

Introduction to Housing inequalities: consumption, investment and location

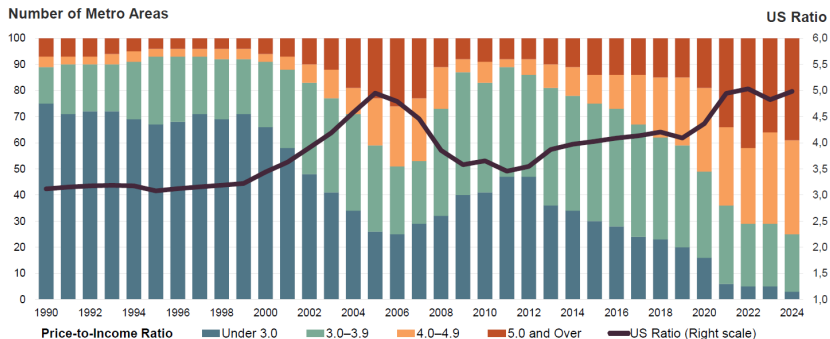
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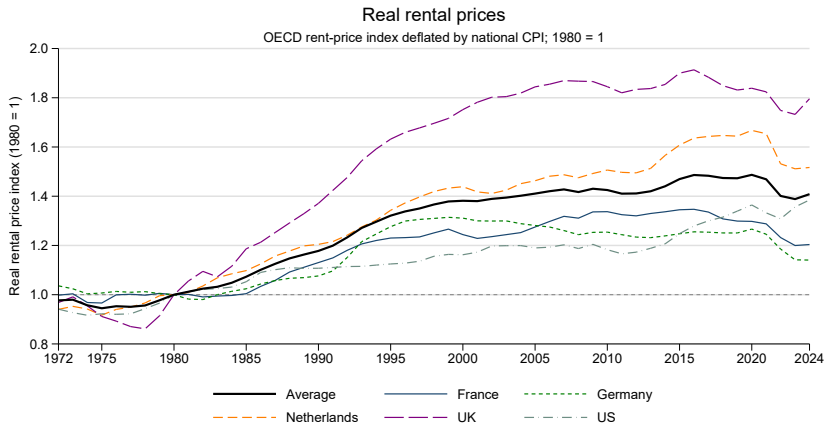
Bari Summer School; June, 2026

The Affordability Crisis: House Prices vs. Incomes



Notes: Price-to-income ratios for the 100 largest US metro areas. US Ratio on right axis.
Source: JCHS tabulations of NAR, Metropolitan Median Area Prices; Moody's Analytics estimates (2025).

Real Rents Have Risen in Advanced Economies



Average is the unweighted mean of France, Germany, Netherlands, UK and US.

Notes: Real rental price index in France, Germany, Netherlands, UK and the US, 1980 = 1. Values deflated by CPI. Source: OECD (2020).

The Burden Falls on the Poor. Some Numbers:

- In 2023, half of all US renters (22.6 million) spent more than 30% of income on housing — a record for the third consecutive year (Harvard JCHS, 2025)
- Among renters earning below \$30k/year: 83% cost-burdened ($>30\%$ of gross income), 67% severely so ($>50\%$) — leaving \$250/month (per capita) for everything else
- In most OECD countries, over 40% of low-income mortgagors spent more than 40% of disposable income on mortgage payments in 2022 (OECD, 2024)

Housing Takes a Large and Unequal Share of Budgets

- Around 25–35% of total household spending — the largest single item, specially at the bottom
- Housing crowds out other consumption and savings: the residual after rent is what households actually live on
- Dustmann et al. (2022), Bauluz et al (2026): in the past 4 decades, housing shares rose sharply at the bottom of the distribution. Main driver: prices, not quantity (sqm, rooms).
- Housing quality determines living conditions, like thermal comfort, structural safety...

Housing Is Not Like Other Goods

We follow Ioannides & Ngai (2025)

- **Consumption good:** durable, immovable, heterogeneous; hard to substitute.
- **Investment good:** primary household asset and important vehicle for intergenerational wealth transmission; renters are excluded.
- **Location good:** dwelling comes bundled with a neighborhood: jobs, schools, social networks, amenities...

These dimensions are inseparable in the primary residence, and each connects to inequality differently -but they are quite connected!.

