverage of residents in collective decision-making, to the detriment of lower income, long-term tenants. The material imprint of such intra-building fragmentation and the subjugation of property development under a speculative logic is “the splintering of integrated and ‘bundled networks’ into a myriad of individually financed and managed infrastructure projects” (Graham & Marvin, 2001, p.97). This splintering is readily apparent just by walking past the inner corridors of turn-of-the-century condominiums: neighbouring units with freshly painted walls, newly installed windows and doors with security locks are apartments where painted wood is chipping off from the rotten window frames, and the wooden door does not quite fit its frame, leaving a gap between the threshold and the door. Beyond these visible qualitative differences, the socio-spatial unevenness of condominiums is also manifest in the fragmentation of the energy distribution infrastructures and technological systems between apartments.



16. Figure: Passing in front of apartments on the circular corridors, one might notice the mosaic-like installation of outdoor units belonging to entirely different heating devices: a condenser for an air conditioner mounted on the wall of one apartment and a cone-shaped metal structure that forms the outer end of a flue for a type of gas-fired central heating appliance, on another. (Photo by author).

Earlier in this thesis, I put forth that foregrounding infrastructure and the material qualities of turn-of-the-century condominiums offers a helpful interrogative tool for understanding how the processes that produce uneven socio-spatial arrangements are embedded in the built environment. But how exactly do these splintering infrastructures contribute to the sedimentation of dimensions of social inequalities, such as housing poverty and energy deprivation? What is it about the technical condition and material qualities of turn-of-the-century condominiums that play a part in co-constituting unevenness? In the last chapter of this thesis, I will trace the asymmetries and inequality-inducing mechanisms embedded in the infrastructures and the materiality of inner-city condominiums, through a focus on a specific type of heating device, the *konvektor*.

3.1. Heating devices and the co-production of lock-in effects

The konvektor has been acting up lately. Mrs Kósa explains, as we enter a dimly lit but otherwise neat living room, although with a slight odour of damp in the air, *so I can't get the temperature above 18 degrees.*

A *konvektor* is a sturdy, rectangular gas-fired heating device, typically installed on the wall of the room below the window. For the *konvektor* to burn gas, it needs a constant source of oxygen, which is why besides the pipe that supplies the boiler with natural gas, attached to the device is a duct running through the wall. The duct, ending in a truncated cone-shaped structure made of metal (the *parapet*), makes it possible to derive air directly from outside, and it also serves as a flue to dispose of waste fumes through the wall, and into the air. The terminus technicus for this device is a 'room-sealed heating appliance' (*zárt égésterű fűtőberendezés*), because the combustion zone of the boiler itself is covered and enclosed by an iron enamel paneling, meaning that the chamber where combustion happens is sealed from the rest of the room. To turn on the device, a button with a flame signal (the spark plug) on top of the boiler must be

pressed a few times to spark ignition and wait until the gas flame appears. Technically, the efficiency of the device's heating performance can be adjusted on a thermostat on scale of 0 to 7, though in practice keeping the heat on low is not recommended, especially for older appliances. Several people I interviewed who have *konvektors* installed in the 1970s, told me that if they keep the heater on 2 or 3, they might as well just turn it off altogether, because sooner or later it will stop running anyway.



