



**Affordable, sustainable and inclusive
housing for marginalised communities**



D2.2 HouseInc Conceptual Framework

30. November 2024



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement no. 101132513. The responsibility for the information and the views set out in this document lies entirely with the authors. The European Commission is not responsible for any use that may be made of the information it contains.

Project acronym	HouseInc
Programme	Horizon
Topic	HORIZON-CL2-2023-TRANSFORMATIONS-01
Grant Agreement number	101132513
Start day	February 1, 2024
Duration	36 months
Contact	Project coordinator: Dr. Anne Kantel Competence Center Energiepolitik und Energiemärkte Fraunhofer-Institut für System- und Innovationsforschung ISI anne.kantel@isi.fraunhofer.de

Document information

Document fact sheet

Full title	D2.2 – HouseInc Conceptual Framework
Work package	WP2
Task(s)	T2.2 – Conceptual Framework
Author (organisation)	Anne Kantel, Hannah Jansen, Iska Brunzema, Alexandra Rummel (Fh ISI), Raffaella Saporito, Eleonora Perobelli, Eugenia Miraglia (UB), Francesca Sabatini, Martina Massari, Danila Longo, Beatrice Turillazzi (UNIBO)
Reviewers	IEECP, UNEXE
Date	11/2024

Document Dissemination level

Dissemination level

X	PU – Public
	PP – Restricted to other programme participants (including the EC)
	RE – Restricted to a group specified by the consortium (including the EC)
	SEN – Sensitive, only for members of the consortium (including the EC)

Document history

Version	Date	Main modification	Institution
Vo.1	27-09-2024	Table of content distributed	Fh ISI
Vo.2	12-11-2024	Draft distributed for internal review	Fh ISI
V1.0	27-11-2024	Final version	Fh ISI

Legal Notice

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the European Commission nor any person acting on behalf of the Commission is responsible for any use that may be made of the information contained therein.

© HouseInc Consortium, 2024 - All rights reserved; no part of this publication may be translated, reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the written permission of the publisher or provided the source is acknowledged.

Find the Project

Web: <http://houseinc.eu>

LinkedIn: <https://www.linkedin.com/showcase/houseinc-project/>

About

The objective of HouseInc is to apply innovative methodology to deeply analyse interlinked dimensions of housing inequalities in the context of marginalised communities.

HouseInc will empirically examine economic, social and ecological drivers and assess impacts of various indicators on housing inequality to derive policy recommendations that foster the adoption of effective measures addressing housing inequality across Europe. With a transdisciplinary dialogue, the project develops innovative social, financial and digital solutions that can be up scaled and thus, contribute to a better socio-economic and sustainable integration of vulnerable groups in European societies.

HouseInc takes a systemic view and assesses interlinkages of housing inequalities - emphasising energy and mobility poverty, digital dimensions, employment opportunities, family and socio-demographic conditions, energy-efficiency, and health - on a micro-, meso- and macro-level. The interdisciplinary HouseInc consortium - consisting of research institutes and universities, policy think tanks, NGOs, and practitioners on the ground - involves case studies to engage directly with members of four marginalised communities in or from Eastern Europe.

Besides a mix-method approach, including modelling and a GIS-based analysis depicting geographical and future housing inequality, we implement a multinational survey to better understand housing inequality in light of recent events such as COVID-19 and Russia's invasion in the Ukraine. The research results will be assessed, mapped, and scaled up using Living Labs and various stakeholder engagement activities to provide innovative solutions addressing housing inequalities and translating them into valid local, regional, national and EU policy recommendations impacting EU and national funding programs and providing a comprehensive overview and guidance for policymakers to mitigate housing inequalities.

Project partners



Table of contents

1. Executive Summary.....	7
2. Introduction	8
2.1. Objective and structure of the deliverable.....	9
2.2. Method.....	10
3. Definition of Housing Equality	10
3.1. Availability, affordability, accessibility, and acceptability as dimensions of inclusive housing ..	11
3.1.1. Availability.....	13
3.1.2. Affordability	14
3.1.3. Accessibility	14
3.1.4. Acceptability	15
3.2. Housing quality	16
3.2.1. Basic needs	17
3.2.2. Sustainability.....	18
3.3. Housing (boundaries and scope)	20
4. Three Analytical Lenses Guiding HouseInc’s Research	21
4.1. Focal points of analysis	21
4.2. Geographic scales.....	23
4.3. Concept of vulnerability.....	24
5. Conceptual Model.....	27
5.1. Illustrating HouseInc’s conceptual model	30
5.2. Illustrating pathways of housing inequality.....	31
5.2.1. Example #1: Energy poverty	31
5.2.2. Example #2: Residential mobility	33
5.2.3. Example #3: Gentrification	35
6. Conclusion	37
7. References.....	39

List of figures

Figure 1: D2.2 overview: HouseInc’s conceptual framework..... 10

Figure 2: Key concepts of HouseInc’s definition of housing equality11

Figure 3: Conceptualising housing inclusivity.....13

Figure 4: Three analytical lenses of HouseInc research 21

Figure 5: Conceptualisation of vulnerability.....26

Figure 6: HouseInc Conceptual Model 28

Figure 7: Drivers and manifestations leading to energy poverty as an outcome of housing inequality.....31

Figure 8: Drivers and outcomes of residential mobility as a multi-dimensional manifestation of housing inequality..... 35

Figure 9: Gentrification as a driver of housing inequality36

List of tables

Table 1. An overview of definitions of the constructs of housing inclusivity, obstacles to their fulfilment and enablers 16

Table 2: Categorising HouseInc’s overarching concepts using the conceptual model..... 30

Abbreviations

APA	American Psychological Association
EC	European Commission
EESC	European Economic and Social Committee
EPA (U.S.)	U.S. Environmental Protection Agency
EPSR	European Pillar of Social Rights
D2.1	Deliverable 2.1 – State of the Art Literature Review
NEB	New European Bauhaus
WP	Work Package



1. EXECUTIVE SUMMARY

The consequences of housing inequality are many, ranging from overcrowding, displacement, mental and physical health decline and homelessness on the household level to increased criminality and safety concerns on the neighbourhood level (Ball, Timperio and Crawford 2009; Browning et al. 2010; Carrere et al. 2022; Soaita 2014). These outcomes have far-reaching implications for individual well-being as well as social cohesion and economic productivity of a society (EESC 2024; Howden-Chapman et al. 2023; Mendes de Leon et al. 2009). Housing inequality is both a reflection of wider social inequalities and an area of research, innovation, and policy with its own specific mechanisms and impacts. Due to this multidimensionality, on the one hand, and its specificity, on the other hand, the HouseInc project suggests that understanding and tackling housing inequalities requires an integrated and holistic approach.

This deliverable outlines HouseInc’s conceptual framework to the project’s study of housing inequality understood as the systemic failure to provide inclusive access to quality housing that can manifest itself through a variety of phenomena with different impacts on society, which may be particularly felt by vulnerable communities. It was developed as part of work package 2 (WP2), particularly Task 2.2. This deliverable:

- Provides a definition of housing equality through the project’s core concepts of inclusivity and quality housing within the context of ongoing sustainability challenges.
- Introduces the HouseInc project’s three analytical lenses of (1) focal points of analysis; (2) geographic scales; and (3) vulnerability.
- Builds on this information to develop a simple conceptual model introducing the HouseInc terminology of drivers, manifestations of housing inequality, impacts, solutions and indicators to serve as guidelines for empirical research and innovation activities within the project.

HouseInc’s holistic conceptual framework outlined in this deliverable thus aims to serve a template for subsequent HouseInc project activities. The overall objective of the project is to identify different drivers of housing inequality (by zooming in on various manifestations) and to assess the impact of such inequalities on different vulnerable groups, to understand interlinkages and pathways of inequality and to develop empirically-based solutions and policy recommendations for fostering social cohesion and equality in European societies.

2. INTRODUCTION

Housing inequality should be seen in the much wider context of overall social inequality. It not only reflects but can also exacerbate existing social, economic and spatial disparities within and across societies (James et al. 2022; Nasrabadi et al. 2024). On the one hand, the study of housing inequality provides a unique lens to assess wider social inequalities. Housing is essential to people’s quality of life, interacting with other factors, such as access to education, employment opportunities, health care and general well-being.

On the other hand, housing inequalities have distinct drivers and consequences that are specific to the housing sector (see e.g. Baker et al. 2016; Lee, Kemp and Reina 2022). These drivers include, but are not limited to, market dynamics and policies related to a variety of different sectors, such as urban planning, zoning laws and housing in a narrower sense, as well as mobility, energy, health, employment, education and migration patterns. Drivers of inequality, in the housing sector and beyond, often disproportionately affect already vulnerable groups. In addition, housing inequality often intersects with socio-economic and demographic characteristics of communities and individual households, such as race and ethnicity,¹ class, gender, age, disability, and sexual orientation, exacerbating inequalities across these categories (Bixby 2024; Jepsen and Jepsen 2024; Nasrabadi et al. 2024).

The consequences of housing inequality are many, ranging from overcrowding, displacement, mental and physical health decline and homelessness on the household level to increased criminality and safety concerns on the neighbourhood level (Ball et al. 2009; Browning et al. 2010; Carrere et al. 2022; Soaita 2014). These outcomes have far-reaching implications for individual well-being as well as social cohesion and economic productivity of a society (EESC 2024; Howden-Chapman et al. 2023; Mendes de Leon et al. 2009). Poor housing conditions are often associated with adverse physical and mental health outcomes (Carrere et al. 2022; Rana et al. 2022; Telfar Barnard, Howden-Chapman and Pierse 2020), and housing insecurity has been shown to hinder educational attainment and job stability (Carr and Kutty 2008; Desmond and Gershenson 2016; Nasrabadi et al. 2024). Furthermore, spatial segregation based on socio-economic or demographic characteristics can reinforce cycles of poverty and limit social as well as residential mobility, further entrenching inequalities in society (Baker et al. 2016; Coulter and Thomas 2020; see e.g. Rabe and Taylor 2010). Housing inequality is thus both a reflection of wider social inequalities and an area of research, innovation, and policy with its own specific mechanisms and outcomes. The HouseInc project suggests that understanding and tackling it requires a holistic, integrated approach. Outlining the project’s conceptual framework for the study of various manifestations of housing inequality, is the objective of this deliverable.

¹ Using the definition of the American Psychological Association (APA), we understand the term *race* as referring to „the social construction and categorization of people based on perceived shared physical traits that result in the maintenance of a sociopolitical hierarchy.“ It is not a biological definition of race: it includes the social construction of *the other*, i.e. the process of racialisation of people based on their shared physical traits, and the subsequent socio-political legitimisation of a racialised hierarchy in society. The term ethnicity describes a different concept to the one of race: „Ethnicity is a characterization of people based on having a shared culture (e.g., language, food, music, dress, values, and beliefs) related to common ancestry and shared history.“ (see APA, <https://www.apa.org/topics/race-ethnicity>) The authors of this deliverable recognise that language choice has power and that there is an ongoing academic and activist debate about the usage of terms related to race and ethnicity.

2.1. OBJECTIVE AND STRUCTURE OF THE DELIVERABLE

This deliverable outlines HouseInc’s conceptual framework to housing inequality understood as the systemic failure to provide inclusive access to quality housing that can manifest itself through a variety of phenomena with different impacts on society, which may be particularly felt by vulnerable communities. The terminology of “conceptual framework” in this deliverable is used to illustrate how the different research activities of the HouseInc project anticipate and empirically investigate the relationship between housing inequality concepts as informed by the relevant literature (see D2.1). Moreover, it provides a shared understanding and terminology of the project’s research and innovation approach. The project’s conceptual framework is guided by a central question that revolves around two central concepts: How can an inclusive system for quality housing be achieved for everyone in the context of increasing energy and climate challenges in the world? This question reflects the project’s commitment to addressing the multifaceted nature of housing inequality through an emphasis on the two concepts of “inclusivity” and “quality housing”. The project overall objective is to develop solutions that meet the needs of society’s most vulnerable while responding to Europe’s escalating challenges, including geopolitical tensions, societal crises, climate change, and energy supply issues. By focusing on housing inclusivity and housing quality, the project aims to contribute to the development of targeted policies and strategies that bridge the gap between housing inequality and sustainability, ultimately fostering more resilient and equitable communities.

To account for and further promote the interdisciplinarity of research and innovation approaches within the HouseInc consortium, the HouseInc conceptual framework offers a multidimensional and literature-driven template for the study of housing inequality within the project and beyond. To do this, the deliverable is structured as follows: Section 3 introduced the project’s definition of housing equality through the core concepts of inclusivity and quality housing. Section 4 outlines various analytical lenses for the study of housing inequality. The terminology of „analytical lens” is used to introduce different theoretical foundations and analytical entry points underlying the study and conceptualisation of manifestations of housing inequality in this project. This includes specific analytical focal points based on different theoretical underpinnings used in the study of housing inequality as well as by different HouseInc partners in the various project activities (section 4.1); the relevance of geographic scales for the study of housing inequalities (section 4.2), and a theoretical conceptualisation of vulnerability to highlight HouseInc’s research and innovation focus on marginalised communities in European housing. The three analytical lenses of the conceptual framework thus provide access points through which the different research activities of the HouseInc project (WPs 3, 4 and 5) assess, understand and derive interlinkages and pathways of housing inequality to develop innovative solutions and policy recommendations addressing challenges in the housing sector (WPs 6 and 7). Finally, this deliverable suggests a simple conceptual model (section 5) to guide the evidence-based assessment of inequalities and development of solutions to more equality in the European housing sector. This deliverable uses the terminology of “conceptual model” to outline and define the key elements used in the project to guide empirical data collection and analysis across the various research activities.

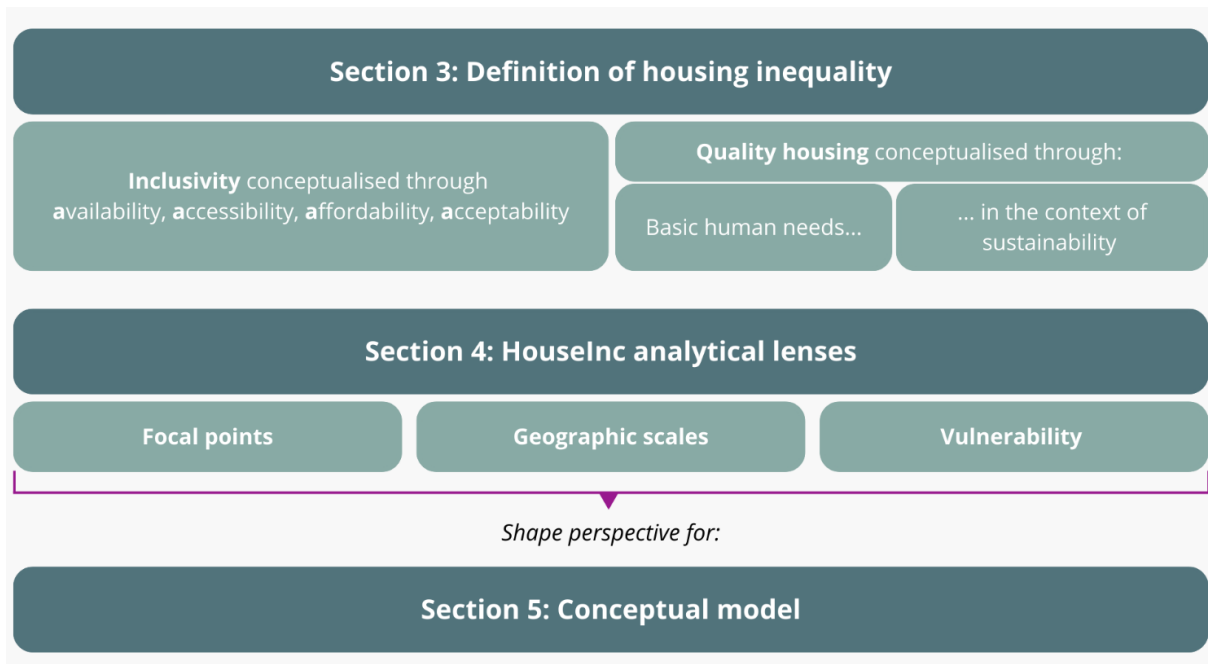


Figure 1: D2.2 overview: HouseInc’s conceptual framework

2.2. METHOD

The HouseInc conceptual framework draws on insights from the D2.1 “State of the art literature review” to develop a definition of housing equality, illustrate its analytical lenses, and propose a conceptual model to guide the empirical study of housing inequalities in the project. The concepts were developed in collaboration with the WP2 partners FH ISI, UB, UNIBO, EPG and UCL/UNEXE. The here proposed concepts and analytical lenses were discussed, adapted and validated through the implementation of three virtual HouseInc workshops as planned and outlined in Task 2.3: a first workshop was conducted with all HouseInc consortium members on 11 September 2024; a second and third workshop was conducted with the HouseInc General Advisory Board and Practitioners Panel members, respectively, on 26 September 2024. All three workshops included the introduction of preliminary conceptual ideas and terminology, a discussion of this terminology and the main concepts proposed. The Consortium members were asked to assess the feasibility and usefulness of the proposed concept for their project activities; the General Advisory Board members were asked to assess the concepts in light of their professional expertise; and the Practitioners Panel members were specifically asked to discuss HouseInc’s understanding of vulnerability in the context of their daily work with vulnerable communities in the housing sector across Europe. The feedback and discussions from the three workshops were analysed and integrated into the final version of the HouseInc conceptual framework.