Housing Demand: Key Determinants

- **Income** — more income $\Rightarrow$ more housing, but less than proportionally: housing is a necessity
- **Price** — higher rents $\Rightarrow$ lower quantity demanded
- **Demographics** — household formation, immigration,...
- **Credit** — mortgage access, down-payment constraints
- **Asset returns** — expected capital gains amplify demand at the top

	Range
Income elasticity	0.5/0.8
Own-price elasticity	-0.3/ -0.8

Sources: Albouy et al. (2016); Finlay & Williams (2025); Mayo (1981)

- ▷ Income elasticity < 1 : poorer households spend a larger share of income on housing — the engine of Part 2

Housing Supply: Why It Cannot Adjust Freely

- **Geography** — developable land near productive cities is scarce (Saiz, 2010)
 - **Regulation** — zoning, height limits, permitting (Gyourko et al., 2008)
 - **Durability** — stock adjusts slowly; new builds are a small fraction of total
- ▷ Where supply is inelastic, demand shocks become price shocks

City type	Elasticity
Flat, unregulated	$\approx 3-5$
Average US MSA	≈ 1.75
Constrained (SF, NYC, Boston)	< 1

Source: Saiz (2010); Aastveit et al. (2020)

Scope of This Lecture

What we cover:

- Housing as consumption, investment, and location — demand side
- How each dimension connects to income, consumption and wealth inequalities

What we leave out (*intentionally*):

- Supply side: constraints are real, but taken as given here
 - Housing policy: rent regulation, vouchers, social housing
 - Housing extreme poverty and homelessness: focus is on the intensive margin
- ▷ Each of these deserves its own lecture

① Introduction

② Consumption

Housing shares, income elasticity, nonhomotheticity

③ Investment

Homeownership, wealth portfolios, intergenerational transmission

④ Location

Sorting, neighborhood effects, spatial inequality

⑤ Conclusions

Housing as a Consumption Good: The Budget Identity

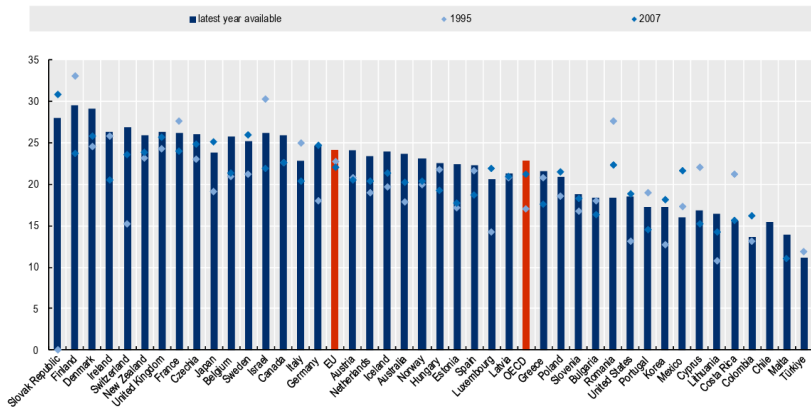
$$Y = H + C + S \quad \Rightarrow \quad 1 = \frac{H}{Y} + \frac{C}{Y} + \frac{S}{Y}$$

- H/Y : housing expenditure share C/Y : non-housing consumption share S/Y : saving share
- When housing prices rise, households adjust:
 - cut non-housing consumption,
 - reduce saving, or
 - accept lower housing quality/quantity
- Since housing is a necessity, the adjustment falls disproportionately on low-income households

What We Mean by Housing Expenses/Costs

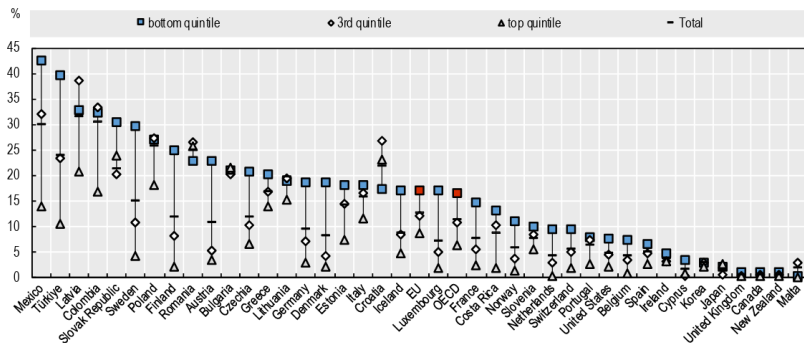
- Renters: rent + energy + utilities + other
- Outright owners: energy + utilities + other (+ imputed rents)
 - Imputed rents are the market-equivalent rent for their dwelling. Without imputed rents, we would undercount housing consumption for this group
 - Imputed rents are not observed directly: either self-reported (noisy) or estimated from hedonic regressions on the rental market. This matters for cross-country comparisons, where imputation methods differ
- Mortgagors: energy + utilities + other + interest payments (+ imputed rents)
 - Principal repayment is saving, accumulating as wealth

Rising Housing Costs



Source: OECD Affordable Housing Database (2025), Figure HC1.1.2. Housing, water, electricity, gas and other fuels, % of final consumption expenditure of households, 1995, 2007, 2024 or last year available.