17. Figure: The inside of a konvektor (Photo by author).

Since the construction of turn-of-the-century multiapartment buildings, Hungary has undergone “fundamental changes to the manner in which energy is regulated, generated and consumed” (Bouzarovski et al. 2017, p.22). Much like the architectural solutions, floorplan, and amenities of inner-city buildings in Budapest embody the spatial circumscription of previous forms of social organization, the energy infrastructure networks running through their walls also reflect past systems of energy service provision and state industrial policy (Grabher & Stark, 1997). In the late 19th century, at the time of their construction, functional and technological innovations like water and sewage piping, central heating and electricity were only beginning to be incorporated into residential architecture design. Heating was provided by firewood-fuelled ceramic stoves while lighting was oil-based, which necessitated large airspaces to ensure proper ventilation. The appearance and widespread installation of gas-fired heating devices in residential buildings marks a paradigm shift in energy provision, and the replacement of solid fuel-based domestic heating systems by natural gas (Knudsen, 1999). The overwhelming majority of *konvektors* still in use today were manufactured by FÉG, a company founded initially to produce weapons and industrial machinery in the 1890s, but whose activity later (after World War I) expanded to the manufacturing of domestic appliances. From the late 1960s, the production of gas-fired heating devices became the main profile of the (at the time, state-owned) company, and it became the monopoly wholesaler boilers in the country (FÉG, n.d.). In Hungary, as elsewhere in the Eastern Bloc, the mass availability of natural gas for residential consumption was intimately linked to state-socialist regime’s centrally planned energy management of infrastructure development objectives, and a high dependence on Soviet hydrocarbon supplies (Kramer, 1991). In their heyday, *konvektors* were a sign of technological progress and increased comfort levels, as their installation enabled widespread domestic access to gas-fired central heating, in a relatively compact form. *Konvektors* exemplify the fixed infrastructural legacies inherited from past technopolitical systems of energy provision

(Bouzarovski et al. 2016), emblematic of the totalizing logic of a centrally managed, modernist urban planning that sought to organize society through bundles of integrated infrastructure networks (Graham & Marvin, 2001).

By now, however, most of them are technologically obsolete and inefficient. According to the professional opinion of the Hungarian Chamber of Engineers (Lantos, 2018), 80% of *konvektors* still in use are outdated, many of them posing a health and safety risk. Notwithstanding the obsolescence of *konvektors*, to this day, almost 2,5 million of these heating devices continue to operate in Hungary, and they are a very common type of heating device in inner-city multiapartment buildings. Part of the reason for the enduring ubiquity of *konvektors* in apartments has to do with the fact that replacing and upgrading heating systems would be the most cost-intensive item of energetic renovations. Further, not only is it expensive to replace *konvektors* but quite complicated, especially if installed in a flat in a multiapartment building (Municipality of the City of Budapest, 2016). Technically, to get rid of a *konvektor* altogether and upgrade to more efficient heating devices (e.g. a condensation boiler or heat pump), the complex and comprehensive retrofit of the entire heating system of the condominium is required (Szabó, 2018). In the last chapter, I discussed that the renovation of any energy distribution system that is connected to the shared building sections of a condominium requires intense coordination, cooperation, meticulous planning with multiple actors involved, and crucially, sufficient funds. The splintering of heating infrastructure begins when residents cannot decide as a community on funding the comprehensive upgrade of the condominium's central heating system, and the owners who have the means to renovate, implement renovations on their own by installing alternative devices that do not require the large-scale reconstruction of the building's infrastructure network. On the other hand, those lacking the funds or position to upgrade, have much more limited options. If the complete reconstruction of the building's central heating network is out of the question, the most cost-effective and reasonable means of

upgrading a *konvektor* is, paradoxically, by installing a newer *konvektor*. While a more modern gas-fired heating device might increase heating efficiency, the replacement of a single device in itself is also expensive. But what is even more concerning is that it bears the risk of creating a lock-in effect, as it does not offer a solution to the long-term challenge of disentangling domestic consumption from fossil-based fuel carriers (Bouzarovski et al. 2017).

3.2. ‘Cold but sweating’: Sensory experiences of energy deprivation

“Some days I’m pleasantly surprised that it still hasn’t broken down, the next day I curse it because the little heat it managed to emanate escapes right through the gap between the window and windowsill anyway” (Csaba, 43)

Dissatisfaction and general preoccupation with the ways in which *konvektors* malfunction was a recurrent theme throughout my interviews. The above remark by Csaba, a man in his mid-40s, living in a social rental with his chronically ill mother in the 8th district, captures some of the sentiments that residents felt towards their old *konvektors*. For some, they were a constant source of frustration and headache, given their *complete uselessness at heating up a room properly*, as Kriszta, a resident in the 6th district, said of hers. (There were two *konvektors* in her apartment, an old one, from the 1970s, installed in the kitchen, and a ‘newer’ model [fitted in the ‘90s] in her bedroom. Somewhat questioning the improved efficiency of a more modern piece is the fact that she had a lot more to say about the underperformance of the newer *konvektor* in the bedroom than the one in the kitchen.) Other residents’ complaints had more to do with the ‘inconsistency’ of the *konvektor*’s performance, not its absolute incompetence:

The one in my room works great, I think. It heats up the room quite fast and effectively. It’s just that it’s a little unpredictable sometimes. It doesn’t suck completely, but sometimes I turn it up to 5 and after a while it just stops. But other times keeping it on 4-5 works just right, even in the coldest months. (Boró, 24, cultural worker)

Many residents expressed their discontent with their heating devices in highly emotive ways, describing how they were *repulsed* by its presence and the sound it makes, *disappointed* and *angered* by its malfunctioning, and feeling *overpowered* by the *insufferable and endless cycles of trying to come up with ways to preserve heat* (Anett, 36, office administrator). What the latter statement implies, however, is that the affective quality of infrastructure stretches deeper than merely provoking intense emotions in residents. In line with Larkin's argument that the material properties of infrastructure are involved in the production of "the ambient conditions of everyday life" (2013, p.336), the poor quality and inefficiency of heating devices actively contribute to the constitution of unfavourable attributes in the home. Certain qualities of the indoor environment (like suboptimal indoor temperatures, poor air quality caused by damp walls as a corollary of underheating and inapt ventilation, the sensation of draft breezing through the leaks below the window) profoundly impact the extent to which the home can be a place of comfort, shelter, and security. Although a sense of comfort is highly dependent on people's subjective perceptions, it also stems from bodily reactions to physical sensations.

In our conversations, residents provided vivid descriptions of their sensory experiences in relation to the thermal conditions of their homes. Boró and Lilla, both early-career university graduates in their mid-20s, are tenants living in a 2-person flat-share on Teréz Boulevard. As the apartment is in the back of the building, it is sheltered from the noises of the 4-lane boulevard, but because they are in the corner of the second floor out of four, the apartment does not get much natural light. They each have their own spacious rooms with the sleeping areas located on a mezzanine (*galéria*), afforded by the vertical expansiveness of their living spaces⁷. While an elevated bed is a practical choice for creating more space in the room, in Lilla's room,

⁷ An additional distinctive feature of turn-of-the-century buildings is their tall ceiling heights (3,8 meters and above), making the installation of *galérias* a popular interior design choice in these apartments.

the bottom of the stairs to the sleeping area are located directly in front of the *konvektor*. Her heating device is a particularly inefficient one, and the little heat it is able to produce is guided upwards (aided by the laws of thermodynamics), resulting in the highly uneven distribution of heat between the sleeping area and the space below the bed.

So when I'm upstairs, I have to be in a top because wearing anything else would be too hot and suffocating. But downstairs, even if I turn the heat up to the max and wear eight layers, and the clothes make me sweat, somehow I'll still be cold. Not to mention that the air is always stuffy. (Lilla, 23, child services social worker)

Besides a poorly functioning heating device, the thermal conditions in Lilla's room are also shaped by the room's spatial location. As it is in the corner of the building, none of her walls are connected to a wall that might be heated from the other side, which also contributes to the dampness, cold, and the inevitable appearance of mould in the corner of her living space.

The quality of domestic infrastructures and the insufficiency of spatial and material arrangements, such as the low energy performance of a building or the malfunction of a heating device are agents actively involved in producing energy deprivation. Infrastructures that contribute to energy service provision (domestic appliances, heating pipes, insulating materials, etc.), in this sense, are not passively imposing themselves, but are agential with affective capacities, experienced relationally by their users (Knox, 2017). That they are relational also means that they shape how people engage with their environments (Tuvikene et al. 2020). Emerging literature on the lived experience of energy deprivation (Butler & Sheriff, 2017; Stojilovska et al. 2023; Serrano et al. 2023) has contributed greatly to illuminating the diverse array of coping behaviours that households develop in response to their situation. My conversations with residents living in inefficient homes also revealed that, either consciously or unconsciously, they also engaged in a variety of bodily and mental adaptation strategies.



18. Figure: The heating device in Boró and Lilla's kitchen. A gas fitter recommended that it should be never kept off, because there is a chance it might not turn on again the next time. It had been running throughout the entire heating season, and never did it come close to being even lukewarm to the touch. (Photo by author).