3. DEFINITION OF HOUSING EQUALITY

In the context of the HouseInc project, we propose that addressing housing inequality requires actively working towards housing equality - an ideal scenario where all individuals have equal opportunities, understood through the concept of inclusivity - to live in quality housing, which is defined through context-related basic needs.:

Housing equality refers to inclusive access to quality housing that is defined through meeting basic human needs in the context of ongoing sustainability challenges.

Importantly, this definition does not suggest uniform housing conditions for all but emphasises ensuring that all individuals have equitable access to housing (*inclusivity concept*) that supports their well-being (*quality housing concept*). In this light, HouseInc’s understanding of housing equality is building on the New European Bauhaus (NEB) policy and funding initiative aiming to transform the built environment with solutions that are not only sustainable but also inclusive and beautiful.²

Quality housing is understood as meeting a **minimum threshold necessary for physical, mental and social well-being**. It is determined by meeting **basic human needs** and is inherently contextual, influenced by local conditions, cultural expectations and the different needs of individuals. However, basic human needs are also impacted by current sustainability challenges, such as environmental and climate-related risks, that need to be considered in the context of quality housing.

Ensuring quality housing for all means creating an **inclusive housing system** that allows for inclusive access to such housing based on the principles of **affordability, availability, accessibility and acceptability**. Housing inequality, then, is the systemic failure to provide inclusive access to quality housing and can manifest itself through a variety of phenomena with different impacts, which may be particularly felt by **vulnerable communities**. Housing inequality extends beyond the physical structure of dwellings to the wider built environment, including the quality of the surrounding neighbourhood, access to services and infrastructures.



Figure 2: Key concepts of HouseInc’s definition of housing equality

3.1. AVAILABILITY, AFFORDABILITY, ACCESSIBILITY, AND ACCEPTABILITY AS DIMENSIONS OF INCLUSIVE HOUSING

Availability, affordability, accessibility and acceptability are four constructs that have been frequently explored in existing literature either singularly or in combination (Penchansky and Thomas 1981), especially in relation to healthcare services (e.g. Goudge et al. 2009; Miteniece et al. 2017), as the constructs are considered central to ensure that healthcare services are accessible and beneficial to all members of a given population. This notion is closely intertwined with the notion of inequality, as it helps to classify the barriers of equal access in terms of availability, affordability, accessibility and acceptability. As such, it has been applied to explore inequality across multiple policy domains, including food (Ball et al. 2009), public transport (Roy, Bailey and van Noorloos 2024) and energy policy, and security (Cherp and Jewell 2014; Singh and Ru 2022). When it comes to housing studies, existing literature mostly explores

² New European Bauhaus (NEB): https://new-european-bauhaus.europa.eu/index_en

affordability (Galster and Lee 2021; see also e.g. Sunega and Lux 2016) combined with the notions of availability (An et al. 2022) and adequacy (which is framed in close connection to acceptability) (Bogdon, Silver and Turner 1994), or more recently, with sustainability (Moghayedi et al. 2021). Nonetheless, the use of these words is frequently inconsistent and requires further conceptual clarifications (Carson and Boege 2020). Moreover, a unitary conceptual framework that brings these notions together in the context of housing is still missing.

To fill this gap, we offer a new framework to identify and classify barriers to inclusive housing (or, on the opposite, drivers to housing inequality), which builds on this stream of studies and on the literature review conducted within Task 2.1 of the HouseInc project (see D2.1). We assert that inclusive housing can be classified as the combination of housing availability, affordability, accessibility, and acceptability. Conversely, housing inequality, i.e. the failure to design inclusive and quality housing systems for all, can be identified as the lack of at least one of these four dimensions, which we define in the following paragraphs.

We thus propose as an integrative framework of the constructs of availability, affordability, accessibility and acceptability for inclusive housing. Inclusive housing refers to granting access to available and affordable housing for all individuals. This housing should meet quality of housing criteria according to an individual's cultural norms and beliefs, and therewith be acceptable. This emphasizes creating an environment where diverse populations can find suitable housing that meets their needs and aligns with their cultural norms, fostering equitable access to essential resources like transportation, healthcare, and education. This concept integrates the "Four As"—affordability, acceptability, availability, and accessibility—as foundational principles. Hence, housing inclusivity is fully met when all the four As are present.

Housing inclusivity ultimately seeks to create cohesive, diverse, and supportive communities where people from all backgrounds can thrive. Available, affordable, accessible, and acceptable housing is not an equal playing field in many societies. Focusing on solutions in favour of equity with regard to these four pillars of housing inequality, i.e. emphasising the fairness of outcomes while considering unequal resources among groups, can lead to an inclusive housing system that designs policies and solutions for all (see Figure 3).



Figure 3: Conceptualising housing inclusivity

3.1.1. AVAILABILITY

Housing availability refers to the existence of an adequate supply of housing stock to meet the demand for housing in a given area (see e.g. Besbris, Schachter and Kuk 2021).

Housing availability depends on multiple factors: intuitively, on the degree of urbanization of a given area; but also on the actual destination of use of the existing housing stock. Increasingly, many European cities are experiencing a reduction of the housing stock available for private rental, as they witness an increase in urban population or as existing housing units are converted to short-term stay for tourists, which reduces the housing stock available for residents (Dodds and Butler 2019).

Combined with affordability and acceptability, research shows that low-income neighbourhoods often face a shortage of quality housing units, leading to overcrowding and substandard living conditions, or to displacement as a consequence of affordability or wider impacts of gentrification. Lastly, the impact of climate change on housing, particularly in vulnerable coastal areas or regions prone to natural disasters, presents a new challenge in terms of housing availability (Bezgrebelna et al. 2021). Existing literature identifies multiple solutions that can support housing availability, including zoning laws, land-use regulations, and housing policies, which affect the supply of housing in various urban and rural settings (Cheshire 2008; see e.g. Li, Wong and Cheung 2016).

3.1.2. AFFORDABILITY³

Housing affordability is a popular area of research (see Ezennia and Hoskara (2019), Galster and Lee (2021), and Sunega and Lux (2016) for recent reviews on the topic), which explores a “number of disparate issues: the distribution of income, the ability of households to borrow, public policies affecting housing markets, conditions affecting the supply of new or refurbished housing, and the choices that people make about how much housing to consume relative to other goods” (Quigley and Raphael 2004:191–92).

Housing affordability refers to the relationship between housing costs and households’ income or wealth.

Conventionally, housing becomes unaffordable when total housing costs represent more than 40% of disposable income (as measured by Eurostat in the “housing cost overburden rate”). Recent studies documented the increasing unaffordability of housing for low and middle-income households, which can result in increased exposure to homelessness, forced mobility, and health deprivation (Feantsa 2023). Increasingly, affordability is also explored in relation to wealth (Arundel 2017; Causa, Woloszko and Leite 2018; Hochstenbach and Aalbers 2023; Lux, Sunega and Kázmér 2021b; Paccoud 2020), as increasing financialization of housing dynamics can foster inequalities in society and undermine the right to housing, as we will describe in further detail in section 4.1. Among possible solutions to reduce unaffordability, in the literature the role of policy interventions, such as rent control, subsidies, and inclusionary zoning policies, is emphasised.

3.1.3. ACCESSIBILITY

Housing accessibility captures the (un)ease with which individuals can access housing and the surrounding services, considering their (lack of) abilities or resources.

Accessibility includes both a physical dimension related to the features of the housing unit, which is particularly relevant for people with disabilities (Imrie 2005; Lakhani et al. 2020; Lindsay et al. 2024; Quinn et al. 2014) or dependent older people (Heller et al. 2024; Serrano-Jiménez, Blandón-González and Barrios-Padura 2022), and spatial accessibility to other services (Wachs and Kumagai 1973): transportation infrastructure, job markets, and urban design influence housing choices and reinforce patterns of segregation (Yang et al. 2020). Moreover, it encompasses a social dimension, which includes the language and cultural barriers that can make it easier to access the housing context (e.g., for contracts’ management) (Besbris, Schachter and Kuk 2021). Combined with affordability, accessibility can explain the concept of “spatial mismatch,” where affordable housing is often located far from employment opportunities. Technological changes, such as remote work, are reshaping housing accessibility. Additionally, the role of digital accessibility in housing markets, particularly in the context of online rental platforms and virtual property viewings, presents a new frontier for accessibility studies.

³ Though we acknowledge that ‘affordable housing’ commonly refers to the portion of the housing market targeted to households with low or moderate income, in this document we define affordability also as a dimension of housing inclusivity.

Among the most comprehensive definitions found in existing literature, Thiede and colleagues (2007) in the context of healthcare services define accessibility as an umbrella term which combines availability (Are services provided in defined geographical area?); affordability (Are costs of healthcare, including insurance premiums, out-of-pocket expenses, and prescription medications affordable for the targeted community?); and acceptability (Are individuals willing to use healthcare services?). Moreover, acceptability incorporates both the perceived quality of healthcare services, including the effectiveness of treatments, the skill of healthcare providers, and the cleanliness and comfort of healthcare facilities; and the congruence with the cultural norms and beliefs that shape individuals' attitudes towards healthcare. For example, some cultures may have traditional healing practices that they prefer over modern medicine.

A reason for this inconsistency in defining accessibility lays in the semantic overlapping areas between constructs: is accessibility an umbrella concept (as presented by Thiede et al. (2007) in the case of healthcare) or does it refer specifically to the absence of barriers for individuals with disabilities or older people (a growing issue as societies age, (see Serrano-Jiménez et al. (2022)))? Do such barriers suggest a lack of accessibility or even of acceptability or adequacy? Depending on the research focus, the reach and use of the construct of accessibility needs to be clearly defined.

3.1.4. ACCEPTABILITY

In the context of healthcare services, Thiede et al. (2007) describe acceptability as individuals' willingness to use the healthcare system. This willingness is based on two factors a) the perceived quality of the healthcare services and b) in how far the services are in line with cultural norms and beliefs. The first factor, namely the perceived quality is also referred to when describing acceptability by Burger and Christian (2020), while the second factor, the distance in cultural norms between the healthcare system and the individual, is stressed by Goudge et al. (2009). In the context of housing, specifically, the term adequacy is sometimes used to refer to the quality of housing (e.g. whether the building stock is in adequate physical condition) (Bogdon et al. 1994).

For understanding acceptability in the context of housing inequality, we build up on these definitions. By including acceptability in our framework, we take into account whether a certain form of housing is acceptable for the individual.

Acceptability of housing is based on (a) the perceived quality of housing (connected to adequacy) by an individual and (b) the congruence between housing and an individual's cultural norms and beliefs.

The perceived quality of housing is subjective and thus underlines that what is considered to be acceptable housing can vary between individuals and can be influenced by their points of reference and expectations (Burger and Christian 2020). Including individuals' cultural norms and beliefs in our understanding of acceptability places the individual perceptions into a cultural context; individual expectations and reference points are not formed in a vacuum, but arise in a societal and cultural setting, which influences what individuals understand as acceptable housing.

Table 1 summarises the definitions for each construct of inclusivity described above, outlines exemplary barriers to their fulfilment and possible enablers / solutions to promote higher levels of housing inclusivity.

Table 1. An overview of definitions of the constructs of housing inclusivity, obstacles to their fulfilment and enablers

Construct	Definition	Obstacles to fulfilment	Enablers / Solutions
Availability	The existence of an adequate supply of housing stock to meet the demand for housing in a defined geographic area	Conversion of existing rental units to short stay for tourists Short term rental contracts Climate change on vulnerable coastal areas or regions prone to natural disasters	Regulations: Zoning laws, land-use regulations Housing policies, affecting the supply of housing in various urban and rural settings.
Affordability	The relationship between housing costs and households' income/wealth	Income reduction (or misaligned with price increase) Increase of housing costs (rental or mortgage payments, utility costs, and other associated expenses), because of housing market, or capital market, or energy market dynamics.	Reducing housing costs: rent control, energy bills regulation, energy-saving maintenance, new stock of public and social housing Policies to increase the economic power of residents (subsidies)
Accessibility	The (un)ease with which individuals can access housing and surrounding services, considering their physical and / or resource barriers.	Physical barriers: e.g., ramps, elevators Geographic barriers: e.g., proximity to transportation, amenities. Social barriers: e.g. language, culture, technology.	Maintenance incentives and policy, zoning laws, transportation policy, inclusive technological policy.
Acceptability	Based on (a) the perceived quality of housing (connected to adequacy) by an individual and (b) the congruence between housing and an individual's cultural norms and beliefs.	Difference in cultural norms, Poor quality standards Energy poverty and poor housing quality Changing family structures, work patterns, and environmental	Housing equipment, design and neighbourhood characteristics align with residents needs design and management practices influence resident experiences and broader community perceptions

3.2. HOUSING QUALITY

In the HouseInc project we understand housing equality as the inclusive access to quality housing. Hence, quality housing is a core element of our conceptualisation of housing equality and inequality. Quality housing is understood as meeting a minimum threshold necessary for physical, mental and social well-being. Meeting this minimum threshold means meeting basic human needs, which can be cultural- and

context-specific and dynamic over time. At the same time, sustainability challenges, including environmental and climate-related hazards, impact the fulfilment of quality housing.

3.2.1. BASIC NEEDS

Adequate housing, as part of the right to an adequate standard of living, has been recognised as basic human right by the United Nations (see United Nations Universal Declaration of Human Rights) and is reflected in the European Pillar of Social Rights (EPSR). Adequate housing as human right can be understood as "the right to live somewhere in security, peace and dignity" (UN-HABITAT 2014:3). The HouseInc project's definition of quality housing builds on this understanding of adequate housing to define quality housing through basic needs. To meet basic needs, housing has to fulfil a minimum threshold that enables physical, social and mental well-being of individuals, which includes living in security, peace and dignity. Hence, we understand basic needs in close connection to well-being. On the one hand, this minimum threshold needs to be defined through the application of a universal definition of human rights, i.e. through the availability of and access to basic sanitation facilities. On the other hand, individual needs for what is required to uphold human rights, i.e. what is needed to enable physical, social and mental well-being of individuals, are highly cultural- and context-dependent.

In the project we apply a broad understanding of well-being, which includes health, and which is multidimensional, encompassing physical, social and mental well-being (Howden-Chapman et al. 2023). According to the World Health Organization, well-being can be defined as a "positive state experienced by individuals and societies", including quality of life (World Health Organization 2021:10). Health can be a "state of complete physical, social and mental well-being", which goes beyond the "absence of disease or infirmity" (World Health Organization 2021:3). Both well-being and health can be resources for daily life. Understanding and incorporating well-being and health in conceptualisations of quality housing is highly relevant as housing can hugely impact them.

Adequate housing, as mentioned above in the context of acceptability, is thus understood as a basic human right underlining that it is a universal right to all people, regardless of the region of the world or the political system in the country. While the HouseInc project supports housing as a human right, we, in addition, understand basic needs and well-being as context specific, as mentioned above. What individuals or societies see as basic needs and what elements are important for well-being can be influenced by local conditions, cultural expectations and the different needs of individuals. By stressing the context-specific nature of quality housing, we account for the fact that some groups, such as individuals facing environmental mobility barriers, have different basic needs. Housing quality fulfilling basic needs might look different for different groups.

For housing to support physical well-being, it should, for instance, be a safe shelter with adequate space and protection against cold, damp, heat, rain and other threats (UN-HABITAT 2014) and should include good quality basic services such as water, sanitation energy and transport (see European Pillar of Social Rights (EPSR)). For instance, housing situations connected to energy or fuel poverty, preventing households from accessing sufficient energy to meet basic needs (Sherriff, Butler and Brown 2022), can impact physical well-being negatively (Lee and Yuan 2024). Connected to energy poverty is also the use of biomass, such as wood, for cooking and heating, which – depending on its use and geographic location – can be associated with high levels of indoor pollution and consequently health problems, which negatively impacts physical well-being and thus diminishes the quality of housing (González-Eguino 2015).

Social well-being, which includes factors such as well-functioning social relationships, adequate social support, and social inclusion (Waite 2018) can be shaped and influenced by the housing conditions, including the location and neighbourhood. For instance, the physical and social infrastructure of neighbourhoods and their socio-economic and racial demographics can be related to social cohesion (Elliott, Haney and Sams-Abiodun 2010).