Overcrowding Is Concentrated at the Bottom



Source: OECD Affordable Housing Database (2025), Figure HC2.1.3. A household is overcrowded if it has fewer rooms than required based on household size, age, sex, and partnership composition.

A Simple Framework: Dustmann, et al (2022)

Stone–Geary preferences with housing as a necessity:

$$u(h, x) = (h - \bar{h})^a x^{1-a}$$

$$p_h h + x = y$$

- h : housing consumption
- x : non-housing consumption
- y : income
- p_h : housing price
- $\bar{h}$: subsistence (minimum) housing requirement
- a : preference weight on housing

There are no savings in the model, but still fits purpose. You could try...

Housing as a Necessity

Solving the Stone–Geary model:

$$s_h = a + (1 - a) \frac{p_h \bar{h}}{y}$$

- Every household must consume at least $\bar{h}$ units of housing
- The cost of this minimum housing bundle is $p_h \bar{h}$
- This fixed cost absorbs a larger fraction of income when income is low

Implications:

- Housing expenditure shares are higher for poorer households
- A rise in housing prices increases shares more at the bottom than at the top
- Rising housing costs increase inequality in income after housing

For some time the literature said the opposite...

Davis & Ortalo-Magné (2011): median housing shares roughly constant across US MSAs motivated Cobb-Douglas as the default in macro-housing models. Aguiar & Bils (2015) reinforced this with a household-level income elasticity of ≈ 0.92 .

Both results are driven by the same identification problem:

- Rich households live in expensive neighborhoods; poor households in cheap ones
- The income gradient in housing shares partly reflects price differences across locations
- Across cities, higher income and higher prices move together and offset each other, making shares look flat

Once we control for "location", the income gradient is negative.

... but now we get it right: Housing is a necessity

Albouy et al. (2016) and more recently Finlay & Williams (2022, 2025) address identification properly:

- Instrument for expenditure and control for local prices separately
- Use renter microdata; exploit within-household variation over time
- Finlay & Williams estimate ε from the log housing share regression: a negative coefficient on log expenditure means the share falls as total spending rises

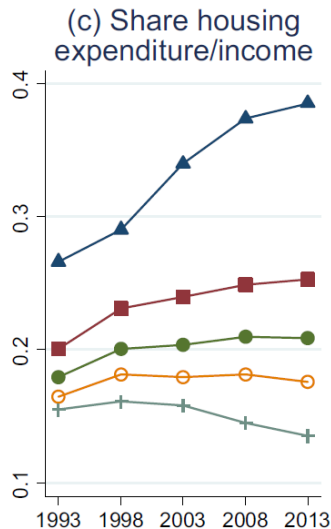
Paper	Income elasticity	Price elasticity
Aguiar & Bils (2015)	≈ 0.92	
Albouy et al. (2016)	0.47–0.70	$(-0.47)-(-0.78)$
Finlay & Williams (2025)	-0.25 to -0.31	0.46–0.52

Finlay & Williams preferred estimate: $\varepsilon \approx -0.31$.

ε should be < 0 or < 1 , depending on the specification, like including $\log(\text{housing})$ or $\log(\text{housing share})$.

Rising Prices Widen the Housing Share Gap

- Dustmann et al. (2022), Germany 1993–2013: housing share rose by 11.9 p.p. for Q1, fell by 2 p.p. for Q5
- Driven mainly by rising real rents for low-income renters, while high-income owners benefited from falling mortgage rates
- Monras & Stuart (2025): bottom-quintile renters spend 24–40% of income on housing; top quintile spends 13–21%



Source: Dustmann et al. (2022), Figure 4c

Households Reallocate Within What Remains.