Many residents used common heat-conserving tactics, like wearing multiple layers of warm clothing, closing the blinds and curtains on the windows, rearranging furniture (like Mrs Kósa, who tried to create better insulation on a wall that was not heated by the neighbouring apartment by asking his nephews to help her move a bookshelf in front of it) and resorting to do-it-yourself solutions (like Anett, who used sponges and old cloths to stuff the gaps between the window and the wall). Such attempts at controlling the microclimate of their homes might seem futile,

but it is important to emphasize that the implementation of any energy-efficient upgrade is even less of a prospect for residents like Mrs Kósa (a social housing resident), Anett, or Lilla (tenants renting through the private rental market). There is evidence across Europe that non-homeowners often face elevated risks of energy deprivation, due to the low rates of energy-efficient retrofits in the private rental and the social housing sectors (DG for Energy, 2024). As tenants do not actually own the property they inhabit, they have little to no bargaining power over how their apartments are improved. Since the apartment of Mrs Kósa is owned by the Municipality of Erzsébetváros, ensuring the operational condition of the sections of the central heating ducts that are located *inside* the dwelling is the responsibility of the municipality (12/2012. III. 26). Whether and when the municipality can finance such overhauls, and when, however, is not up to the residents. The situation of tenants renting privately is often the most precarious, given the extremely loose regulations in place for the private rental sector, and virtual lack of any state-guaranteed protective mechanisms for tenants (Hegedüs et al. 2017).

While in this chapter, I paid particular attention to the lock-in effects created by the blind-alley of *konvektor* upgrades in the absence of coordinated efforts dedicated to the comprehensive, condominium-wide retrofitting of heating systems, it is important to emphasise that residents' struggles were by no means limited to heating services. For some, an equally frustrating problem was caused by the unreliable performance of the electricity network of their homes. Here, too, the problem partly stems from another hard-to-treat infrastructural characteristic of turn-of-the-century buildings, namely that the electrical wiring of these old buildings is often particularly obsolete. Decades ago, at the time of their installation, electrical wires were made of aluminium, which are significantly less effective conduits of power than modern copper wires – although they also did not have to supply electricity to more than one-two electronic appliances. Today, though, if the electricity distribution network of the condominium has not been renovated, a discrepancy arises between the system's loadbearing capacity and the current

demand for electricity. The large-scale overhaul of the house's entire electrical network once again requires immense coordination and the ability of all residents to financially contribute, which, in many buildings, is highly unlikely. Nonetheless, this still leaves better-off residents with the possibility to pay for the upgrading of electrical wiring only on the strand that supplies their units, or replace their electric meters to a stronger one, which would then enable them to install more electricity-intensive devices, say, an air-conditioner. While this approach may provide a solution to individual households' increased electricity demand, on the whole, electricity would still be supplied via the main, outdated power line of the building (that also serves all other apartments). Overburdening the electrical network might further erode the loadbearing capacity of the power lines in the building, increasing the risk of service disruption and, ultimately, system failure (FEANTSA, 2024), to the detriment of all residents in the condominium.

3.3. Energy deprivation as 'infrastructural violence'

Some of the ways in which residents dealt with the poor thermal conditions of their homes or the obduracy of their worn-out *konvektors* testifies to their resilience and creativity in trying to maintain a sense of comfort and normalcy at home. However, one should be wary of reading these 'placemaking activities' (Laszczkowski, 2015) as creative ways through which inhabitants recover their agency. In her ethnographic study of neoliberal welfare reforms in Chicago, Fennell (2011) discussed how the elimination of subsidised home heating in a Chicago housing complex required residents to adapt to the new system of heating provision by assuming financial responsibility and individual control over their utility costs. At the same time, the disappearance of publicly provided, abundant and intense heat, and with that the sensation of comfortable warmth in the home also meant that residents had to make physical and sensory adjustments in their sense of comfort and subjective preferences, to adapt to the

suboptimal conditions afforded by their new living conditions. Fennell's case study is a poignant illustration of how the trope of individual responsibility is put at the service of commodification, as "the state effectively redraws the boundaries and tenor of citizenship through its market-conforming policies" (Wacquant, 2012, p.71).