Mental well-being can be negatively impacted by housing, for instance if individuals worry about their housing situation and do not feel secure. For example, discrimination in the housing market can be connected to negative impacts on mental and physical health (McConnell et al. 2018). The neighbourhood and location of housing can have an impact on physical and mental well-being: for instance, houses are exposed to environmental risks such as lead exposure to different degree (Marshall et al. 2023) and the access to green space, which can be connected positively to health, varies between neighbourhoods and locations (Grant et al. 2022).

3.2.2. SUSTAINABILITY

The climate crisis is threatening the very existence of ecosystems, and it proves particularly challenging in urban living environments: on the one hand, cities are responsible for large CO₂ emissions, and on the other, they represent a concentration of financial, infrastructure and human assets which are increasingly threatened by climate change. Cities in coastal areas, for instance, are tangibly vulnerable, being prone to floods and rising sea levels. Vulnerable low-income communities are often located in flood-prone areas, leading to greater exposure to climate risks (Baker, Hamshaw and Hamshaw 2014; Sansom et al. 2016). Moreover, the urban poor are among those most affected by the consequences of climate change – and this imbalance manifests itself in housing inequalities. According to UN habitat, urban poor "tend to live along riverbanks, on hillsides and slopes prone to landslides, near polluted grounds, on decertified land, in unstable structures vulnerable to earthquakes, and along waterfronts in coastal areas" (UN Habitat). When governments invest in climate-resilient infrastructure (like seawalls, flood barriers, and stormwater management systems), the cost of such adaptation often drives up housing prices, further exacerbating housing inequality through unaffordable housing and displacement pathways (Cutter, Ash and Emrich 2014; Lamba-Nieves and Santiago-Bartolomei 2023). In this scenario, gentrification can also occur, with wealthier populations occupying safer, newly adapted areas, displacing poor communities further inland to areas with fewer resources (Baker et al. 2016; Slater 2009). At the global level, "the urban poor is indeed increasingly vulnerable: more than 1 billion people live in slums and informal settlements and are highly vulnerable to climate change" (UN Habitat).

The relationship between housing inequality and natural hazards, exacerbated by the increasing effects of climate change, does not only impact those living in slums and informal settlements: several social and spatial inequalities, at different geographical scales (city, district, households), are experienced by different vulnerable groups in cities. Vulnerable people experience segregation and often live in areas which are unsafe, being either exposed to natural hazards and natural calamities (Baker et al. 2014; Myers, Slack and Singelmann 2008; Sansom et al. 2016), to hazardous materials and environmental contamination (Bullard 1993; Ranganathan 2016), or to urban heat islands and heatwaves (Jenerette et al. 2011), often resulting also in health conditions. At the district scale, the lack of equitable access to public parks and green spaces (Anguelovski et al. 2018; Immergluck and Balan 2018) as well as to proximity to sustainable mobility infrastructures and public transport is a major driver of negative health outcomes among residents living in segregated and underserved neighbourhoods (Marshall et al. 2023; Sansom et

al. 2016). Therefore, segregated districts inhabited by vulnerable groups are more exposed to different environmental risks triggered by climate change and underserved in relation to sustainable mobility and access to green spaces and infrastructures.

At the dwelling scale, sustainability implies ensuring climate-resilient housing, meaning that it should be “safe, dry, and protected from extreme temperatures and weather” (California Green Zoon). This is related not only to the way that buildings are designed and constructed, ensuring for instance proper insulation, but also to internal comfort, ensured by indoor air quality and thermal comfort. With specific reference to the latter, energy poverty and fuel poverty are now major obstacles to reaching sustainability in housing (Bouzarovski et al. 2020; Bouzarovski et al. 2024; Brown et al. 2020; Desvallées 2022). The lack of energy-efficient buildings is particularly high in underserved areas: poorly constructed or inadequately maintained housing often lacks proper insulation, ventilation, and cooling systems, leaving residents vulnerable to both extreme heat and cold (Platten, Mangold and Mjörnell 2020). Heatwaves turn non-efficient buildings into heat traps, further increasing the risk of heat-related illnesses (Hoffman, Shandas and Pendleton 2020). On the other hand, in colder climates insufficient insulation forces residents to spend disproportionately more on heating, leading to higher energy costs and energy poverty. Energy poverty, according to the European Commission (EC), “occurs when a household must reduce its energy consumption to a degree that negatively impacts the inhabitants' health and wellbeing” (European Commission). Among the causes of energy poverty, the EC lists low income, a high proportion of housing expenditure spent on energy, and low energy performance of appliances and buildings (European Commission), to which the absence of building retrofitting interventions due to the age of the building stock is added.

Sustainability with reference to the housing dimension is strictly related to the concepts of “environmental justice”, of “energy justice” and of “climate-resilient housing”. Definitions of environmental justice vary across contexts. According to the European Environmental Bureau, it implies that “environmental benefits and burdens have to be shared fairly” (European Environmental Bureau), while for the U.S. Environmental Protection Agency (EPA) it means that humans “are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change [...] and have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices” (EPA 2024). Climate-resilient housing takes a step further by ensuring that “even the most vulnerable have safe, stable, and affordable places to live”, as they “are designed to keep residents healthy and comfortable, no matter how unpredictable the climate may become” (Climate Resilient Housing). Energy justice, finally, includes but is not limited to considerations in regard to fair distribution of costs and benefits in regard to energy costs and performance in housing as well as fair access to energy resources and services. The often used core tenets of climate, environmental and energy justice usually include distributional, procedural and recognition justice (Jenkins et al. 2016; Jenkins et al. 2021; Schlosberg 2007). Recent scholarship has expanded this list to include epistemic justice, intergenerational justice, and spatial justice, among others (Sovacool et al. 2023). These issues are particularly critical in underserved and more vulnerable local communities, which are found to have less power, unable to effectively challenge, or resist, the marginalisation of social values in energy decisions (Lee and Byrne 2019).

It has ultimately been advocated that “promoting the right to adequate housing can protect and fulfil other human rights in urban areas, such as the right to a safe, clean, healthy and sustainable environment” (Frediani 2022), irrespective of socioeconomic status, physical abilities, age, gender, or other potential

barriers. An inclusive housing system that centres on the Four As (see Figure 3 above) promotes the right to adequate housing as an essential step to secure other human rights. Inclusive housing hence fosters an environment where diverse populations can find suitable housing that meets their basic needs, ensuring quality housing and access to essential resources within the context of sustainability challenges.

3.3. HOUSING (BOUNDARIES AND SCOPE)

Housing is a multidimensional concept that extends beyond the mere provision of dwelling as shelter. Firstly, housing can be of different quality and thus impact physical, social and mental well-being in the context of ongoing sustainability challenges. Secondly, the HouseInc project understands housing to encompass more than just buildings of all types. The project's approach includes structural conditions of the building, access to infrastructures and amenities such as drinking water, energy and transportation.

The literature on housing inequality often distinguishes housing studies from broader fields studying neighbourhood inequality and urban development by focusing specifically on disparities in access, affordability, availability and acceptability as well as quality or adequacy of housing (Christophers 2021; Dewilde and Waitkus 2024; James et al. 2022; Lux and Sunega 2023). While urban studies and neighbourhood inequality research encompass a wider range of factors - such as the built environment, infrastructure, public services and socio-spatial dynamics at the city or neighbourhood level - housing studies focus much more on inequalities on the individual or household level, examining how structural factors such as markets, financial frameworks and policy frameworks and as well as other structural factors (such as culture and historic practices) affect people's ability to secure adequate housing (Ahmed and Hammarstedt 2008; Kholodilin and Kohl 2023; Paccoud 2020). Housing inequality researchers also explore the intersection of housing with health, social mobility and economic opportunity on the individual and household level (Hall et al. 2018; Sabater and Finney 2022), while neighbourhood inequality often looks at broader community outcomes such as patterns of segregation and social cohesion (Krivo, Peterson and Kuhl 2009; Sampson 2008).

The HouseInc project focuses primarily on the impact of inequalities at the individual and household level and therewith sits firmly within the tradition of housing studies. However, it also recognises that understanding the drivers of housing inequality often requires a broader perspective. The interrelated drivers and pathways that shape housing inequality cannot be fully understood without considering the neighbourhood contexts that shape and embed these dynamics. These contexts contribute to our understanding of the drivers, manifestations and impacts of housing inequality, particularly in relation to broader societal inequalities. For instance, whether housing is able to meet basic human needs is not only connected to the dwelling itself but also includes the built environment in which the building is embedded in, such as transport, access to the electricity grid or district heating and neighbourhood safety and cohesion. The project focuses on inequalities in the housing sector through the dimension of inclusivity - conceptualized through access, affordability, availability and acceptability – as well as through the dimension of quality housing, conceptualized through basic needs in the context of sustainability challenges. However, the project also draws on insights from urban studies and critical neighbourhood research to inform its guiding questions and empirical models, ensuring a more comprehensive understanding of housing inequalities. This integrated approach enables the project to assess housing inequalities not only at the individual level, but also within the broader socio-spatial frameworks that influence these inequalities.

4. THREE ANALYTICAL LENSES GUIDING HOUSEINC’S RESEARCH

The HouseInc project examines housing inequality through three distinct yet interconnected analytical lenses, each offering a theoretically informed point of access to studying phenomena of housing inequality. First, depending on the specific research objectives of the various project activities, different theory-derived focal points of analysis are used to frame and examine drivers, manifestations and impacts of housing inequality. Second, housing inequality is studied across different geographic scales acknowledging that the factors contributing to inequality often operate at and across levels of proximity. Third, a key emphasis of the project is on the lived experiences of housing inequality among vulnerable groups. By focusing on the perspectives of marginalised communities, the project seeks to better understand how housing inequality uniquely impacts these groups and how tailored interventions can be developed to mitigate drivers and effects of housing inequality in that context. The following section elaborates on these three analytical lenses, detailing how each contributes to a comprehensive understanding of housing inequality within the HouseInc project. While some research and innovation activities within HouseInc might emphasise on only one or two of these lenses, the three lenses interact with and inform one another (see Figure 4).

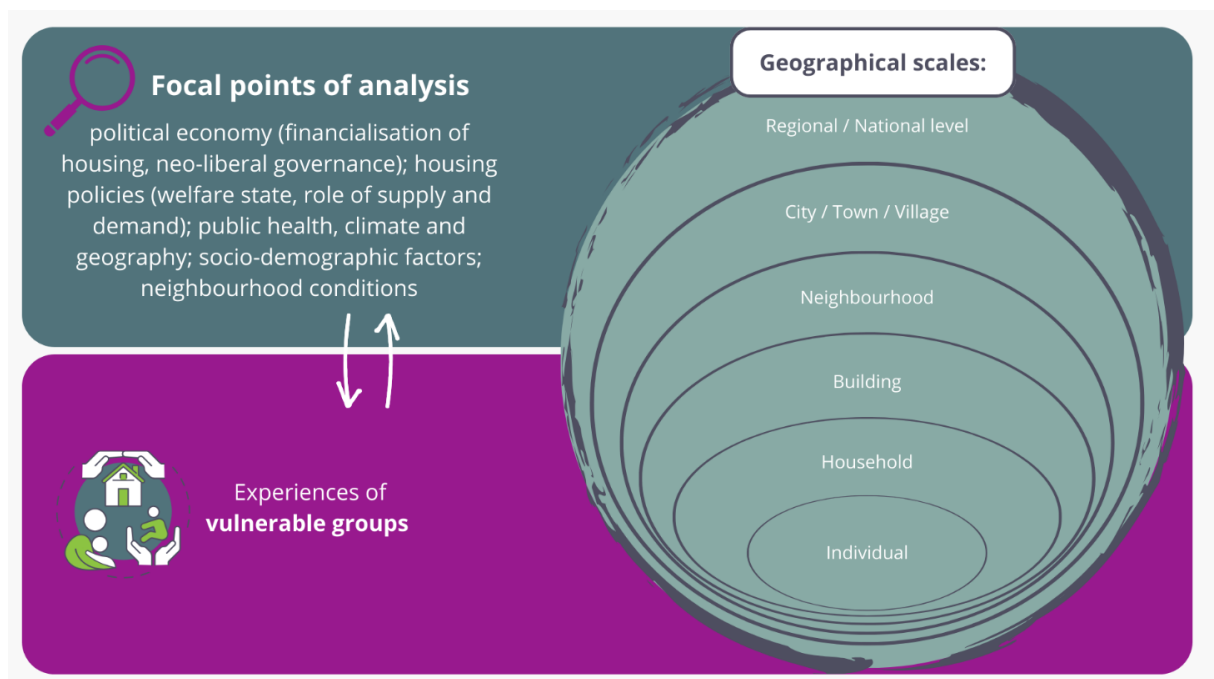


Figure 4: Three analytical lenses of HouseInc research

4.1. FOCAL POINTS OF ANALYSIS

The following is an outline of some of the key theoretical and conceptual strands within housing studies that inform the study of housing inequalities in the project. While most of these strands are interrelated and cannot be fully separated, the following is a brief overview of the core assumptions of relevant theories across different disciplines. They seek to reflect the theoretical approaches and analytical access points to the study of housing inequality applied by the interdisciplinary consortium across the various activities in the HouseInc project. Different strands thus constitute conceptual focal points of analysis of

HouseInc's research activities with certain aspects coming to the forefront depending on the research objectives and context of the research or innovation activity.

One of the main theoretical approaches underlining research of housing inequality is a **political economy perspective**, which emphasises the relationship between housing and wider economic, social, and political structures. From this perspective (often underpinning housing inequality research in disciplines such as economics, sociology and political sciences), housing is not just shelter, but a central commodity in the distribution of power within society. Political economy theory highlights how housing markets are shaped by state policies, financial systems and global capital flows, which promote the commodification of housing resulting in housing as a financial asset increasingly contributing to wealth inequality within societies (Aalbers and Christophers 2014; Ansell 2014). In light of privatisation and deregulation practices driven by neoliberalisation of markets and policy systems throughout the 1990s and the early 2000s, political economy scholarship highlights historical and institutionalised patterns of exclusion - such as redlining, segregation, land supply policies and unequal lending practices - as structural outcomes of capitalist systems that contribute and perpetuate both housing inequality in regard to housing availability and affordability as well as wider issues of inequality (Hedin et al. 2012; Paccoud et al. 2022). Ultimately, the political economy approach emphasises that housing inequality is not just a matter of individual circumstances but is deeply embedded in the wider political and economic order.

The literature on the **financialisation of housing** closely follows a political economy approach, focusing on how housing has increasingly been treated as a financial asset, contributing to wealth accumulation and increasing wealth inequalities in societies, rather than as a fundamental social right (Arundel and Ronald 2021; Hochstenbach and Arundel 2021; Lux, Sunega and Kázmér 2021a). Financialisation refers to the process by which financial markets, institutions and actors come to dominate various aspects of the economy, including the housing sector. From a political economy perspective, this financialisation is not accidental, but a product of neoliberal policy shifts that promote deregulation, privatisation and market-based solutions to housing (Fernández and Bežovan 2023; Forrest and Hirayama 2015). These policies influence who has access to housing, the types of housing available, and the conditions under which housing is provided, thereby either mitigating or exacerbating housing inequality. Under neoliberal frameworks, governments have often withdrawn from providing or supporting social housing, leaving the private sector to meet housing needs, resulting in inflated property prices and reduced affordability (Lux, Sunega and Katrnak 2013; Paccoud 2020; Wetzstein 2017). In addition, large financial actors such as private equity firms and institutional investors have entered housing markets, buying up properties and driving up rents, often to the detriment of local communities and vulnerable groups (Hochstenbach 2022).

Closely related to the political economy paradigm, the interaction of **housing policies** with housing inequality can also be explored through the lens of **welfare state theory**, focusing on how different welfare regimes shape outcomes (Ansell 2014; Stephens, Lux and Sunega 2015). Urban economists also focus on housing markets and the **role of supply and demand** in shaping housing outcomes (Cheshire 2008; Li et al. 2016; Paccoud et al. 2022). Scholars within this approach analyse how housing policies, such as rent control, zoning laws and housing subsidies, influence market behaviour and housing affordability (Kholodilin and Kohl 2023). Another strand of research on the impact of housing policy on inequality comes from **behavioural and socio-cultural studies**, which examine how household decisions interact with housing policy. Scholars in this tradition examine how people's choices - whether to buy or rent, where to live and how much to invest in housing - are influenced by policies such as mortgage subsidies, tax incentives or housing allowances (Baddeley 2011; Clark and Dieleman 2012; Kastner and Stern 2015).

Another conceptual focal point of analysis to address questions of housing inequality is the one offered by scholars on **well-being and public health**, which focuses on the deep connection between housing conditions and physical and mental health outcomes (Echeverría et al. 2008; Hedefalk, van Dijk and Dribe 2023; Ji et al. 2023).