- Less spending on health, education, and child investments (Gabriel & Painter, 2019)
- High rents prevent younger households from saving for a downpayment, delaying homeownership (Ioannides & Ngai, 2025)
- Rent-burdened households accept lower quality: overcrowding, worse neighbourhoods, damp and poor heating (OECD, 2020). Chetty & Hendren (2018): early childhood in low-opportunity neighbourhoods has permanent effects on adult earnings
- Housing consumption inequality feeds intergenerational inequality through channels that standard budget surveys do not capture

The Consumption Squeeze Also Widens the Saving Gap

Bauluz, Novokmet & Salas-Rajo (2026), five countries since the 1980s:

- Rising housing unit values, not quantities, explain most of the increase in housing shares
- Higher shares are absorbed mainly by lower saving, not lower non-housing consumption
- If only unit values had changed, the Q5–Q1 saving gap would have widened by ≈ 6 p.p. (from 23 to 29 p.p.)

Lower saving at the bottom means less wealth accumulation over the life cycle. Meanwhile, rising prices inflate the wealth of those who already own.

Now we look at the second side: **housing as an asset**, homeownership rates, and what rising prices mean for wealth inequality.

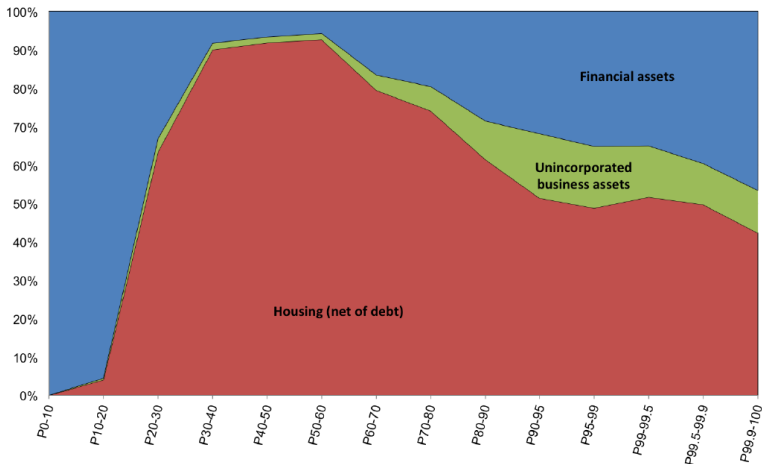
Housing Is a Different Kind of Asset

Housing shares three properties that no other major asset combines:

- It is indivisible: you cannot sell 10% of your house to smooth a bad income shock
- It is simultaneously consumed and held as wealth: the same unit provides shelter today and a capital gain tomorrow
- It is leveraged by default: most buyers finance with a mortgage, amplifying both gains and losses relative to equity
 - Mortgage debt is the largest component of household debt. Over 75% in 11 OECD economies.

These three properties make housing the dominant asset in household portfolios and a powerful source of wealth inequality.

Housing Dominates Household Portfolios



Source: Martínez-Toledano (2017). Figure A.6: Asset composition by wealth level, Spain 2013

The Tenure Choice: A User Cost Framework

A household buys if the annual cost of owning is below the market rent:

$$\underbrace{r_f + \delta + \omega - \tau(r_m + \omega) - \pi^e + \gamma}_{\text{user cost } u} < \frac{R}{P}$$

- r_f : opportunity cost of equity (real long-term rate)
- δ : maintenance and depreciation ($\approx 2\%$ of value)
- ω : property tax ($\approx 1\text{--}1.5\%$)
- $\tau(r_m + \omega)$: tax deductibility of mortgage interest and property taxes
- π^e : expected capital gain — the key inequality parameter
- γ : risk premium ($\approx 2\%$)

Himmelberg, Mayer & Sinai (2005): baseline $u \approx 5\%$, implying a price-to-rent ratio of 20. Key: π^e varies sharply across cities and over time.

Side Note: Housing Is Also a Pure Investment

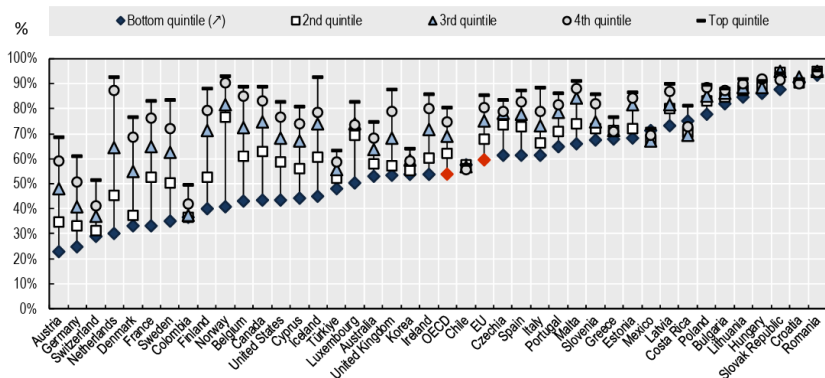
The user cost framework applies to primary residence, but please mind:

- Buy-to-let: the investor earns rental income R and captures π^e ; the user cost determines whether the investment beats alternatives
- Vacation homes: same framework, but the subsistence floor $\bar{h}$ is absent (this is a luxury good, not a necessity)
- In both cases, returns are local and illiquid, and leverage amplifies gains
- Investment housing concentrates at the top of the distribution and compounds wealth through rents and capital gains simultaneously
- More in Piketty and Zucman (2014), Blanden et al (2023), Causa et al (2019),...

Falling Homeownership Rates — Growing Gap

- Across OECD countries, homeownership rates average 60–70%, but mask large variation by age and income
- In the UK, the share of 25–34 year-olds who own fell from 51% in 1989 to 25% by 2014 (Beléfield et al., 2015)
- The gap is not cyclical: it reflects a structural shift in who can satisfy the tenure choice condition
- Key: The binding constraint is the downpayment, not the mortgage payment. Rising prices raise the entry barrier faster than incomes

Homeownership Is Not Equally Distributed



Source: OECD (2024), Affordable Housing Database, Figure HM1.3.2. Share of homeowner households by income quintile, 2022 or latest year available.

Rising Prices Transfer Wealth to Existing Owners

When π^e rises, the user cost falls and house prices are bid up. Who gains?

- Existing owners capture the capital gain in full: a household that bought in 1995 has seen its housing equity multiply without additional saving
- Non-owners face a higher entry price: the downpayment grows with P , pushing ownership further out of reach
- Miles & Monro (2019): real UK house prices roughly tripled between 1985 and 2018, while real rents rose much less — the gap is almost entirely a capital gain accruing to owners

The Entry Barrier Has Grown Faster Than Incomes

The user cost framework takes the downpayment as given. In practice, it is what closes the door:

- The OECD price-to-income ratio reached 134 index points before 2023 — meaning house prices had outpaced incomes by 34% since 1995 across advanced economies (OECD, 2025)
- In the UK, the ratio of house prices to annual earnings roughly doubled between 1997 and 2016 (Beléfield et al., 2015)
- A 10–20% downpayment now requires more years of saving than at any point in the post-war period in most OECD cities
- The mortgage payment may be affordable — but getting to the point of applying is not

Parental Help Has Become Key

- The share of first-time buyers receiving parental help for the downpayment rose from 22% in 1995 to 36% in 2023 (English Housing Survey, 2024)
- More UK evidence: at age 42, homeownership is 14 p.p. higher for those whose parents owned in 1974; for the cohort observed in 2015, the gap widens to 27 p.p. (Blanden et al., 2023)
- On average across 18 OECD countries, 20% of households inherited their home outright (Causa et al., 2019)
- As prices rise, bequests grow: the same mechanism that makes ownership valuable also concentrates its transmission among those who already own

The Return to Ownership Depends on Where You Own

All parameters in the user cost vary spatially, but π^e is the one that diverges most:

- In superstar cities, π^e has been persistently high for decades: owners in London or San Francisco have captured gains an order of magnitude larger than owners in declining regions
- The same tenure decision yields radically different wealth outcomes depending on location
- Spatial sorting amplifies this: high-income households concentrate in high- π^e markets, while low-income renters bear rising rents without capturing the gain (remember Finlay and Williams, 2025)

The investment and location dimensions of housing are inseparable. That is where we go next.

Where You Live Is an Equilibrium Outcome

Workers are (imperfectly) mobile. In equilibrium, utility is equalized across locations (Moretti, 2010):

$$U_{ic} = w_c - r_c + A_c + e_{ic}$$

- w_c : local wage
- r_c : housing cost
- A_c : local amenities (schools, safety, services)
- e_{ic} : idiosyncratic preference for location c

Higher-cost cities must offer higher wages or better amenities. But does r_c weigh equally for everyone?

If housing is a necessity ($\epsilon < 0//1$), no. The same parameter estimated in the consumption section determines the place where households can afford to live in (Ioannides and Ngai, 2025).