Throughout my research, I occasionally encountered residents that reframed their energy saving tactics not as a form of rationing, but as a form of *rational* consumption. Mrs Kósa, the social housing tenant whom I had interviewed inside her apartment with a coat on, also had to deal with the frequent brownouts of her electrical network. When we talked about how she coped with the unreliable power and heating supply, she reasoned '*It's completely fine if I don't abound [‘nem dúskálok’] in heat. The konvektor is not very good at giving heat but it must be over 30 years old, so it's not like I can expect it to work perfectly*'. However, in relativizing her experience of energy deprivation, Mrs Kósa also derived a sense of achievement out of her ability to conserve energy and stay within the limits of 'reasonable consumption', juxtaposing her rational behaviour to the wastefulness of guests and tourists in the neighbouring Airbnb, who '*have their A/Cs on day and night, winter and summer*'.

In Hungary, after the utility reduction scheme was modified in 2022, residents had to be more careful of their energy consumption levels, so as not to exceed the limit for 'average household consumption' (Weiner & Szép, 2022). When I asked my informants if they had noticed a difference in their utility costs, almost none of them said so. But the ability to pay utility bills does not automatically translate into the absence of struggles around attaining sufficient levels of energy services. In many cases, residents put in a lot of invisible labour to minimize the financial impact of the price increases, by engaging in all sorts of rationing behaviour. For some, curtailing their energy needs was solved by 'simply' not spending as much time at home, to minimize the periods during which the heating or lights are turned on. Others with more restrained mobility options, did so by limiting their use of the apartment to only one room, and

only turning on the heating in that one space. But some of my informants were retired, impoverished homeowners living in big apartments that they were no longer able to maintain on their own, and as such, they might have lived under ‘self-imposed austerity’ (Serrano et al. 2023) for a much longer time. *Well, there used to be mould in the smaller bedroom, but I didn't look before you came if it is still there, I'll be honest, I haven't opened that room for a couple of weeks*, said Mr Gáll, a 78-year-old retired man living with his dog in a 2-bedroom apartment.

A recent study on fuelwood-use in rural Europe as a coping strategy for energy deprivation (Stojilovska et al. 2023) highlighted that such prolonged experiences of getting by on self-imposed restrictions and limited resources have concerning ramifications, as it loops into a downward spiral of increased vulnerability. As a coping behaviour, continued experiences of living under austere conditions, and the relativization of the sense of hardships in relation to energy services results in “the *normalization of subsistence*, which is the acceptance of life with minimal energy needs”. Over time, this enhances feelings of alienation and exclusion, leading to *increasing system detachment*, that is, the “continued reliance on individual and informal arrangements of satisfying energy needs and avoiding seeking or demanding institutional support” (Stojilovska et al. 2023, p.2).

Hardships experienced around energy access, such as not being able to maintain adequate levels of warmth in one’s home, having to cut back on other expenses to pay energy bills, or having to switch to cheaper but health-hazardous fuels, is a critical dimension of social injustice and structural harm inflicted on the population. The quality of domestic infrastructures and the material-sensory conditions of the home (its temperature, humidity, air quality, stability) deeply affect the extent to which the home can be a place of comfort, shelter and security. The insufficiency of domestic arrangements can exacerbate feelings of isolation and social exclusion (Fennell, 2011). Highlighting “the socio-material constructedness of infrastructure points out that materiality is not passive” (Tuvikene et al. 2019, p.6), but plays an active role in