The role of **climate and geography** in shaping housing inequality has also received increasing attention in housing studies, highlighting how environmental factors and spatial contexts influence access, affordability, availability to and acceptability of quality housing. Geographical disparities, such as the urban-rural divide and regional differences in economic development, have a significant impact on the availability, affordability and conditions of housing (Binelli and Loveless 2016; York Cornwell and Hall 2017). For example, urban areas may experience intense competition for housing, driving up prices and exacerbating inequalities, while rural areas may suffer from a lack of infrastructure and limited housing options (Hochstenbach and Arundel 2021). Climate change further complicates these dynamics, as rising sea levels, extreme weather events and changing rainfall patterns disproportionately affect low-income and marginalised communities, which are often located in more vulnerable areas (Bezgrebelna et al. 2021; Koks et al. 2015; Samuelson et al. 2020).

Considering the role of immediate **neighbourhood conditions** - constituted by building conditions, infrastructure and availability of services, such as access to energy, health, education and mobility services - in shaping housing experiences in regard to well-being is a final conceptual focal point of analysis in the HouseInc project. As described above, housing inequality can only be fully understood by focusing on both the quality of the physical dwelling (such as building adequacy) and the immediate context of the built environment, including the availability, accessibility, affordability and acceptability of basic services (Howden-Chapman et al. 2023; Nasrabadi et al. 2024).

4.2. GEOGRAPHIC SCALES

Housing inequality impacts vulnerable communities at different geographic scales. These span from the individual to the global level, answering to different research questions and investigating different outcomes of housing inequality. The observed geographic scales in the HouseInc project are defined at the **individual, household, building, neighbourhood, city/town/village, and region/national level**. Due to HouseInc's overall focus on deriving empirically based solutions and policy recommendations, continental and global scales, though having major impact on the housing market and housing inequalities (such as migrations, political instabilities, climate change) have not been included in this specific analytical lens, although they might enter analytical models in the HouseInc project through a political economy perspective (see above).

The choice to focus on scales has methodological implications for individual research activities in the project: insights about the individual level may be gathered through qualitative and quantitative research (including surveys and interviews) and help highlight how vulnerable individuals experience housing inequality; research about national and regional drivers of housing inequality is driven by use of quantitative methods and modelling through the analysis of large datasets to make inferences on the trends of such a complex phenomenon and its implications at other scales. Many housing inequalities and their drivers and manifestations (see section 5 for more detail on this terminology) can be observed across scales: for instance, the level of education of an individual may impact their income and, therefore, their housing-costs-over-income ratio; however, the education level of an individual may, in turn, be influenced by neighbourhood conditions, national or regional policies, or historical and institutionalised

discrimination with consequences on the quality of life and the educational level of vulnerable population segments in entire neighbourhoods.

And still, some drivers, when observed at a specific scale, highlight particular phenomena of housing inequality. This can be seen by looking at the focal points of analysis proposed as the analytical lens of HouseInc research (see section 4.1). The focus on public health, climate and geography, for example, can unfold different dynamics if viewed at different geographic scales: at the local level, this point of analysis will concern the thermal comfort of buildings and dwellings, local micro-climate (observing UHIs or the presence of green infrastructures), the exposure to hazardous materials and their impact on people's health; at the global level, climate migrations will influence neighbourhood demographics, while the consequences of climate change will make people more exposed to climate risks such as extreme weather events.

Similarly, adopting different geographic units of analysis for the focal point on political economy has implications on which dimension of housing inequality is observed: at the national level, what can be observed is the allocation of funds to social housing as well as the changing regulatory framework on land rights, while research at the local scale will be concerned with gentrification phenomena in districts, as a result of neoliberal policies.

At the individual and household level, studies of the interaction of socio-demographic factors with housing inequalities emphasise how different social characteristics such as income, race, ethnicity, age and family structure significantly shape individuals' access to housing opportunities and outcomes (Bardazzi and Paziienza 2023; Oriye, Owoeye and Weje 2012; Shaw and Hagemans 2015; Sunikka-Blank and Galvin 2022). While the initial analytical point of entry for these studies is at the individual or household level, much of the scholarship in this tradition highlights the role of systemic and power dynamics in these interactions. Insights from intersectional and feminist theories contribute to this by highlighting how multiple dimensions of identity (Crenshaw 1989), including gender, race and class, intersect to shape housing experiences and outcomes and how these experiences are impacted by the effects of systemic discrimination against vulnerable groups in the housing sector across different societies (Bruch and Swait 2019) (see also section 4.3).

4.3. CONCEPT OF VULNERABILITY

HouseInc has a particular focus on **vulnerable or marginalised groups** and aims to bring attention to these groups in all project activities to understand impacts and solutions that specifically support vulnerable groups. We therefore understand vulnerability as a third analytical lens that we apply to the questions we are working on in the course of the project. Thus, we conceptualise vulnerability in a way that makes it applicable to a variety of issues related to housing inequality.

In our conceptualisation we build up on the understanding of vulnerability presented by the IPCC (2022) and Adger (2006), in which vulnerability encompasses several dimensions. In addition, we incorporate findings from previous empirical research that identifies specific (marginalised) groups in society that are particularly impacted by housing inequality. Our conceptualization can be linked to the understanding of vulnerability at an EU policy level.

In general, vulnerability can describe the "propensity or predisposition to be adversely affected", often referring to the potential negative impact of a specific external factor or change (IPCC 2022). To understand which groups are especially at risk of being vulnerable, three interrelated dimensions can be

used: (1) exposure, (2) sensitivity and (3) adaptive capacity (Adger 2006; Brooks 2003; Carley et al. 2018). Following the definitions of Adger, **exposure** can be understood as “the nature and degree to which a system experiences environmental or socio-political stress”, **sensitivity** is “the degree to which a system is modified or affected by perturbations” and **adaptive capacity** can be understood as “the ability of a system to evolve in order to accommodate environmental hazards or policy change and to expand the range of variability with which it can cope” (2006:270). Understandings of vulnerability based on this conceptualisation have been used, for instance, in the context of energy policy at the community level (Carley et al. 2018) or to understand fuel poverty at a household level (Mattioli, Wadud and Lucas 2018). This highlights the applicability of the conceptualisation to different scales, such as geographical regions or households, making it a useful theoretical background for HouseInc’s conceptualisation.

In addition to drawing on the theoretical model with three dimensions, we add findings from empirical studies related to housing inequalities to derive HouseInc’s conceptualisation of vulnerability. Findings from the extensive literature review on housing inequality (see D2.1) underline that some groups are more vulnerable to experiencing housing inequalities than others.

Race, ethnicity and a migration history can be “at risk” factors which are related to vulnerability regarding housing inequalities. Based on the literature research, racialised or ethnic minorities or individuals with a migration history can face discrimination-based inequalities in the housing sector. These inequalities can encompass discriminatory housing policies (Eriksson and Nielsen 2022) or tenant selection criteria (Rosen, Garboden and Cossyleon 2021), as well as a lack of equitable access to credit and predatory lending practices targeting minority communities (Besbris et al. 2021). Discriminatory structures and practices are often linked to segregation and negative consequences on individuals' and communities' mental and physical health as well as unequal access to urban green spaces (Grant et al. 2022; Wolch, Byrne and Newell 2014).

Age can be another “at-risk” factor connected to housing inequality. Especially younger individuals (particularly in urban areas (Hochstenbach and Arundel 2021)) are disproportionately affected by the increasing difficulties to buy a home that follow the financialisation of the housing market which moved housing from being a shelter to being a commodity (Arundel and Ronald 2021; Forrest and Hirayama 2015). In addition to younger age groups, including students, future elderly can also face issues connected to affordability of housing (Lux et al. 2021b).

Other subgroups being “at risk” of being vulnerable to housing inequality include households with young children (Koks et al. 2015), single mothers (Hernández 2016), individuals with (mental) health issues (Quinn et al. 2014), women (Oriye et al. 2012) and members of the LGBTQIA+ community (Herek 2009).

Lastly, precarious socio-economic situations, such as low income and a lack of wealth as well as class are frequently discussed as “at risk” factors for various manifestations of housing inequality. Many of these manifestations are connected to sustainability and climate change adaptation (see section 3.2.2). For instance, poverty is discussed as an “at risk” factor in the context of gentrification and displacement (Hochstenbach 2022; Hochstenbach and Musterd 2018). In addition, natural hazards and extreme weather events can further exacerbate preexisting housing inequalities for low-income communities (Baker et al. 2014; Osberghaus and Hünnewaldt 2023). Related to housing inequality is the issue of energy poverty, which can occur when households cannot access sufficient energy to meet basic needs (Sherriff et al. 2022). Energy poverty is often – but not exclusively - linked to a household’s financial situation, underlining the importance of understanding precarious financial situations as relevant “at risk” factors in

the context of housing inequalities. (see also sections 3.2.2 and 5.2.1). Often financial capital or the lack thereof intersects with the other “at risk” criteria for housing inequality, having the potential to exacerbate housing inequality and its negative effects.

In the following, HouseInc’s conceptual understanding of vulnerability, based on the theoretical literature on vulnerability and the empirical literature on housing inequality, is presented.

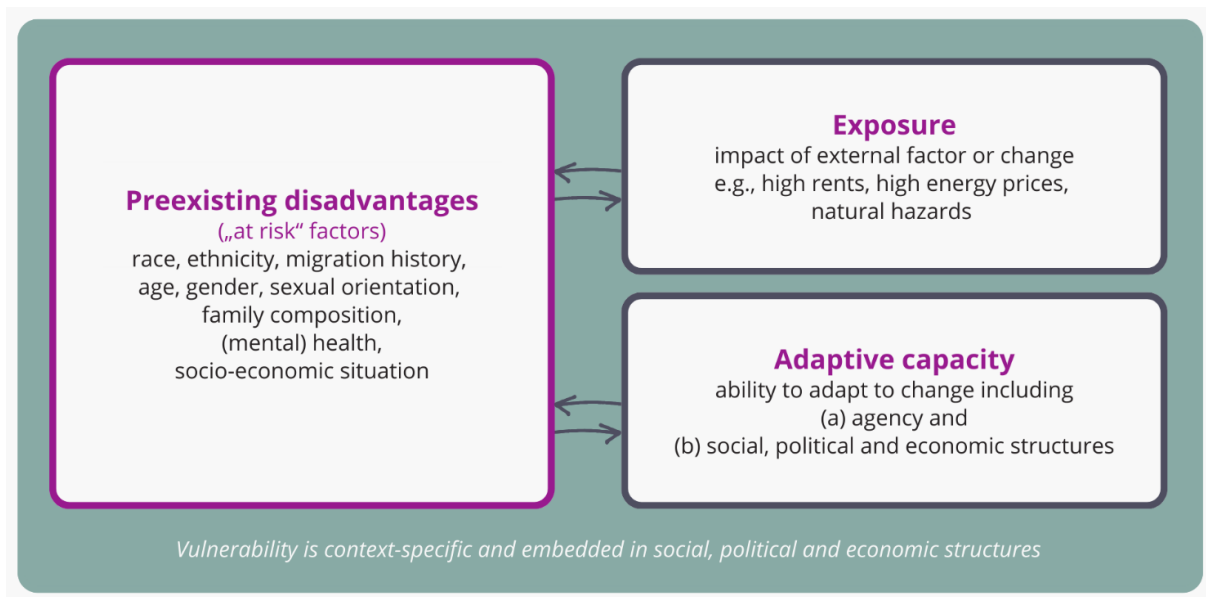


Figure 5: Conceptualisation of vulnerability

We place the preexisting disadvantages associated with housing inequality that (marginalised) groups may experience at the centre of our understanding of vulnerability. These preexisting disadvantages are connected to “at risk” factors, which have been found in existing research to be associated with housing inequalities. Hence, individuals or groups to whom “at risk” factors apply, may be particularly vulnerable to manifestations of housing inequality, making it important to pay special attention to these groups. These “at risk” factors should not be understood as defining separate categories, but as encompassing an intersectional understanding of being “at risk”. Individuals or groups may be “at risk” regarding more than one of these factors and different disadvantages may be experienced at the same time. Including intersectionality is highly relevant to be able to understand the interaction between categories of difference (such as race and gender, here: “at risk” factors) and their outcomes (Crenshaw, 1989). “At risk” factors identified based on existing literature include race, ethnicity and migration history, age, gender, sexual orientation, family composition (e.g. being a single parent), (mental) health and the socio-economic situation.

Not all groups or individuals who face preexisting disadvantages and marginalisation are equally vulnerable to all manifestations of housing inequality. The extent to which individuals or groups are vulnerable depends on the context and can be shaped by social, political and economic structures. Hence, the dimensions of exposure and adaptive capacity are incorporated into HouseInc’s understanding of vulnerability. Exposure underlines the context-specific nature of vulnerability. The extent to which a group or individual is vulnerable may differ depending on the specific external factor or change they face.

The inclusion of adaptive capacity as a third dimension emphasises that vulnerability is not solely a consequence of preexisting disadvantages impacted by exposure but can be shaped (i.e. mitigated or exacerbated) by the resources or support available. It enables the inclusion of a certain amount of (a) agency (e.g. Giddens, 1984), while also allowing for an understanding of the role of (b) social, political and economic structures, which can shape or provide sources of adaptive capacity. If individuals have adaptive capacity in the form of wealth and income, the consequences of a price increase in energy costs can be buffered. This would imply less vulnerability towards a price increase as external factor compared to individuals having low financial resources. However, it is important to note that our conceptualisation of vulnerability recognises and highlights that vulnerability is a state outside of the direct control of individual, households and groups and very much constituted and perpetuated by existing systemic forces. In this light, social, political and economic structures, such as the welfare state and its policies can support individuals and groups and reduce vulnerability – or cause the exact opposite and contribute to their state of vulnerability. If rent increases for low-income groups are capped by the state, for instance, they will be less vulnerable to price increases in this area. If policies favour market-driven approaches, vulnerability to price increases also augments.

Our conceptualisation of vulnerability can be useful (a) to understand vulnerability at different levels (vulnerability of different geographical or administrative units such as regions, vulnerable groups or individuals), (b) it incorporates the role of preexisting disadvantages or marginalisation by including “at risk” factors of housing inequality based on an extensive literature review, (c) it emphasises the context-specific nature of vulnerability by including the dimensions of exposure and (d) by adding the dimension of adaptive capacity it includes the role of personal agency as well as the embeddedness of vulnerability in social systems, such as the welfare state and its policies.

The term vulnerability is regularly used in EU policy documents when referring to groups that are already more affected by changes or can be in the future. For instance, in the context of the Social Climate Fund (European Commission), vulnerable households are understood as “households in energy poverty or households, including low income and lower middle income ones, that are significantly affected by the price impacts of the inclusion of greenhouse gas emissions from buildings within the scope of Directive 2003/87/EC and lack the means to renovate the building they occupy” (European Parliament & European Council 2023:Art. 2(10)). This concept of vulnerability comprises two elements: (1) whether households are affected by price changes, which corresponds to the concept of exposure, and (2) whether they have the means to adapt (i.e. to renovate the building they occupy), which corresponds to adaptive capacity.

5. CONCEPTUAL MODEL

The concepts and definitions proposed in sections 3 and 4 serve as basis to discuss and analyse housing inequalities using the following conceptual model as a guideline throughout the various research and innovation activities in the HouseInc project. To assess the different dimensions of housing inequality and to understand its drivers and consequences, the HouseInc project has developed a simplified conceptual model that maps the pathways of housing inequality (see Figure 6). This model identifies and outlines the potentially causal relationships between the drivers of housing inequality, specific manifestations and their ultimate outcomes or impacts, with a particular focus on vulnerable communities. It serves as a guiding framework for the project’s empirical research, providing a common terminology for communication and supporting the development of empirically based solutions and policy recommendations.



Figure 6: HouseInc Conceptual Model

The model is structured around five key building blocks that represent the causal links between **drivers**, **manifestations** and **outcomes**. It allows for interaction effects, where multiple drivers may simultaneously influence a single manifestation or outcome. Although the model initially focuses on one manifestation of housing inequality at a time, it can be extended to depict more complex pathways where the outcome of one manifestation becomes the driver of another, or where a single driver leads to multiple manifestations simultaneously.

In addition to drivers, manifestations and outcomes, the model includes **solutions**, which are interventions aimed at addressing housing inequalities. These solutions can target different levels of the model - drivers, manifestations or outcomes - by intervening at the source of the inequality, mitigating its visible effects or alleviating its long-term effects. The inclusion of solutions in the model emphasises its practical utility in guiding not only analysis but also actionable policy and intervention strategies.

Indicators are also an integral part of the model, providing the empirical tools needed to measure drivers, manifestations and outcomes. These indicators allow housing inequality to be quantified and tracked at different stages, ensuring that the model remains evidence-based and can be used to assess both the extent of inequality and the effectiveness of interventions.

