



# Inequality in housing affordability in three major Polish cities in the 21st century

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This research was prepared within the European project **ReHousIn: Contextualized pathways to reduce housing inequalities in the green and digital transition**  
Grant Agreement No. 101132540



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## Introduction



- **Housing-related inequalities** have become one of the central concerns in both academic research and public debate, particularly in the context of growing urbanization and post-crisis economic restructuring.
- This study focuses on **housing affordability**, defined as households' ability to access decent housing without experiencing excessive financial hardship. Unlike other dimensions of housing inequality (e.g., overcrowding or amenities), affordability is shaped by complex and interrelated **economic, social, political, and demographic factors**.
- In many European cities, **housing costs have increased more rapidly than incomes**, deepening affordability challenges for both low- and middle-income groups. These challenges became more acute after the **2008 Global Financial Crisis** and were further exacerbated by the **COVID-19 pandemic**.
- Despite the growing interest in the global housing affordability crisis, Central and Eastern Europe (CEE) remains understudied, particularly at the city level. While some research has been conducted at the national scale, there is still a lack of in-depth, city-level analyses that would capture the diversity of local housing market dynamics and affordability challenges.

# Introduction



This research addresses that gap by analyzing long-term patterns of inequality in housing affordability in **three major Polish cities: Łódź, Kraków, and Warsaw**, each representing a distinct trajectory of post-socialist urban and economic development



## Research Questions & Aim



**The aim of this paper is to answer the following research questions:**

- 1) What is the relationship between individuals' and households' characteristics and the inequality in housing burden distribution in Łódź, Cracow, and Warsaw?
- 2) Is this relationship stable over time and sensitive to the demographic and economic context of the case cities?

# Methodological Approach



## Data:

Household Budget Surveys (HBS) 2006-2023 by the Central Statistical Office of Poland

## Samples:

	2006-2007	2016-2017	2022-2023
Warsaw	3375	3619	2453
Cracow	1360	1511	1317
Łódź	1496	1401	1287

## Methods:

- Gini coefficient of the ratio of household disposable income to housing expenditure
- ‘a priori’ decomposition approach together with a regression-based decomposition approach (an explanatory model)

## Methodological Approach

### Expenditures-to-Income ratio



- Classified as normative method
- Originally proposed by Hulchanski (1995)
- This method defines affordability in terms of the share of household income spent on housing costs, typically setting a threshold (e.g., 25% or 30%) beyond which housing is considered unaffordable
- Easy to calculate and widely used (generally at the national level)
- Criticized for overlooking differences in household needs, regional housing market conditions, and the trade-offs households make between housing quality, size, and location

# Key findings (1)

## Housing affordability patterns



### General trends:

- Average housing cost burden decreased in all three cities
- Despite this, inequality in affordability increased – some groups benefit more than others
- Differences between cities in average burden are minor, suggesting national-level drivers (e.g. inflation, utility costs, mortgage rates)

### Income and Tenure Patterns:

Highest burden: private renters and owners with mortgage

Lowest burden: outright owners and cooperative housing residents

The increase in housing affordability was more significant for the higher income groups.

### Housing burden and its distribution across selected population subgroups

	Cracow			Lodz			Warsaw		
	2006/07	2016/17	2022/23	2006/07	2016/17	2022/23	2006/07	2016/17	2022/23
Mean housing burden by tenure type									
Ownership with mortgage	23.64	29.28	26.52	27.88	27.69	22.14	23.44	27.64	24.05
Ownership outright	18.58	17.06	13.28	19.98	16.8	13.68	17.93	15.94	14.48
Cooperative	19.59	18.51	16.2	19.86	16.73	14.79	18.95	17.37	16.26
Private rental	30.54	34.85	29.93	26.95	27.8	22.9	28.54	29.29	27.26
Public rental	24.01	20.29	21.44	23.62	21.72	18.88	22.96	19.56	17.87
Mean housing burden by Income quintiles									
1st	32.61	31.42	26.2	29.16	26.76	25.21	29.18	27.3	29.05
2nd	25.12	25.42	19.96	23.64	21.76	17.06	22.23	21.91	20.47
3rd	21.08	19.41	17.11	20.51	18.6	14.83	19.05	19.45	15.69
4th	18.13	16.93	13.62	17.49	16.62	13.21	15.29	17.09	14.1
5th	13.48	15.67	11.87	14.17	14.41	12.69	12.06	15.93	11.72
Mean housing burden (total)	22.87	21.74	16.92	21.57	19.42	16.23	20.16	20.23	17.06
GINI (disposable income)	34.58	33.47	35.24	35.1	33.4	32.66	40.54	36.11	38.54
GINI (housing burden)	31.6	33.2	35.6	31.6	32.6	34.9	34.9	33.6	37.1