the emergence and sedimentation of socio-spatial differentiation. Underlining the observation that energy deprivation encompasses a much wider range of problems and perceptions than the unaffordability of energy prices was the fact the bulk of residents' struggles and frustration with regards to energy use was in relation to the material conditions and amenities of their homes, the performance of their heating systems, electrical appliances, windows, walls, etc. As many of the immediate causes of energy deprivation are found in the physical and material condition of dwellings, in this sense, energy infrastructure such as heating pipes, insulating materials, and domestic appliances are agents actively involved in producing energy deprivation. But what is an even more powerful co-constitutive force is decisionmakers' decades-long propensity to disregard this very materiality of everyday life and address its inequality-inducing capacity. In highlighzing infrastructure's direct or indirect complicity in perpetuating processes of dispossession and declining quality of life, I cannot help but see the systematic neglect of the residential built environment as a form of passive 'infrastructural violence' (Rodgers & O'Neill, 2012). Rodgers and O'Neill highlight the potential of theorizing "how broader processes of marginalization, abjection and disconnection often become operational and sustainable in contemporary cities through infrastructure" (2012, p.403) as a way to foreground more latent mechanisms co-producing structural violence. One could regard the persistent unwillingness to incentivise and support energy efficient material improvements to the home as misplaced priorities or a case of institutional inertia. But neglect, whether active or passive, can inflict serious harm on people, by not recognizing their struggles and needs, particularly in light of authoritarian neoliberal regimes' systematic tendency "of shifting responsibilities away from the welfare state and onto individuals and households, while at the same time dismissing social claims from poor and disadvantaged groups" (Chelcea & Druță, 2016:534). If 'spectacular infrastructure' showcases the capacity of the state to provide and care for its citizens (Schwenkel, 2015, Harvey & Knox, 2016), what does an aging residential building stock with

obsolete energy infrastructures tell us about the state's responsibility in the socio-spatial production of energy deprivation?

Conclusion

The aim of this thesis was to highlight the spatial and material embeddedness of energy deprivation, and interpret it as a systemic issue arising out of the specific conjunctures of “multiscalar path-dependencies, state industrial policy and the interaction of fixed and mobile infrastructure networks” (Buzar, 2007, p.6). I have argued that because some of the immediate causes of energy deprivation lie in the physical structures and material qualities of buildings, and the domestic functions that energy infrastructure and devices allow, taking infrastructure as our point of reference can prove fruitful for tracing how built forms are implicated in the wider structural processes that co-produce and reproduce social inequalities. I employed this approach to contribute to an improved understanding of the structural drivers and local processes shaping experiences of energy deprivation in the inner-city multiapartment buildings of Budapest. I found that especially in a context in which the only instrument targeting energy deprivation is a politically loaded price-based measure, or more generally, where surface interventions prevail over long-term strategic solutions that could meaningfully address the country's social policy challenges, adopting an anthropological lens on infrastructure offered more nuance to the phenomenon of energy deprivation. Having centred energy consumption practices (habits, tactics, behaviours), energy infrastructures (building types and materials, heating and electricity systems, appliances) and people's engagement with and relationship to them in my work, my findings suggest that deprivation encompasses a much wider range of problems, experiences and perceptions than the unaffordability of energy prices due to low income levels. Its exact forms and manifestations are highly context-dependent, embedded in and stemming from the conflictual interaction of structural transformations, mediated by

various actors, institutional configurations and technological systems. In a lot of cases, it seems latent, lurking in the background, but nonetheless telling tales of wider structural problems and injustices, such as the state's neglect and moral abandonment of good quality and affordable housing provision, post-privatization housing inequalities, the selective and counterproductive housing policies of the government, and the current energy crisis and financialization processes. Very often the same technical configurations and legal arrangements that enable certain households within a condominium to improve their living conditions, might seriously impede other residents' ability to attain sufficient levels of energy services and wellbeing (Bouzarovski & Petrova, 2015). In this sense, the lived experiences of energy deprivation are palpable examples of what Rodgers and O'Neill (2012) call 'infrastructural violence' and the distributional, recognitional and procedural injustices inherent in neoliberal regimes (Hornborg, 2023). Awareness of just how deeply engrained energy deprivation is in the power-laden structures of the built environment and the overlapping crises of financialized capitalism raises significant concerns about the feasibility of a just energy transition (Sovacool & Dworkin, 2014). However, I would like to conclude by reiterating that continued attempts at foregrounding the mechanisms and actors involved in the production of (infra)structurally inflicted injustices could be a powerful first step in "opening a concrete way of discussing society's responsibility for this harm" (Rodgers & O'Neill, p.405) and call for measures that deconstruct and rectify these inequalities.

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