Key components of the model:

Drivers: Drivers are the underlying causes of housing inequality that are responsible for one or more manifestations. These can be social, economic or political phenomena, such as gentrification, economic inequality or discriminatory housing practices. Understanding the drivers is key to identifying the root causes of inequality and addressing them through targeted interventions.

Manifestations of housing inequality: These represent observable phenomena of housing inequality, such as overcrowding, that reflect the practical implications of abstract or theoretical concepts. Manifestations help to identify where housing inequality exists and provide insights into its different dimensions. By clustering and analysing these manifestations, the model helps to define what 'housing inequality' means in a particular context or strain of literature. They serve as symptoms, showing how housing inequality materialises at a practical level.

Impacts: Outcomes refer to the long-term consequences of manifestations of housing inequality, often linked to wider societal issues. They highlight the lasting effects on individuals and communities, particularly vulnerable groups, and illustrate the wider impact of housing inequality on well-being, social cohesion and economic stability. These findings are crucial for the development of informed solutions and policies aimed at reducing housing inequality and its wider effects.

Solutions: These are strategic interventions designed to address housing inequalities. Solutions can be policies, programmes, or projects that either prevent the emergence of drivers, alleviate the manifestations or mitigate the long-term effects of housing inequality. By targeting specific points in the causal chain, solutions aim to bring about structural changes that reduce inequality or its negative consequences over time.

Indicators: These are the measurable variables used to empirically assess the key components of the model. Indicators enable us to measure drivers, manifestations and outcomes and they are essential for ongoing monitoring and evaluation to ensure that the model's findings are based on solid data and can inform evidence-based decision making.

This causal model is intended to provide a flexible framework for exploring the dynamics of housing inequality, facilitating deeper empirical analysis while supporting the development of effective, data-driven policy recommendations. It can be adapted and developed to address more complex relationships within the housing system according to the different research foci within the HouseInc project's research activities, ensuring that the complexity of housing inequality is thoroughly explored and addressed. The applications of the conceptual models in the following sections illustrate how the different concepts and analytical lenses can be used to understand and analyse selected manifestations of housing inequality

5.1. ILLUSTRATING HOUSEINC’S CONCEPTUAL MODEL

Based on a comprehensive literature review conducted in Task 2.1 of the HouseInc project and published as D2.1, we identified ten overarching concepts that are present in housing inequality research across disciplines. These are summarised below:

- **Discriminatory injustice**, with literature focusing on segregation and health impacts in the housing sector at the intersection of race, gender and class.
- **Gentrification**, with literature examining spatial and social/cultural impacts, including displacement and socio-economic disparities.
- **Green urban regeneration**, with literature exploring the 'green space paradox' and its role in socio-spatial segregation.
- **Social and spatial residential mobility**, with literature exploring these issues, particularly in the context of social housing and the dynamics of racial segregation.
- **Natural hazards**, with studies analysing how disasters exacerbate housing inequalities, with vulnerable households suffering disproportionately.
- **Health outcomes**, linking housing inequalities to physical and mental health, particularly highlighting the impact of the built environment and neighbourhood conditions.
- **Quality of life**, with literature examining inequalities in well-being, housing satisfaction and safety.
- **Legal and regulatory frameworks**, with scholarship examining how land and property rights affect access to and affordability of housing.
- **Financialisation of housing**, with a stream of research discussing housing as a financial asset that exacerbates housing affordability challenges and wealth inequalities.
- **Energy poverty**, with scholarship highlighting inadequate access to energy for basic needs, which particularly affects low-income households.

Table 2 offers a non-comprehensive example on how these previously identified overarching concepts inform the HouseInc conceptual framework. The illustration is incomplete and simplified but illustrates well how the definition of specific drivers, manifestations and outcomes/impacts varies and changes depending on the focus of analysis, research questions and pathways under study. This dynamic approach allows the framework to be adaptable and responsive to different housing inequality contexts and empirical findings while still providing a common ground for research activities.

Table 2: Categorising HouseInc’s overarching concepts using the conceptual model

Drivers	Manifestations	Outcomes/Impacts
Discrimination (based on race, gender, class / intersectional)	Spatial segregation	Health
(Neoliberal) policies	Lack of housing affordability	Displacement, social disconnects
Green urban regeneration & gentrification	Lack of housing affordability	Displacement; socio-spatial segregation
Social housing policy	Lack of spatial mobility	Well-being, housing satisfaction
Natural disaster	Displacement / homelessness / housing informality	Health, well-being
Built environment	Lack of infrastructure and access to services	Health, well-being, social coherence

Land and property rights (Neoliberal) policies	Housing access & affordability Financialisation of housing	Segregation, well-being Lack of affordability of housing; wealth inequality
Low-energy efficient building performance	Lack of resources to afford energy services; cold/damp room temperatures	Health; education

5.2. ILLUSTRATING PATHWAYS OF HOUSING INEQUALITY

The following section applies the conceptual model to outline potential pathways of housing inequality by selecting specific subjects of analysis relevant to the HouseInc project context. These pathways have been selected as examples of either key concepts that will be empirically analysed in greater depth or help inform the design of empirical models throughout the HouseInc project.

5.2.1. EXAMPLE #1: ENERGY POVERTY

Housing inequality is closely linked to the concept of **energy poverty**. The concept brings together insufficient levels of energy consumption to fulfil basic needs, the lack of access to modern energy services, residential thermal standards in relation to excess winter or summer mortality, as well as a lack of energy efficiency and building performance. Bouzarovski and Petrova (2015) define energy poverty as “the inability to attain a socially- and materially-necessitated level of domestic energy services”. Energy services are, e.g. heating, cooling, lighting, cooking, refrigeration, television, and similar (Fell 2017). The needed levels of domestic energy services are directly linked to household’s inhabitants’ health and wellbeing.

Figure 7 presents an overview of drivers and manifestations of housing inequality that can lead to energy poverty as an outcome, based on the conceptual framework for HouseInc, and provides possible solutions.

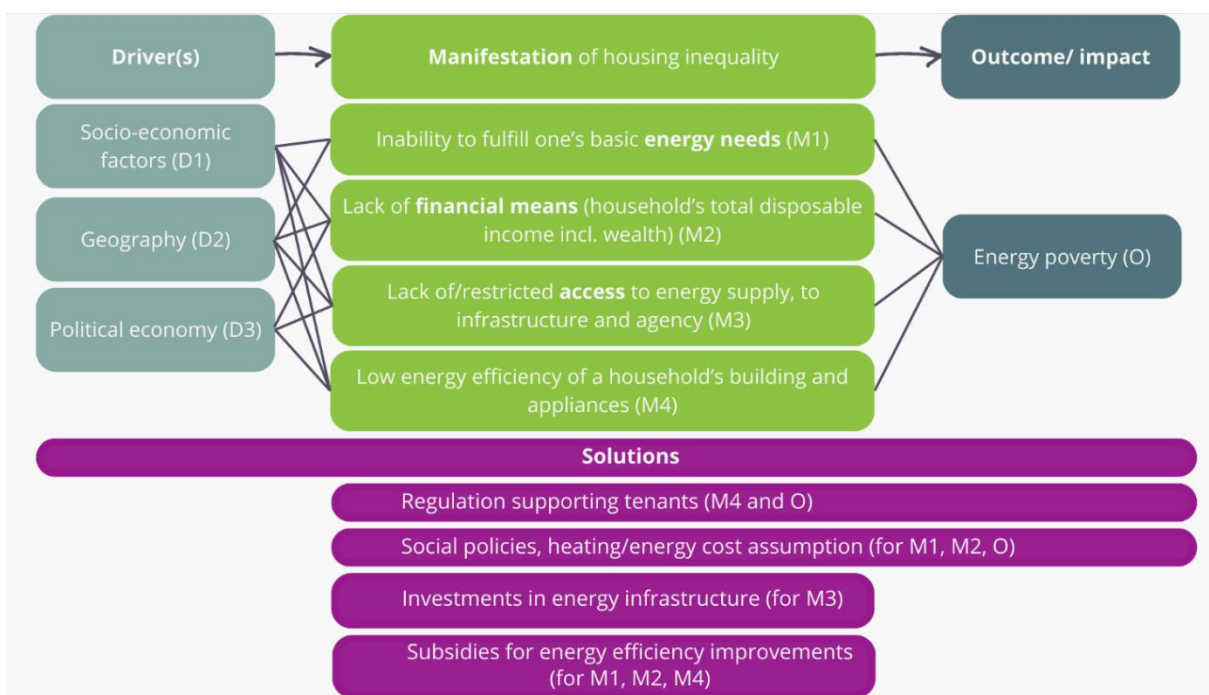


Figure 7: Drivers and manifestations leading to energy poverty as an outcome of housing inequality

Manifestations directly related to housing inequality and energy poverty as an outcome are e.g., the (in)ability to fulfil one's basic (energy) needs, a lack of financial means, a lack of access to energy supply (either energy in general or specifically clean, more ecologically sustainable energy) or to information, and low energy efficiency of a vulnerable household's building or appliances.

A person's or a household's **basic energy needs** are the basic needs of energy consumption necessary for a comfortable, dignified life without needing to cut back or overspend (Brown et al. 2020; Gouveia, Seixas and Long 2018; Henger et al.). They concern the consumption of energy services such as heating, cooling, lighting, etc. The specific needs for a household are determined by the **household constellation** and **everyday practices**. The number of household members is related to the number of rooms that need to be heated, the number of appliances used and the frequency with which they are used. **Health** may have an influence on a person's needs related to energy consumption, e.g. home temperature or the electricity needed for health-related appliances. The **age** of the household members, as well as the **gender** of the head of the household and their **employment status** are connected to the time spent at home which also influences the energy needs of the household in terms of the amount of time that a room needs to be heated or lights need to be turned on, the necessary room temperature and similar needs. The higher a household's energy needs are the higher the risk for an already vulnerable household to become energy poor.

A household's **financial means** are made up of the household's total disposable income including wealth. They are among others influenced by the **employment situation** of the head of the household, previous accumulated **wealth**, and political economy factors such as social policies, the state of the economy and the economic system, as all these factors influence a household's total disposable income.

Access to energy can be divided into physical access to energy supply and the access to information about energy supply and the choice between different providers and tariffs. Access to **energy supply** can mean either the access to energy in general or more specifically to safe energy or to clean, ecologically sustainable energy (Teschner et al. 2020). It depends on the **location** of a building, the **energy infrastructure** in the region and the **energy supplier**. The two latter factors are again influenced by the political economy framework of a country, in particular the energy policies and the energy market (Bouzarovski and Petrova 2015).

Access to **information** concerning energy supply, consumption or energy efficiency and the choice between different providers is connected to agency. People's **education** and **energy literacy** determine whether a household knows what energy services it needs and where it should purchase them. However, not everyone can choose their energy provider and tariff. The restriction of this agency through **policies**, e.g. based on **debt**, not only affects access to energy but also the associated costs.

The necessary energy consumption to fulfil one's energy needs is closely linked to the **energy efficiency** of a building as well as to the efficiency level of the appliances in use. The energy consumption or savings affect a household's energy costs enormously. The energy efficiency of a building is related to its **location**, its **material** condition, the **tenure type** and the installed **heating system**. Poor insulation could be improved if a household had the necessary capital and if there are no restrictions from possible landlords, hence, efficiency is closely related to a household's financial means on different levels. This also applies to the building's location. Low-income and vulnerable households live in poorer neighbourhoods, where the buildings' materials often are of a lower quality, the installed heating system is less efficient or based on fossil fuels instead of renewable energy, and buildings are generally older and therefore need more

energy. The **political economy** is a relevant factor in this category in terms of the installed heating system as well as the insulation, which can be influenced by construction standards relying on policy decisions.

Different **drivers** affect these manifestations: **Socio-economic** factors such as a household's disposable income, household composition, employment status, education, health, age, migration background, gender and others can directly or indirectly affect the different manifestations. **Geography** can also have an impact on aspects such as infrastructure, choice of heating systems, availability of energy efficient housing, choice of energy supplier or heating or cooling demand.

The **political economy** can be a **driver** for a number of manifestations of housing inequality. Economic crises and the overall **state of the economy** have an impact on the employment market, meaning e.g. terms of employment, rates of persons in precarious employment, rates of unemployment or income. These factors have a major impact on a household's total disposable income and wealth, i.e. their financial means. Additionally, **social policy** and **tax regulations** affect the disposable income as well as wealth. Furthermore, the **energy market**, **energy policy** and **building policy** can influence the affordability of energy directly and indirectly.

Solutions for alleviating energy poverty lie especially, though not exclusively, in these respective fields. **Social policy** can have an impact on alleviating energy poverty, e.g. directly through cost assumption of heating costs or indirectly through subsidies for general costs. Furthermore, the **energy market** and national and international **energy policy** influence the affordability of energy. Investments in the energy infrastructure can reduce energy costs while taxes can increase them considerably. An improved energy infrastructure can also improve the access to energy supply. **Building policy** is closely linked to energy efficiency; construction regulations and standards affect the common buildings material structure in a national or regional context as well as e.g. the installed heating system. These standards influence a building's efficiency and therefore also a household's vulnerability to energy poverty. Part of both buildings and energy policy are regulations and instruments such as state subsidies for the implementation of energy efficiency measures which can help reduce energy consumption and thus energy expenditure.

5.2.2. EXAMPLE #2: RESIDENTIAL MOBILITY

Residential mobility is a housing dynamic which denotes the relatively local-scale relocation of individuals and households from one usual residence to another (Coulter and Thomas 2020). It cannot be considered a single **manifestation** of housing *inequalities* specifically because it is a multi-faceted phenomenon; in the domain of housing inequality, it is connoted positively or negatively, since residential mobility or lack thereof is what either allows or forces people to move from an initial state to another, whether better or worse than the previous one. Therefore, before looking at low or high residential mobility rates, it is important to discern which side of the phenomenon is being looked at. Additionally, residential mobility can be viewed as a two-sided process: on the one hand, it influences neighbourhood dynamics, and on the other, neighbourhood development and its characteristics either hinder or facilitate residential mobility for dwellers.

Within this range, the **positive outcomes** of residential mobility are associated with a) the possibility for people, and especially vulnerable people, to initially access social housing, thus exiting a condition of housing vulnerability; b) the possibility for people living in social housing of moving to other dwellings; c)

the possibility of moving from a neighbourhood to another, more equipped with services and infrastructures.

On the contrary, the **negative outcomes** of residential mobility are associated with a) forced relocation of residents; b) segregation dynamics in neighbourhoods where residential mobility is low; c) the impossibility of vulnerable people to either access or leave social housing.

The **drivers** of residential mobility are manifold and, often, intertwined. The literature, especially coming from the Global North and the United States specifically, points out structurally political causes of residential mobility, namely **racial discrimination**. Discrimination can take the form of displacement, in the case where vulnerable people are forced to relocate from their dwelling because of evictions triggered by neighbourhood redevelopment (Desmond and Shollenberger 2015). In other cases, mass-transit accessibility and the proximity to large infrastructures can improve residential mobility (Waintrub, Greene and Ortúzar 2016).

In other cases, the real estate sector acts as a major driver of discrimination towards racialized and vulnerable communities: screening practices from the part of landlords which filter requests, the uneven access to information made available to specific ethnic groups and predatory lending practices lead to the negative outcomes of residential mobility, either forcing people to relocate or, conversely, hindering their possibility of moving out of segregated neighbourhoods (Rosen et al. 2021).

Discrimination also impacts people's self-perceptions, especially in vulnerable groups: decisions based on affordability, the perception of distances and the presence of people from the same ethnic community result in low mobility of vulnerable groups from segregated neighbourhoods (Bruch and Swait 2019).

Other structural causes include **local as well as global economic phenomena**: the foreclosures of economic activities and stores resulting from the economic crisis are drivers of inequality at the neighbourhood level, causing racially selective relocation from impoverished neighbourhoods (Hall et al. 2018). In addition, the progressive gentrification of neighbourhoods and the subsequent surge in rent prices and real estate values, deriving from a neoliberal exploitation of the housing market worldwide, is a major cause of residential mobility.

Concerning the social housing sector, the progressive and generalized contraction in the construction and upkeep of social housing, together with the complex migratory phenomena of the contemporary global scenario, have created a wide disproportion between the number of available units and the demand for social housing. At the same time, rent control in social housing has caused many tenants to remain in social housing even after their housing vulnerability condition had improved (Kattenberg and Hassink 2017).

Solutions for residential mobility include **changes in rent control** for social housing, thus incentivizing former tenants to move and increasing the transition from the social housing sector. Tenant-based rental assistance programmes for moving people from disadvantaged neighbourhoods to less disadvantaged ones, warmth and energy efficiency interventions, rehousing and refurbishment with or without neighbourhood renewal, rehousing programs from slums have also been explored by the literature (Gibson et al. 2011).