## Key findings (2)

### 'A priori' inequality decomposition



#### Decomposition by Tenure status:

- Growing between-group inequality (especially Warsaw & Kraków)
- Increasing segmentation – housing burden increasingly defined by tenure status
- Overlap component decreased, suggesting clearer divides between tenure types

#### Decomposition by Income quintile:

- Between-group inequality declined temporarily (2006–2016), then increased again
- More within-group variation over time, meaning more disparity even among similar income households

Subgroup housing burden inequality decomposition by tenure status and by income quintiles

	Cracow			Lodz			Warsaw		
	2006/07	2016/17	2022/23	2006/07	2016/17	2022/23	2006/07	2016/17	2022/23
Tenure status									
within	0.082	0.117	0.113	0.092	0.095	0.091	0.102	0.076	0.094
between	0.096	0.147	0.180	0.054	0.095	0.111	0.070	0.132	0.144
overlap	0.140	0.068	0.063	0.171	0.137	0.148	0.178	0.128	0.132
Income quintiles									
within	0.052	0.059	0.063	0.054	0.060	0.062	0.060	0.063	0.064
between	0.176	0.145	0.150	0.153	0.123	0.127	0.165	0.113	0.175
overlap	0.090	0.128	0.144	0.108	0.146	0.160	0.124	0.160	0.126

- **Income and tenure are the strongest predictors of inequality in affordability**
- **After 2016, the influence of income increased significantly**

## Key findings (3)

### Regression Insights



#### **Income and housing tenure are the two most important factors explaining housing inequality**

- Their impact was significant in all cities
- Both variables had a positive impact on the level of inequality

#### **The impact of income on housing inequality increased significantly after 2016**

- The largest increase in this impact was observed in Kraków and Warsaw - the so-called "booming cities"
- This confirms Glaeser's hypothesis (2011) that housing inequality is stronger where housing markets are the most dynamic

#### **The greatest differences in housing affordability occurred between the lowest and the highest income quintile**

- Despite the general increase in income in Poland, the housing situation of people with the lowest income did not improve significantly
- Inequality deepened, especially to the detriment of the lower income groups

#### **The impact of housing tenure also increased, regardless of income**

Even with a similar level of income, owners without a mortgage had significantly lower housing burdens than people with a mortgage or private rentals

#### **Other characteristics – such as age, level of education or type of household – had a small impact**

Their effects were marginal and inconsistent between cities

## Conlusions (1)



- **Housing affordability has improved overall, but inequality has increased, especially since 2016**

While the average housing cost burden has fallen in all three cities, this improvement has not been shared equally. The reduction in the burden has been much stronger for middle- and high-income households, while lower-income groups have seen limited or no gains.

- **The highest income groups have benefited the most from the reduction in the housing cost burden; for the lowest-income households, the burden has remained high or even increased**

For example, in Warsaw, the highest income quintile has seen a significant decline in the housing cost index, while the poorest households have seen little improvement in housing affordability. This suggests that market and income dynamics have disproportionately benefited wealthier groups.

- **Tenure has become a stronger factor explaining differences in housing affordability**

Direct homeowners have consistently had the lowest housing cost burden, regardless of city or income. In contrast, households with mortgages or living in private rented accommodation faced increasing cost pressures, even after taking into account income levels.

## Conclusions (2)



- **The gap between income groups and types of housing tenure widened, particularly in Warsaw and Krakow**

The housing affordability divide widened not only between rich and poor, but also between different types of housing tenure. This trend suggests a growing segmentation of urban populations along both economic and housing market lines.

- **COVID-19 has exacerbated existing disparities, contributing to rising inequality**

From 2016/17 to 2022/23, housing affordability inequality increased, particularly as high-income groups recovered more quickly from the economic impact of the pandemic. The housing cost burden on low-income households remained persistently high, exacerbating existing disadvantages.

- **Polish cities now reflect Western European patterns of housing stratification, with housing affordability being shaped primarily by income and tenure status**

Thirty years after the transition from socialism, the factors determining the availability of housing at the household level in Poland resemble those in mature capitalist economies. Income and ownership have become the main axes of inequality in access to housing, which indicates a convergence of housing market dynamics in cities.



**Thank you for your attention!**

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