Housing as a Necessity Drives Spatial Sorting

When housing is a necessity ($\epsilon < 0//1$):

- Poor households spend a larger share of income on r_c , so housing costs weigh more in their ideal price index
- As the skill premium rises, high-income workers can tolerate expensive cities; many low-income workers cannot
- Skilled workers concentrate in productive, expensive cities; unskilled workers may not follow

Without rising skill bias since 1980, spatial sorting would have grown 25% less (Finlay and Williams, 2025)

Why Nonhomotheticity Generates Sorting

Two workers, same city menu. One earns high income, one earns low income.

	Low income	High income
Housing share	High	Low
Sensitivity to r_c	High	Low
Tolerance for expensive cities	Low	High

Source: Finlay and Williams (2022, 2025)

The poor worker spends 35–45% of income on housing; a \$200 rent increase is a large shock. Rich workers spend 15%; the same increase barely registers. As inequality rises, location choices diverge.

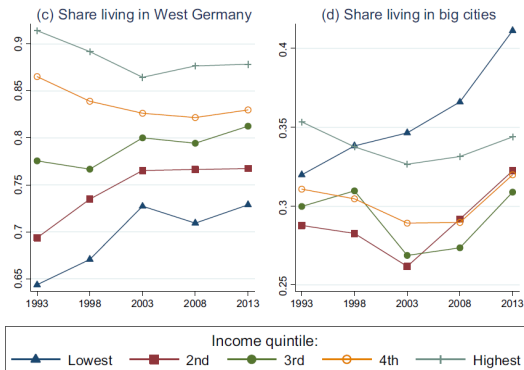
Sorting Amplifies Real Inequality

- **Dustmann et al. (2022), Germany 1993–2013:** poor households move to large cities for higher wages, but housing costs erode the gain. Q1 housing share rose 11.9 p.p.; Q5 fell 2 p.p. Children of high-burden families in large cities show worse educational outcomes.
- **Monras and Stuart (2025), US cities:** productivity and amenity improvements raise housing prices, hurting poor households disproportionately. Only housing investments reduce welfare inequality.

Bear this in mind:

Nominal wage inequality understates real welfare inequality: what matters is income after housing costs (or consumption).

The Poor Move to Expensive Cities — and Lose in Real Terms



Source: Dustmann et al. (2022, EJ), Figure 12(c,d)

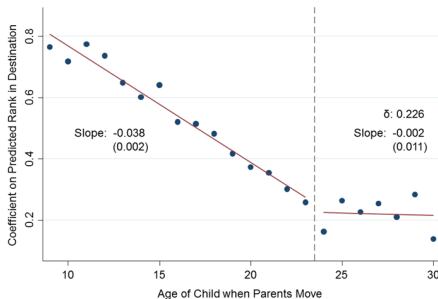
The bottom quintile disproportionately relocated to large German cities between 1993 and 2013. Those cities offer higher wages, but also higher housing costs that erode the gain.

The Neighbourhood Shapes the Next Generation

Chetty and Hendren (2018, QJE): causal effects of neighbourhoods on children's adult income.

- 7+ million families who moved across US commuting zones
- Each additional year in a better neighbourhood raises adult income by 4%
- The effect is linear through childhood; no critical age after which it disappears
- Place matters through the childhood environment, not adult labour market conditions

Each Year in a Better Neighbourhood Raises Adult Income by 4%



Source: Chetty and Hendren (2018, QJE), Figure IV Panel B

Each point is the income gain from moving to a neighbourhood one percentile better, at a given age. The slope before age 23 is -0.038 : each additional year of childhood exposure raises adult income by 3.8%. After age 23, the effect is flat.

To Sum Up: Three Channels, One Circle

- **Consumption:** rising p_h compresses the budget of low-income households; saving falls; non-housing consumption falls
 - To be studied: expectations about future housing costs, liquidity responses, substitution between housing and non-housing consumption
- **Investment:** those who own capture the capital gain from p_h ; those who do not face a higher entry barrier with each passing year
 - To be studied: down-payment constraints, access to leverage, housing as collateral, intergenerational transmission of housing capital
- **Location:** non-homotheticity excludes the poor from productive cities; neighborhood quality shapes children's earnings; the children of owners in expensive cities inherit both human capital and housing wealth
 - To be studied: sorting vs place effects, access to high-opportunity neighborhoods, housing supply constraints in productive cities

To Conclude:

These three channels reinforce each other: the consumption squeeze reduces saving, making homeownership less reachable, which restricts access to better neighbourhoods.

Remember: we have left supply, homelessness, most secondary housing, and many other topics unattended!

Thanks so much :) Happy to follow up pedro.salas@cunef.edu, or anytime these days.