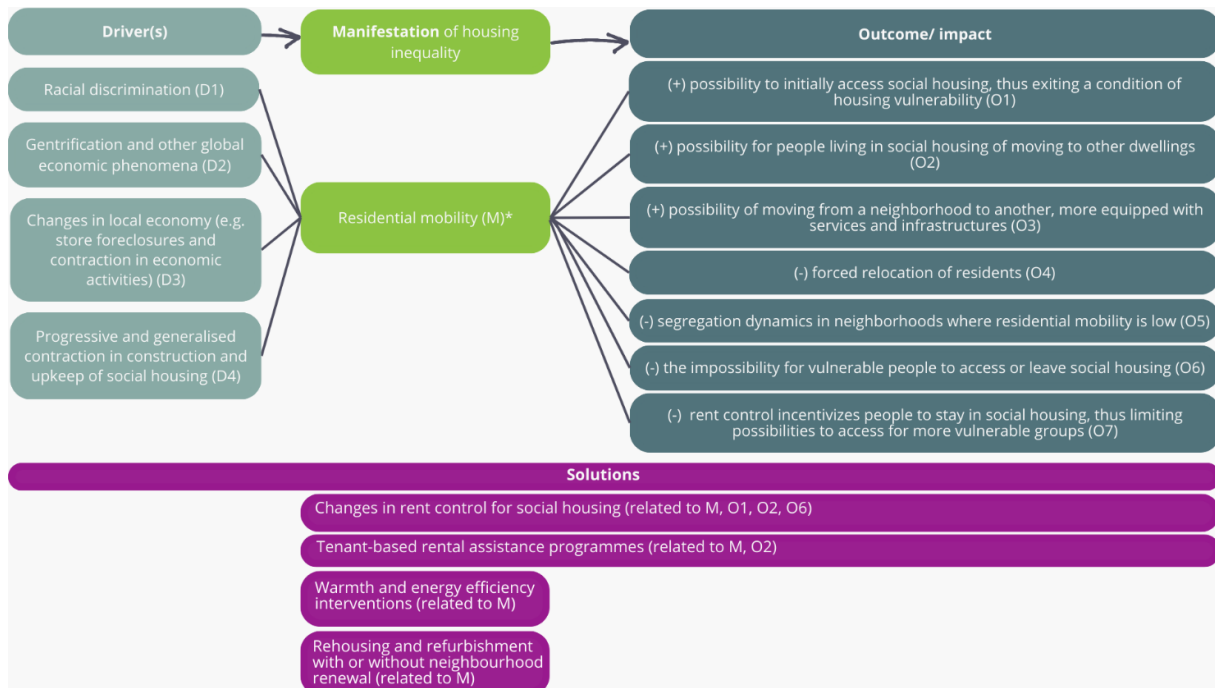


Figure 8: Drivers and outcomes of residential mobility as a multi-dimensional manifestation of housing inequality⁴

5.2.3. EXAMPLE #3: GENTRIFICATION

A major concept that emerged from the literature review is **gentrification**, with a large body of literature devoted to exploring its **effects**.

Figure 9 illustrates how the conceptual framework described above can be applied to gentrification, positioning it as a **driver of housing inequality**. This framework operates by identifying three key components: drivers, manifestations, and outcomes, which together explain the **meaning of housing inequality** triggered by gentrification.

⁴ Residential mobility cannot be considered a single manifestation of housing inequalities specifically because it is a multi-faceted phenomenon. Residential mobility is connoted positively or negatively in the domain of housing inequality, since residential mobility or lack thereof is what either allows or forces people to move from an initial state to another, whether better or worse than the previous one. Hence, residential mobility (or the lack thereof) can have positive or negative outcomes regarding housing equality.

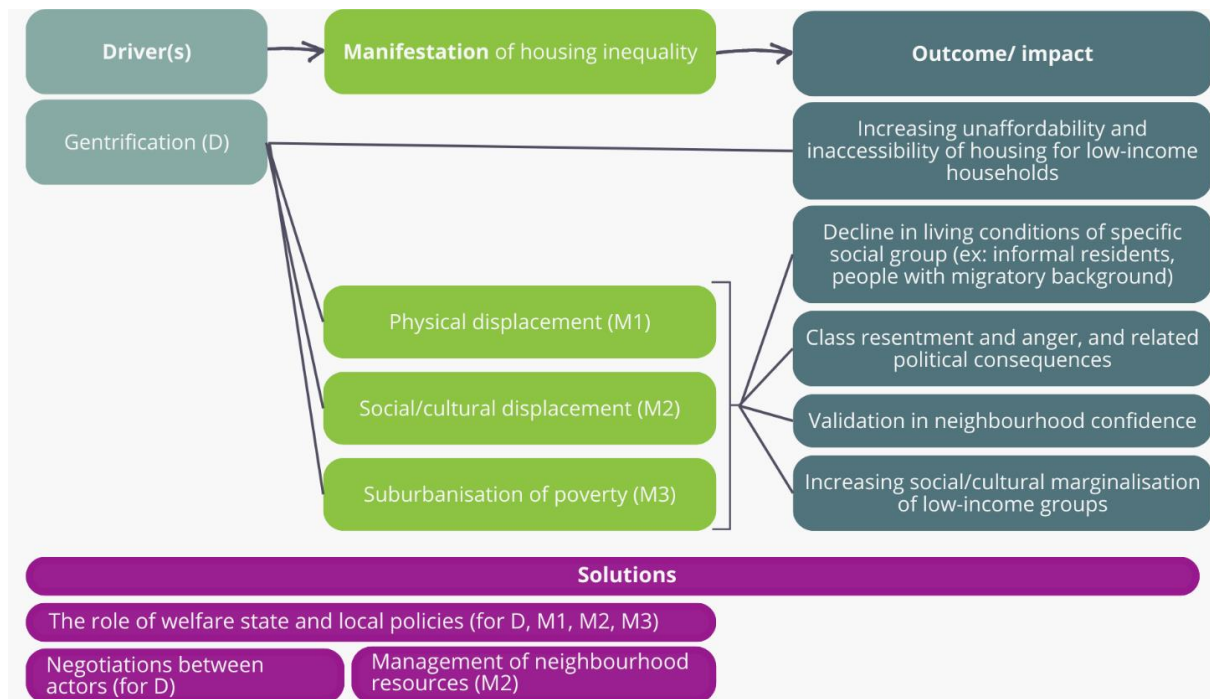


Figure 9: Gentrification as a driver of housing inequality

In this framework, the driver (gentrification) refers to the influx of new investments and wealthier, more educated residents into a neighbourhood (Finio 2022). The resulting changes lead to the manifestations of inequality, which are observable in the affected society. These manifestations include **physical displacement, social and cultural displacement, and the suburbanization of poverty**, as described below.

Physical displacement: physical displacement occurs when long-term residents (including informal residents) are forced to leave their neighbourhood due to rising costs, choosing to relocate to more affordable areas (Watt 2013).

Social & cultural displacement: gentrification can also indirectly displace residents, leading them to feel alienated and disconnected from their familiar environment (Watt 2013). Even without physical displacement, low-income communities can experience a sense of loss and marginalization, even if they remain in secure community housing (Ocejo 2011; Shaw and Hagemans 2015).

Suburbanization of poverty: the suburbanization of poverty refers to the residential moves of low-to-middle income and unemployed households from cities to the urban regions surrounding cities, particularly higher-density satellite towns. This shift is driven not only by the direct relocation of poor households from the city to the suburbs but also by broader exclusionary mechanisms. These include decreasing accessibility and affordability of central urban areas, which prevents low-income households from moving into inner-urban areas in the first place (Hochstenbach and Musterd 2018).

The driver, either directly or through its manifestations, can lead to significant long-term consequences, the **outcomes**. For example, **rising housing unaffordability and inaccessibility for low-income groups** may occur as a direct result of gentrification, without necessarily passing through specific manifestations like displacement. However, in other cases, outcomes such as **the decline in living conditions for vulnerable social groups** (e.g., informal residents, migrants), **increased social and cultural marginalization, class**

resentment and political consequences, and variation in neighbourhood confidence may be a more direct result of the specific manifestation.

Moreover, literature offers **potential solutions** to negative effects of gentrification. These solutions may address drivers, manifestations or outcomes. They can be:

- barriers **to prevent** potential negative consequences of gentrification (often addressing the driver) or
- barriers **to mitigate** the generated negative effects triggered by the driver (often addressing manifestations and/or outcomes).

In this context, **negotiations between housing associations and neighbourhood actors** can determine different regeneration strategies, influencing the design and management of the gentrification process itself (Teernstra 2015). Additionally, **the management of neighbourhood resources** like shops and community spaces in favour of low-income residents can help alleviate social and cultural displacement (Shaw and Hagemans 2015). **Welfare state policies and local government interventions** also play a crucial role (Veldboer and Kleinhans 2013), affecting not only the design of the gentrification process to prevent possible negative effects but also playing a role in mitigating the potential manifestation of housing inequality.

This application of the housing inequality framework provides significant insights into **how housing inequality manifests itself**, what are **the underlying drivers** of the observable forms of housing inequality and what are **the factors** to pay attention to in order to address housing inequality and to foster more equitable urban development in the specific context of **gentrification processes**.

6. CONCLUSION

The HouseInc conceptual framework introduced in this deliverable seeks to provide a holistic, integrated approach to the study of housing inequalities within the HouseInc framework. To account for the consortium's inter- and trans-disciplinarity, the framework offers a conceptual template that seeks to guide various research and innovation activities within the project. Specifically, the deliverable offers a definition of housing equality as an ideal objective that policy, business, and civil society actors should aim for to tackle various phenomena of housing inequalities. Housing equality refers to inclusive access to quality housing that is defined through meeting basic human needs in the context of ongoing sustainability challenges. Moreover, the conceptual framework highlights three different analytical lenses as entry points for the study of housing inequalities within the project: (1) conceptual focal points based on theoretical concepts within the literature; (2) geographic scales to account for aspects of proximity within the study of housing inequality; and (3) a conceptualisation of vulnerability that goes beyond a mere list of at-risk factors often found in the literature.

The definition and three analytical lenses serve as basis to discuss and analyse housing inequalities using a simple conceptual model as a guideline for empirical data collection and analysis, on the one hand, and a terminological anchor throughout the various research and innovation activities in the HouseInc project, on the other hand. It consists of drivers, manifestations of housing inequality, impacts, solutions and indicators as key elements. The various research and innovation activities within the HouseInc project study a variety of different manifestations of housing inequality. Through which specific analytical lens

this takes place is driven by both disciplinary decisions and is guided by the specific research questions associated with the project tasks.

This deliverable builds on to the results of D2.1 by drawing on key insights from the literature and by responding to the following key research gaps: First, it provides a working definition of housing inequality in light of the New European Bauhaus that includes a conceptualisation of inclusivity through some of the key housing study concepts of availability, accessibility, affordability and (as a new addition) acceptability. Second, it offers a definition of quality housing through basic human needs but embeds universal principles of human rights (to housing) within cultural and local contexts acknowledging that there is no standard norm for adequate housing solutions. Moreover, it places sustainability – and with its impacts of current climate and energy crisis – at the core of its approach. Third, it offers a concept of vulnerability that allows for a holistic and intersectional approach to at-risk factors in housing inequality studies.

HouseInc’s holistic conceptual framework serves as a template for the HouseInc project activities. The objective of the project is to identify different drivers of housing inequality (by zooming in on various manifestations of the challenge) and to assess the impact of such inequalities on different vulnerable groups, understand interlinkages and pathways of inequality and develop empirically based solutions and policy recommendations. The development of key definitions of various manifestations as well as the creation and testing of indicators to assess drivers of and solutions to these inequalities constitutes a core activity across the different project work packages and tasks throughout the duration of the project.

7. REFERENCES

- Aalbers, Manuel B., and Brett Christophers. 2014. "Centring Housing in Political Economy." *Housing, Theory and Society* 31(4):373–94. doi:10.1080/14036096.2014.947082.
- Adger, W. N. 2006. "Vulnerability." *Global Environmental Change* 16(3):268–81. doi:10.1016/j.gloenvcha.2006.02.006.
- Ahmed, Ali M., and Mats Hammarstedt. 2008. "Discrimination in the rental housing market: A field experiment on the Internet." *Journal of Urban Economics* 64(2):362–72. doi:10.1016/j.jue.2008.02.004.
- An, Brian Y., Raphael W. Bostic, Andrew Jakobovics, Anthony W. Orlando, and Seva Rodnyansky. 2022. "Small and medium multifamily housing: affordability and availability." *Housing Studies* 37(7):1274–97. doi:10.1080/02673037.2020.1842339.
- Anguelovski, Isabelle, James J. T. Connolly, Laia Masip, and Hamil Pearsall. 2018. "Assessing green gentrification in historically disenfranchised neighborhoods: a longitudinal and spatial analysis of Barcelona." *Urban Geography* 39(3):458–91. doi:10.1080/02723638.2017.1349987.
- Ansell, Ben. 2014. "The Political Economy of Ownership: Housing Markets and the Welfare State." *The American Political Science Review* 108(2):383–402 (<http://www.jstor.org/stable/43654379>).
- Arundel, Rowan. 2017. "Equity Inequity: Housing Wealth Inequality, Inter and Intra-generational Divergences, and the Rise of Private Landlordism." *Housing, Theory and Society* 34(2):176–200. doi:10.1080/14036096.2017.1284154.
- Arundel, Rowan, and Richard Ronald. 2021. "The false promise of homeownership: Homeowner societies in an era of declining access and rising inequality." *Urban Studies* 58(6):1120–40. doi:10.1177/0042098019895227.
- Baddeley, Michelle. 2011. *Social Influence and Household Decision-Making: a Behavioural Analysis of Housing Demand*.
- Baker, Daniel, Scott D. Hamshaw, and Kelly A. Hamshaw. 2014. "Rapid Flood Exposure Assessment of Vermont Mobile Home Parks Following Tropical Storm Irene." *Natural Hazards Review* 15(1):27–37. doi:10.1061/(ASCE)NH.1527-6996.0000112.
- Baker, Emma, Rebecca Bentley, Laurence Lester, and Andrew Beer. 2016. "Housing affordability and residential mobility as drivers of locational inequality." *Applied Geography* 72:65–75. doi:10.1016/j.apgeog.2016.05.007.
- Ball, Kylie, Anna Timperio, and David Crawford. 2009. "Neighbourhood Socioeconomic Inequalities in Food Access and Affordability." *Health & place* 15(2):578–85. doi:10.1016/j.healthplace.2008.09.010.
- Bardazzi, Rossella, and Maria G. Paziienza, editors. 2023. *Vulnerable Households in the Energy Transition: Energy Poverty, Demographics and Policies*. Cham: Springer International Publishing.
- Besbris, Max, Ariela Schachter, and John Kuk. 2021. "The Unequal Availability of Rental Housing Information Across Neighborhoods." *Demography* 58(4):1197–221. doi:10.1215/00703370-9357518.
- Bezgrebelna, Mariya, Kwame McKenzie, Samantha Wells, Arun Ravindran, Michael Kral, Julia Christensen, Vicky Stergiopoulos, Stephen Gaetz, and Sean A. Kidd. 2021. "Climate Change, Weather, Housing Precarity, and Homelessness: a Systematic Review of Reviews." *International journal of environmental research and public health* 18(11). doi:10.3390/ijerph18115812.
- Binelli, Chiara, and Matthew Loveless. 2016. "The urban–rural divide." *Economics of Transition* 24(2):211–31. doi:10.1111/ecot.12087.
- Bixby, Laurin E. 2024. "Intersectional inequalities: How socioeconomic well-being varies at the intersection of disability, gender, race-ethnicity, and age." *Research in Social Stratification and Mobility* 91:100938. doi:10.1016/j.rssm.2024.100938.



- Bogdon, A., J. Silver, and M. A. Turner. 1994. *National analysis of housing affordability, adequacy, and availability: A framework for local housing strategies*.
- Bouzarovski, Stefan, and Saska Petrova. 2015. "A global perspective on domestic energy deprivation: Overcoming the energy poverty–fuel poverty binary." *Energy Research & Social Science* 10:31–40. doi:10.1016/j.erss.2015.06.007.
- Bouzarovski, Stefan, Harriet Thomson, Marine Cornelis, Anaïs Varo, and Rachel Guyet. 2020. *Towards an Inclusive Energy Transition in the European Union: Confronting Energy Poverty Amidst a Global Crisis*. Third pan-EU energy poverty report of the EU. Luxembourg: EU Energy Poverty Observatory.
- Bouzarovski, Stefan, Jurica Brajković, Slavica Robić, Charlotte Brown, and Ivana Vuchkova. 2024. "Energy Poverty in the Energy Community Region: Interrogating Policy Formulation and Coverage." *European urban and regional studies* 31(2):184–99. doi:10.1177/09697764231162229.
- Brooks, Nick. 2003. *Vulnerability, Risk and Adaptation: A Conceptual Framework*. Vol. 38 (https://www.researchgate.net/profile/nick-brooks-3/publication/200032746_vulnerability_risk_and_adaptation_a_conceptual_framework).
- Browning, Christopher R., Reginald A. Byron, Catherine A. Calder, Lauren J. Krivo, Mei-Po Kwan, Jae-Yong Lee, and Ruth D. Peterson. 2010. "Commercial Density, Residential Concentration, and Crime: Land Use Patterns and Violence in Neighborhood Context." *Journal of Research in Crime and Delinquency* 47(3):329–57. doi:10.1177/0022427810365906.
- Brown, Marilyn A., Anmol Soni, Melissa V. Lapsa, Katie Southworth, and Matt Cox. 2020. "High energy burden and low-income energy affordability: conclusions from a literature review." *Progress in Energy* 2(4):42003. doi:10.1088/2516-1083/abb954.
- Bruch, Elizabeth, and Joffre Swait. 2019. "Choice Set Formation in Residential Mobility and Its Implications for Segregation Dynamics." *Demography* 56(5):1665–92. doi:10.1007/s13524-019-00810-5.
- Bullard, Robert D. 1993. "The Threat of Environmental Racism." *Natural Resources & Environment* 7(3):23–56.
- Burger, Ronelle, and Carmen Christian. 2020. "Access to Health Care in Post-Apartheid South Africa: Availability, Affordability, Acceptability." *Health economics, policy, and law* 15(1):43–55. doi:10.1017/s1744133118000300.
- California Green Zoon. "Environmental & Housing Justice Policy Platform." (<https://calgreenzones.org/platform-for-environmental-housing-justice/>).
- Carley, Sanya, Tom P. Evans, Michelle Graff, and David M. Konisky. 2018. "A Framework for Evaluating Geographic Disparities in Energy Transition Vulnerability." *Nature Energy* 3(8):621–27. doi:10.1038/s41560-018-0142-z.
- Carrere, Juli, Hugo Vásquez-Vera, Alba Pérez-Luna, Ana M. Novoa, and Carme Borrell. 2022. "Housing Insecurity and Mental Health: the Effect of Housing Tenure and the Coexistence of Life Insecurities." *Journal of urban health: Bulletin of the New York Academy of Medicine* 99(2):268–76. doi:10.1007/s11524-022-00619-5.
- Carr, James H., and Nandinee K. Kutty, editors. 2008. *Segregation: The Rising Costs for America*. New York, N.Y.: Routledge.
- Carson, J., and S. Boege. 2020. *The intersection of food availability, access, & affordability with food security and health*.
- Causa, O., N. Woloszko, and D. Leite. 2018. *Housing, wealth accumulation and wealth distribution: Evidence and stylized facts*.
- Cherp, Aleh, and Jessica Jewell. 2014. "The concept of energy security: Beyond the four As." *Energy Policy* 75:415–21. doi:10.1016/j.enpol.2014.09.005.



- Cheshire, P. 2008. "Reflections on the nature and policy implications of planning restrictions on housing supply. Discussion of 'Planning policy, planning practice, and housing supply' by Kate Barker." *Oxford Review of Economic Policy* 24(1):50–58. doi:10.1093/oxrep/grn002.
- Christophers, Brett. 2021. "A tale of two inequalities: Housing-wealth inequality and tenure inequality." *Environment and Planning A: Economy and Space* 53(3):573–94. doi:10.1177/0308518X19876946.
- Clark, William, and Frans M. Dieleman. 2012. *Households and Housing: Choice and Outcomes in the Housing Market*. New Brunswick: Transaction Publishers.
- Climate Resilient Housing. "Why Climate Resilient Housing." (<https://climateresilienthousing.org/>).
- Coulter, R., and M. Thomas. 2020. "Residential Mobility." Pp. 1–7, In *International Encyclopedia of Human Geography*, edited by A. Kobayashi. Amsterdam, Netherlands, Cambridge, MA: Elsevier.
- Crenshaw, Kimberle. 1989. "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics." *University of Chicago Legal Forum* (14):538–54.
- Desmond, Matthew, and Tracey Shollenberger. 2015. "Forced Displacement from Rental Housing: Prevalence and Neighborhood Consequences." *Demography* 52(5):1751–72. doi:10.1007/s13524-015-0419-9.
- Desmond, Matthew, and Carl Gershenson. 2016. "Housing and Employment Insecurity among the Working Poor." *Social Problems* 63(1):46–67. doi:10.1093/socpro/spv025.
- Desvallées, Lise. 2022. "Low-carbon retrofits in social housing: Energy efficiency, multidimensional energy poverty, and domestic comfort strategies in southern Europe." *Energy Research & Social Science* 85:102413. doi:10.1016/j.erss.2021.102413.
- Dewilde, Caroline, and Nora Waitkus. 2024. "Inequality and Housing.", in *Handbook of Labor, Human Resources and Population Economics*, edited by K. F. Zimmermann. Cham: Springer International Publishing; Imprint: Springer.
2023. *Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast): Directive (EU) 2023/1791* (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2023:231:FULL>).
- Dodds, Rachel, and Richard Butler. 2019. "The phenomena of overtourism: a review." *International Journal of Tourism Cities* 5(4):519–28. doi:10.1108/IJTC-06-2019-0090.
- Echeverría, Sandra, Ana V. Diez-Roux, Steven Shea, Luisa N. Borrell, and Sharon Jackson. 2008. "Associations of Neighborhood Problems and Neighborhood Social Cohesion with Mental Health and Health Behaviors: the Multi-Ethnic Study of Atherosclerosis." *Health & place* 14(4):853–65. doi:10.1016/j.healthplace.2008.01.004.
- EESC. 2024. "Social housing in the EU - decent, sustainable and affordable." (<https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/social-housing-eu-decent-sustainable-and-affordable>).
- Elliott, James R., Timothy J. Haney, and Petrice Sams-Abiodun. 2010. "Limits to Social Capital: Comparing Network Assistance in Two New Orleans Neighborhoods Devastated by Hurricane Katrina." *The Sociological quarterly* 51(4):624–48. doi:10.1111/j.1533-8525.2010.01186.x.
- EPA. 2024. "Environmental Justice." Retrieved Oct. 4th, 2024 (<https://www.epa.gov/environmentaljustice/learn-about-environmental-justice>).
- Eriksson, Birgit, and Anne M. W. Nielsen. 2022. "Changing Gellerup Park." *The Nordic Journal of Aesthetics* 31(64). doi:10.7146/nja.v31i64.134221.
- European Commission. "Energy poverty." (https://energy.ec.europa.eu/topics/markets-and-consumers/energy-consumers-and-prosumers/energy-poverty_en).



- European Commission. "Social Climate Fund." (https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/social-climate-fund_en).
- European Environmental Bureau. "Environmental Justice." (<https://eeb.org/global-and-regional-policies/environmental-justice/>).
- Ezennia, Stephen I., and Sebnem O. Hoskara. 2019. "Methodological Weaknesses in the Measurement Approaches and Concept of Housing Affordability Used in Housing Research: a Qualitative Study." *PloS one* 14(8):e0221246. doi:10.1371/journal.pone.0221246.
- Feantsa. 2023. "8th OVERVIEW OF HOUSING EXCLUSION IN EUROPE." (<https://www.feantsa.org/download/executive-summary-en3607945785998260596.pdf>).
- Fell, Michael J. 2017. "Energy services: A conceptual review." *Energy Research & Social Science* 27:129–40. doi:10.1016/j.erss.2017.02.010.
- Fernández, Alejandro, and Gojko Bežovan. 2023. "The Role of Mortgage Subsidies in the Croatian Economic Growth Strategy: a Political-Economy Approach to the SSK." *Critical Housing Analysis* 10(1):50–65. doi:10.13060/23362839.2023.10.1.553.
- Finio, Nicholas. 2022. "Measurement and Definition of Gentrification in Urban Studies and Planning." *Journal of Planning Literature* 37(2):249–64. doi:10.1177/08854122211051603.
- Forrest, Ray, and Yosuke Hirayama. 2015. "The financialisation of the social project: Embedded liberalism, neoliberalism and home ownership." *Urban Studies* 52(2):233–44. doi:10.1177/0042098014528394.
- Frediani, A. 2022. "No climate justice without housing justice." Retrieved Sep. 30th, 2024 (<https://www.iied.org/no-climate-justice-without-housing-justice>).
- Galster, George, and Kwan O. Lee. 2021. "Housing affordability: a framing, synthesis of research and policy, and future directions." *International Journal of Urban Sciences* 25(sup1):7–58. doi:10.1080/12265934.2020.1713864.
- Gibson, Marcia, Mark Petticrew, Clare Bamba, Amanda J. Sowden, Kath E. Wright, and Margaret Whitehead. 2011. "Housing and Health Inequalities: a Synthesis of Systematic Reviews of Interventions Aimed at Different Pathways Linking Housing and Health." *Health & place* 17(1):175–84. doi:10.1016/j.healthplace.2010.09.011.
- González-Eguino, Mikel. 2015. "Energy poverty: An overview." *Renewable and Sustainable Energy Reviews* 47:377–85. doi:10.1016/j.rser.2015.03.013.
- Goudge, Jane, Lucy Gilson, Steven Russell, Tebogo Gumede, and Anne Mills. 2009. "Affordability, Availability and Acceptability Barriers to Health Care for the Chronically Ill: Longitudinal Case Studies from South Africa." *BMC health services research* 9:75. doi:10.1186/1472-6963-9-75.
- Gouveia, João P., Júlia Seixas, and Gavin Long. 2018. "Mining households' energy data to disclose fuel poverty: Lessons for Southern Europe." *Journal of Cleaner Production* 178:534–50. doi:10.1016/j.jclepro.2018.01.021.
- Grant, Amber, Andrew A. Millward, Sara Edge, Lara A. Roman, and Cheryl Teelucksingh. 2022. "Where is environmental justice? A review of US urban forest management plans." *Urban Forestry & Urban Greening* 77:127737. doi:10.1016/j.ufug.2022.127737.
- Hall, Matthew, Kyle Crowder, Amy Spring, and Ryan Gabriel. 2018. "Foreclosure Migration and Neighborhood Outcomes: Moving Toward Segregation and Disadvantage." *Social science research* 70:107–14. doi:10.1016/j.ssresearch.2017.11.006.
- Hedefalk, Finn, Ingrid K. van Dijk, and Martin Dribe. 2023. "Childhood Neighborhoods and Cause-Specific Adult Mortality in Sweden 1939-2015." *Health & place* 84:103137. doi:10.1016/j.healthplace.2023.103137.

- Hedin, Karin, Eric Clark, Emma Lundholm, and Gunnar Malmberg. 2012. "Neoliberalization of Housing in Sweden: Gentrification, Filtering, and Social Polarization." *Annals of the Association of American Geographers* 102(2):443–63. doi:10.1080/00045608.2011.620508.
- Heller, Christina, Maria Haak, Steven M. Schmidt, Carlos Chiatti, Lisa Ekstam, Maria H. Nilsson, and Björn Slaug. 2024. "The Relationship Between Physical Housing Characteristics, Housing Accessibility and Different Aspects of Health Among Community-Dwelling Older People: a Systematic Review." *Journal of aging and health* 36(1-2):120–32. doi:10.1177/08982643231175367.
- Henger, Ralph, Stockhausen, and Maximilian. *Gefahr der Energiearmut wächst*. IW-Kurzbericht. 55/2022. Cologne: German Economic Institute (IW). Retrieved October 24, 2024 (<https://www.econstor.eu/bitstream/10419/261454/1/1810705347.pdf>).
- Herek, Gregory M. 2009. "Hate Crimes and Stigma-Related Experiences Among Sexual Minority Adults in the United States: Prevalence Estimates from a National Probability Sample." *Journal of interpersonal violence* 24(1):54–74. doi:10.1177/0886260508316477.
- Hernández, Diana. 2016. "Understanding 'energy Insecurity' and Why It Matters to Health." *Social science & medicine* (1982) 167:1–10. doi:10.1016/j.socscimed.2016.08.029.
- Hochstenbach, Cody, and Sako Musterd. 2018. "Gentrification and the suburbanization of poverty: changing urban geographies through boom and bust periods." *Urban Geography* 39(1):26–53. doi:10.1080/02723638.2016.1276718.
- Hochstenbach, Cody, and Rowan Arundel. 2021. "The unequal geography of declining young adult homeownership: Divides across age, class, and space." *Transactions of the Institute of British Geographers* 46(4):973–94. doi:10.1111/tran.12466.
- Hochstenbach, Cody. 2022. "Landlord Elites on the Dutch Housing Market: Private Landlordism, Class, and Social Inequality." *Economic Geography* 98(4):327–54. doi:10.1080/00130095.2022.2030703.
- Hochstenbach, Cody, and Manuel B. Aalbers. 2023. "The uncoupling of house prices and mortgage debt: towards wealth-driven housing market dynamics." *International Journal of Housing Policy* :1–29. doi:10.1080/19491247.2023.2170542.
- Hoffman, Jeremy S., Vivek Shandas, and Nicholas Pendleton. 2020. "The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas." *Climate* 8(1):12. doi:10.3390/cli8010012.
- Howden-Chapman, Philippa, Julie Bennett, Richard Edwards, David Jacobs, Kim Nathan, and David Ormandy. 2023. "Review of the Impact of Housing Quality on Inequalities in Health and Well-Being." *Annual review of public health* 44:233–54. doi:10.1146/annurev-publhealth-071521-111836.
- Immergluck, Dan, and Tharunya Balan. 2018. "Sustainable for whom? Green urban development, environmental gentrification, and the Atlanta Beltline." *Urban Geography* 39(4):546–62. doi:10.1080/02723638.2017.1360041.
- Imrie, R. 2005. *Accessible housing: quality, disability and design*: Routledge.
- IPCC. 2022. "Summary for Policymakers." Pp. 3–34, In *Climate Change 2022: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by H. O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, and B. Rama. Cambridge: Cambridge University Press. Retrieved October 22, 2024 (https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf).
- James, Laura, Lyrian Daniel, Rebecca Bentley, and Emma Baker. 2022. "Housing inequality: a systematic scoping review." *Housing Studies*.



- Jenerette, G. D., Sharon L. Harlan, William L. Stefanov, and Chris A. Martin. 2011. "Ecosystem Services and Urban Heat Riskscape Moderation: Water, Green Spaces, and Social Inequality in Phoenix, USA." *Ecological applications: a publication of the Ecological Society of America* 21(7):2637–51. doi:10.1890/10-1493.1.
- Jenkins, Kirsten, Darren McCauley, Raphael Heffron, Hannes Stephan, and Robert Rehner. 2016. "Energy justice: A conceptual review." *Energy Research & Social Science* 11:174–82. doi:10.1016/j.erss.2015.10.004.
- Jenkins, Kirsten E. H., Benjamin K. Sovacool, Niek Mouter, Nick Hacking, Mary-Kate Burns, and Darren McCauley. 2021. "The methodologies, geographies, and technologies of energy justice: a systematic and comprehensive review." *Environmental Research Letters* 16(4):43009. doi:10.1088/1748-9326/abd78c.
- Jepsen, Christopher, and Lisa Jepsen. 2024. "U.S. Housing Outcomes by Race, Ethnicity, and Sexual Orientation, 2005–2021." *Review of Economics of the Household*. doi:10.1007/s11150-024-09722-9.
- Ji, Qunfeng, Mengya Yin, Yixuan Li, and Xilin Zhou. 2023. "Exploring the influence path of high-rise residential environment on the mental health of the elderly." *Sustainable Cities and Society* 98:104808. doi:10.1016/j.scs.2023.104808.
- Kastner, Ingo, and Paul C. Stern. 2015. "Examining the decision-making processes behind household energy investments: A review." *Energy Research & Social Science* 10:72–89. doi:10.1016/j.erss.2015.07.008.
- Kattenberg, Mark A. C., and Wolter H. J. Hassink. 2017. "Who Moves Out of Social Housing? The Effect of Rent Control on Housing Tenure Choice." *De Economist* 165(1):43–66. doi:10.1007/s10645-016-9286-z.
- Kholodilin, Konstantin A., and Sebastian Kohl. 2023. "Rent price control – yet another great equalizer of economic inequalities? Evidence from a century of historical data." *Journal of European Social Policy* 33(2):169–84. doi:10.1177/09589287221150179.
- Koks, E. E., B. Jongman, T. G. Husby, and W.J.W. Botzen. 2015. "Combining hazard, exposure and social vulnerability to provide lessons for flood risk management." *Environmental Science & Policy* 47:42–52. doi:10.1016/j.envsci.2014.10.013.
- Krivo, Lauren J., Ruth D. Peterson, and Danielle C. Kuhl. 2009. "Segregation, Racial Structure, and Neighborhood Violent Crime." *AJS; American journal of sociology* 114(6):1765–802. doi:10.1086/597285.
- Lakhani, Ali, Heidi Zeeman, Courtney J. Wright, David P. Watling, Dianne Smith, and Rafikul Islam. 2020. "Stakeholder priorities for inclusive accessible housing: A systematic review and multicriteria decision analysis." *Journal of Multi-Criteria Decision Analysis* 27(1-2):5–19. doi:10.1002/mcda.1689.
- Lee, Chien-Chiang, and Zihao Yuan. 2024. "Impact of energy poverty on public health: A non-linear study from an international perspective." *World Development* 174:106444. doi:10.1016/j.worlddev.2023.106444.
- Lee, Joohee, and John Byrne. 2019. "Expanding the Conceptual and Analytical Basis of Energy Justice: Beyond the Three-Tenet Framework." *Frontiers in Energy Research* 7. doi:10.3389/fenrg.2019.00099.
- Lee, Yeonhwa, Peter A. Kemp, and Vincent J. Reina. 2022. "Drivers of housing (un)affordability in the advanced economies: a review and new evidence." *Housing Studies* 37(10):1739–52. doi:10.1080/02673037.2022.2123623.
- Li, Ling-Hin, Siu K. K. Wong, and Ka S. Cheung. 2016. "Land supply and housing prices in Hong Kong: The political economy of urban land policy." *Environment and Planning C: Government and Policy* 34(5):981–98. doi:10.1177/0263774X15614699.



- Lindsay, Sally, Kristina Fuentes, Sharmigaa Ragunathan, Yiyang Li, and Timothy Ross. 2024. "Accessible Independent Housing for People with Disabilities: a Scoping Review of Promising Practices, Policies and Interventions." *PLoS one* 19(1):e0291228. doi:10.1371/journal.pone.0291228.
- Lux, M., P. Sunega, and T. Katrnak. 2013. "Classes and Castles: Impact of Social Stratification on Housing Inequality in Post-Socialist States." *European Sociological Review* 29(2):274–88. doi:10.1093/esr/jcro60.
- Lux, Martin, Petr Sunega, and Ladislav Kázmér. 2021a. "Intergenerational financial transfers and indirect reciprocity: determinants of the reproduction of homeownership in the post-socialist Czech Republic." *Housing Studies* 36(8):1294–317. doi:10.1080/02673037.2018.1541441.
- Lux, Martin, Petr Sunega, and Ladislav Kázmér. 2021b. "Simulating trends in housing wealth inequality in post-socialist Czech society." *Housing Studies* 36(6):885–905. doi:10.1080/02673037.2020.1729961.
- Lux, Martin, and Petr Sunega. 2023. "Housing wealth inequality, intergenerational transfers and young households in the super-homeownership system." *International Journal of Housing Policy* :1–23. doi:10.1080/19491247.2023.2269618.
- Marshall, Andrew T., Shana Adise, Carlos Cardenas-Iniguez, Ogechi K. Hippolyte, Camille A. Parchment, Tanya I. Villalobos, Lawrence T. Wong, Cynthia P. Cisneros, Eric C. Kan, Clare E. Palmer, Stefanie C. Bodison, Megan M. Herting, and Elizabeth R. Sowell. 2023. "Family- and Neighborhood-Level Environmental Associations with Physical Health Conditions in 9- and 10-Year-Olds." *Health psychology: official journal of the Division of Health Psychology, American Psychological Association* 42(12):878–88. doi:10.1037/hea0001254.
- Mattioli, Giulio, Zia Wadud, and Karen Lucas. 2018. "Vulnerability to fuel price increases in the UK: A household level analysis." *Transportation Research Part A: Policy and Practice* 113:227–42. doi:10.1016/j.tra.2018.04.002.
- McConnell, Elizabeth A., Patrick Janulis, Gregory Phillips, Roky Truong, and Michelle Birkett. 2018. "Multiple Minority Stress and LGBT Community Resilience Among Sexual Minority Men." *Psychology of sexual orientation and gender diversity* 5(1):1–12. doi:10.1037/sgd0000265.
- Mendes de Leon, Carlos F., Kathleen A. Cagney, Julia L. Bienias, Lisa L. Barnes, Kimberly A. Skarupski, Paul A. Scherr, and Denis A. Evans. 2009. "Neighborhood Social Cohesion and Disorder in Relation to Walking in Community-Dwelling Older Adults: a Multilevel Analysis." *Journal of aging and health* 21(1):155–71. doi:10.1177/0898264308328650.
- Miteniece, Elina, Milena Pavlova, Bernd Rechel, and Wim Groot. 2017. "Barriers to Accessing Adequate Maternal Care in Central and Eastern European Countries: a Systematic Literature Review." *Social science & medicine (1982)* 177:1–8. doi:10.1016/j.socscimed.2017.01.049.
- Moghayedi, Alireza, Bankole Awuzie, Temitope Omotayo, Karen Le Jeune, Mark Massyn, Christiana O. Ekpo, Manfred Braune, and Paimaan Byron. 2021. "A Critical Success Factor Framework for Implementing Sustainable Innovative and Affordable Housing: A Systematic Review and Bibliometric Analysis." *Buildings* 11(8):317. doi:10.3390/buildings11080317.
- Myers, Candice A., Tim Slack, and Joachim Singelmann. 2008. "Social vulnerability and migration in the wake of disaster: the case of Hurricanes Katrina and Rita." *Population and Environment* 29(6):271–91. doi:10.1007/s11111-008-0072-y.
- Nasrabadi, Tayefi M., Taimaz Larimian, Andrew Timmis, and Tan Yigitcanlar. 2024. *Mapping four decades of housing inequality research: Trends, insights, knowledge gaps, and research directions*. Vol. 113.
- Ocejo, Richard E. 2011. "The Early Gentrifier: Weaving a Nostalgia Narrative on the Lower East Side." *City & Community* 10(3):285–310. doi:10.1111/j.1540-6040.2011.01372.x.



- Oriye, Olusegun, Oluranti Owoeye, and Innocent I. Weje. 2012. "Gender equality in housing delivery - A panacea to adequate housing supply in Nigeria." *Mediterranean Journal of Social Sciences* 22(2):437–45. doi:10.5901/mjss.2012.v3n11p437.
- Osberghaus, Daniel, and Victoria Hünewaldt. 2023. "Neighborhood effects in climate change adaptation behavior: empirical evidence from Germany." *Regional Environmental Change* 23(3). doi:10.1007/s10113-023-02083-6.
- Paccoud, Antoine. 2020. "The top tail of the property wealth distribution and the production of the residential environment." *International Journal of Housing Policy* 20(1):100–19. doi:10.1080/19491247.2019.1658562.
- Paccoud, Antoine, Markus Hesse, Tom Becker, and Magdalena Górczyńska. 2022. "Land and the housing affordability crisis: landowner and developer strategies in Luxembourg's facilitative planning context." *Housing Studies* 37(10):1782–99. doi:10.1080/02673037.2021.1950647.
- Penchansky, Roy, and J. W. Thomas. 1981. "The Concept of Access: Definition and Relationship to Consumer Satisfaction." *Medical Care* 19(2):127. doi:aspx.
- Platten, Jenny von, Mikael Mangold, and Kristina Mjörnell. 2020. "A matter of metrics? How analysing per capita energy use changes the face of energy efficient housing in Sweden and reveals injustices in the energy transition." *Energy Research & Social Science* 70:101807. doi:10.1016/j.erss.2020.101807.
- Quigley, John M., and Steven Raphael. 2004. "Is Housing Unaffordable? Why Isn't It More Affordable?" *Journal of Economic Perspectives* 18(1):191–214. doi:10.1257/089533004773563494.
- Quinn, Katherine, Julia Dickson-Gomez, Timothy McAuliffe, and Jill Owczarzak. 2014. "EXPLORING MULTIPLE LEVELS of ACCESS to RENTAL SUBSIDIES and SUPPORTIVE HOUSING." *Housing Policy Debate* 24(2):467–84. doi:10.1080/10511482.2013.875052.
- Rabe, Birgitta, and Mark Taylor. 2010. "Residential Mobility, Quality of Neighbourhood and Life Course Events." *Journal of the Royal Statistical Society Series A: Statistics in Society* 173(3):531–55. doi:10.1111/j.1467-985X.2009.00626.x.
- Rana, Kritika, Andrew Page, Jennifer L. Kent, and Amit Arora. 2022. "Pathways Linking Housing Inequalities and Health Outcomes Among Migrant and Refugee Populations in High-Income Countries: a Protocol for a Mixed-Methods Systematic Review." *International journal of environmental research and public health* 19(24). doi:10.3390/ijerph192416627.
- Ranganathan, Malini. 2016. "Thinking with Flint: Racial Liberalism and the Roots of an American Water Tragedy." *Capitalism Nature Socialism* 27(3):17–33. doi:10.1080/10455752.2016.1206583.
- Rosen, Eva, Philip M. E. Garboden, and Jennifer E. Cossyleon. 2021. "Racial Discrimination in Housing: How Landlords Use Algorithms and Home Visits to Screen Tenants." *American Sociological Review* 86(5):787–822. doi:10.1177/00031224211029618.
- Roy, Sanghamitra, Ajay Bailey, and Femke van Noorloos. 2024. "Understanding the barriers affecting women's mobility in the first- and last-mile stretches in low- and middle-income countries: A systematic review." *Journal of Transport Geography* 121:104036. doi:10.1016/j.jtrangeo.2024.104036.
- Sabater, Albert, and Nissa Finney. 2022. "Age segregation and housing unaffordability: Generational divides in housing opportunities and spatial polarisation in England and Wales." *Urban Studies* 004209802211210. doi:10.1177/00420980221121088.
- Sampson, Robert J. 2008. "Moving to Inequality: Neighborhood Effects and Experiments Meet Structure." *AJS; American journal of sociology* 114(11):189–231. doi:10.1086/589843.
- Samuelson, Holly, Amir Baniassadi, Anne Lin, Pablo Izaga González, Thomas Brawley, and Tushar Narula. 2020. "Housing as a Critical Determinant of Heat Vulnerability and Health." *The Science of the total environment* 720:137296. doi:10.1016/j.scitotenv.2020.137296.



- Sansom, Garrett, Philip Berke, Thomas McDonald, Eva Shipp, and Jennifer Horney. 2016. "Confirming the Environmental Concerns of Community Members Utilizing Participatory-Based Research in the Houston Neighborhood of Manchester." *International journal of environmental research and public health* 13(9). doi:10.3390/ijerph13090839.
- Schlosberg, David. 2007. *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford: Oxford University Press Incorporated.
- Serrano-Jiménez, Antonio, Begoña Blandón-González, and Ángela Barrios-Padura. 2022. "Towards a built environment without physical barriers: An accessibility assessment procedure and action protocol for social housing occupied by the elderly." *Sustainable Cities and Society* 76:103456. doi:10.1016/j.scs.2021.103456.
- Shaw, Kate S., and Iris W. Hagemans. 2015. "'Gentrification Without Displacement' and the Consequent Loss of Place: The Effects of Class Transition on Low-income Residents of Secure Housing in Gentrifying Areas." *International Journal of Urban and Regional Research* 39(2):323–41. doi:10.1111/1468-2427.12164.
- Sherriff, Graeme, Danielle Butler, and Philip Brown. 2022. "'The reduction of fuel poverty may be lost in the rush to decarbonise': Six research risks at the intersection of fuel poverty, climate change and decarbonisation." *People, Place and Policy Online* 16(1):116–35. doi:10.3351/ppp.2022.3776894798.
- Singh, Sanjeet, and Jayaram Ru. 2022. "Accessibility, Affordability, and Efficiency of Clean Energy: a Review and Research Agenda." *Environmental science and pollution research international* 29(13):18333–47. doi:10.1007/s11356-022-18565-9.
- Soaita, Adriana M. 2014. "Overcrowding and 'Underoccupancy' in Romania: A Case Study of Housing Inequality." *Environment and Planning A: Economy and Space* 46(1):203–21. doi:10.1068/a45718.
- Sovacool, Benjamin K., Shannon E. Bell, Cara Daggett, Christine Labuski, Myles Lennon, Lindsay Naylor, Julie Klinger, Kelsey Leonard, and Jeremy Firestone. 2023. "Pluralizing energy justice: Incorporating feminist, anti-racist, Indigenous, and postcolonial perspectives." *Energy Research & Social Science* 97:102996. doi:10.1016/j.erss.2023.102996.
- Stephens, Mark, Martin Lux, and Petr Sunega. 2015. "Post-Socialist Housing Systems in Europe: Housing Welfare Regimes by Default?" *Housing Studies* 30(8):1210–34. doi:10.1080/02673037.2015.1013090.
- Sunega, Petr, and Martin Lux. 2016. "Subjective perception versus objective indicators of overcrowding and housing affordability." *Journal of Housing and the Built Environment* 31(4):695–717. doi:10.1007/s10901-016-9496-3.
- Sunikka-Blank, Minna, and Ray Galvin. 2022. "Single parents in cold homes in Europe: How intersecting personal and national characteristics drive up the number of these vulnerable households." *Energy Policy*.
- Teernstra, Annalies. 2015. "Contextualizing state-led gentrification: goals of governing actors in generating neighbourhood upgrading." *Environment and Planning A: Economy and Space* 47(7):1460–79. doi:10.1177/0308518X15595760.
- Telfar Barnard, Lucy, Philippa Howden-Chapman, and Nevil Pierse. 2020. "Renting Poorer Housing: Ecological Relationships Between Tenure, Dwelling Condition, and Income and Housing-Sensitive Hospitalizations in a Developed Country." *Health education & behavior: the official publication of the Society for Public Health Education* 47(6):816–24. doi:10.1177/1090198120945923.
- Teschner, Naama, Anca Sinea, Andreea Vornicu, Tareq Abu-Hamed, and Maya Negev. 2020. "Extreme energy poverty in the urban peripheries of Romania and Israel: Policy, planning and infrastructure." *Energy Research & Social Science* 66:101502. doi:10.1016/j.erss.2020.101502.

- Thiede, Michael, Patricia Akweongo, and Di McIntyre. 2007. "Exploring the dimensions of access.", in *The economics of health equity*, edited by G. M. McIntyre. Cambridge: Cambridge University Press.
- UN Habitat. "Climate Change." Retrieved Oct. 12th, 2024 (<https://unhabitat.org/topic/climate-change>).
- UN-HABITAT. 2014. *The Right to Adequate Housing: Fact Sheet No. 21*. Human Rights Fact Sheets. Geneva, Switzerland.
- Veldboer, Lex, and Reinout Kleinhans. 2013. "Smooth Cohabitation in Amsterdam? The Impact of Increased Tenure Mix on Overall Neighborhood Confidence." *Geography Research Forum* 33 (<https://grf.bgu.ac.il/index.php/GRF/article/view/409>).
- Wachs, Martin, and T. Gordon Kumagai. 1973. "Physical accessibility as a social indicator." *Socio-Economic Planning Sciences* 7(5):437–56. doi:10.1016/0038-0121(73)90041-4.
- Waintrub, Natan, Margarita Greene, and Juan d. D. Ortúzar. 2016. "Designing incentive packages for increased density and social inclusion in the neighbourhood of mass transit stations." *Habitat International* 55:133–47. doi:10.1016/j.habitatint.2016.03.006.
- Waite, Linda J. 2018. "Social Well-Being and Health in the Older Population: Moving Beyond Social Relationships.", in *Future Directions for the Demography of Aging: Proceedings of a Workshop*, edited by M. D. Hayward and M. K. Majmundar: National Academies Press (US) (<https://www.ncbi.nlm.nih.gov/books/NBK513086/>).
- Watt, Paul. 2013. "'It's not for us'." *City* 17(1):99–118. doi:10.1080/13604813.2012.754190.
- Wetzstein, Steffen. 2017. "The global urban housing affordability crisis." *Urban Studies* 54(14):3159–77. doi:10.1177/0042098017711649.
- Wolch, Jennifer R., Jason Byrne, and Joshua P. Newell. 2014. "Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'." *Landscape and Urban Planning* 125:234–44. doi:10.1016/j.landurbplan.2014.01.017.
- World Health Organization. 2021. *Health Promotion Glossary of Terms 2021*. 1st ed. Geneva (<https://ebookcentral.proquest.com/lib/kxp/detail.action?docID=30477844>).
- Yang, Linchuan, K. W. Chau, W. Y. Szeto, Xu Cui, and Xu Wang. 2020. "Accessibility to transit, by transit, and property prices: Spatially varying relationships." *Transportation Research Part D: Transport and Environment* 85:102387. doi:10.1016/j.trd.2020.102387.
- York Cornwell, Erin, and Matthew Hall. 2017. "Neighborhood Problems across the Rural-Urban Continuum: Geographic Trends and Racial and Ethnic Disparities." *The Annals of the American Academy of Political and Social Science* 672(1):238–56. doi:10.1177/0002716217713171.

