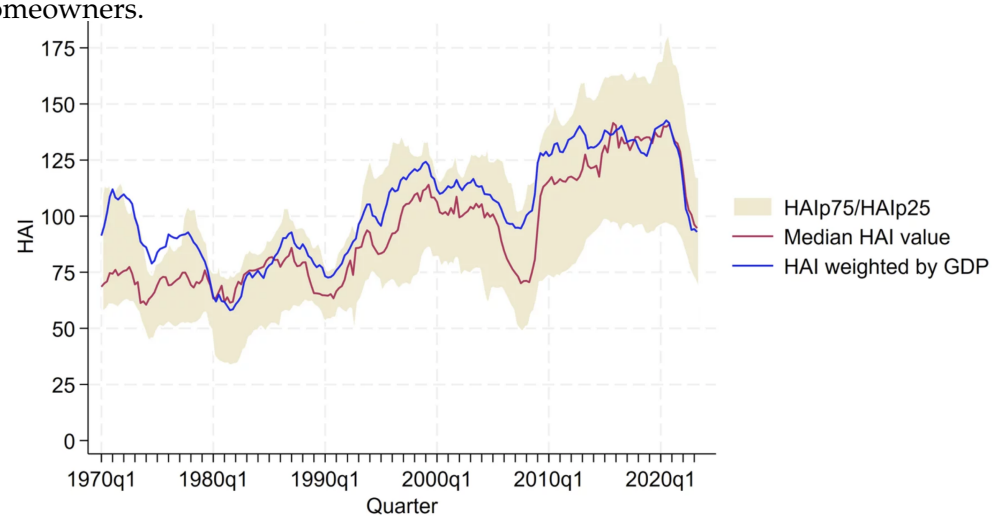
The cost of homeownership

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14th March 2025 - **extended abstract**[§]

Motivation Housing affordability has become a central concern for policymakers and the public, with widespread perception that buying a home has grown increasingly difficult over time. Yet, there is no measure from the data that clearly reflects this concern as a long term shift. For instance, a recent exercise where a Housing Affordability Index is constructed by the IMF (Biljanovska et al., 2023) for 40 OECD countries shows improvement over recent decades—directly contradicting the lived experience of many potential homebuyers who feel increasingly "priced out" of ownership.

This disconnect highlights a fundamental measurement problem. Current metrics fail to capture the full complexity of the homeownership decision and its welfare implications across diverse household circumstances. We argue that existing approaches, while informative about specific aspects of housing market, inadequately represent the actual cost burden faced by potential homeowners.



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The profusion of indicators used to discuss this sensitive issue in the media is a further indication of a lack of measurement tools. We argue, in this paper, that a better measure is needed. Simple metrics—such as the house price-to-income ratio or the share of housing costs in household expenditure—fail to capture key aspects of the home-buying decision. They ignore variations in housing quality and amenities, do not account for differences in households' consumption preferences, and overlook the dynamic trade-off between renting and buying. Indicators like the HAI, while widely used, reduce the affordability question to a narrow measure based on whether a median household qualifies for a mortgage on a median-priced home. This approach ignores intertemporal trade-offs—such as future income risk and mortgage repayment dynamics—and fails to capture heterogeneity across households, for example, differences in credit constraints or housing preferences among various income and racial groups.

We introduce a novel, microfounded welfare-based measure of homeownership cost that addresses these shortcomings. Our framework explicitly models the welfare differential between two paths for a household: continuing to rent versus purchasing a home. Formally, we define the cost of homeownership as the welfare impact of committing to a house purchase relative to remaining a renter. This approach captures critical dimensions overlooked by conventional metrics: (1) uninsurable labor income risk and how a household's expected future earnings affect purchasing decisions; (2) initial wealth distribution and liquidity constraints; (3) mortgage market conditions including loan-to-value requirements and interest rates; and (4) intertemporal tradeoffs between current consumption, saving for a down payment, and future mortgage obligations.

We expect this measure will provide a clear improvement to the currently available alternatives, and reconcile the gap between our perception of housing afforadbility challenges and the result of affordability indicators, which have remain stable or even improved in many cases in the past few years, when many groups feel more "priced out" than ever. This will provide policymakers and researchers with a sharper tool for evaluating how macroeconomic shocks, regulatory changes, and supply constraints affect the affordability of home ownership for both the median household and for different segments of the population.

Related literature and contribution Our work improves on the preceding work on the cost of housing, spread by three strands of the housing literature. User cost approches, as first introduced by Poterba (1984) and extended by Quigley and Raphael (2004), these approaches equate the annualized cost of owning a home to the opportunity cost of the owner's housing capital. Although they offer a clear theoretical footing, user-cost formulas do not generally incorporate credit-market constraints, not the uncertainty around house-price appreciation and income, and are often difficult to implement in a way that speaks to differences in affordability over the income distribution or other groupings.

Mortgage-based (or repayment-based) affordability indexes are widely used measures in policy contexts. These indexes—such as the Housing Affordability Index (NAR) or the IMF's indexes—track how median household income compares with the "qualifying income" needed for a mort-

gage on a median-priced home. While intuitive, these indexes do not capture the intertemporal dimension of the purchase decision, risk exposures, or household heterogeneity.

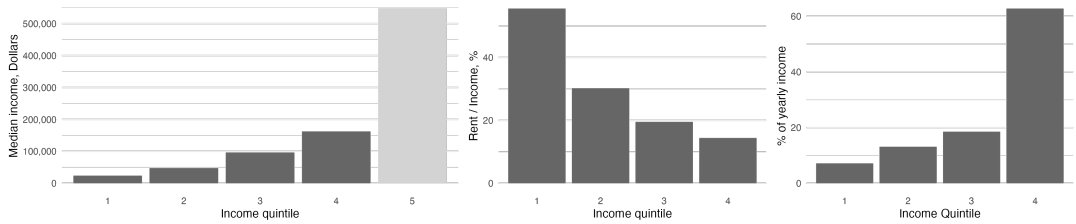
More broadly, studies on rental affordability, regulatory constraints, or supply-based measures (Glaeser et al., 2005) often focus on overall housing access. The recent literature (e.g., Chambers et al., 2009; Paz-Pardo, 2024) underlines how changes in mortgage innovations, income risk, and policy interventions shape homeownership rates.

Our work contributes a unified theoretical framework that captures the welfare cost of the rent-versus-buy decision across diverse household circumstances and market conditions. Unlike existing indexes, our measure will be sensitive to distributional effects, allowing analysis of how housing costs vary across demographic and economic groups.

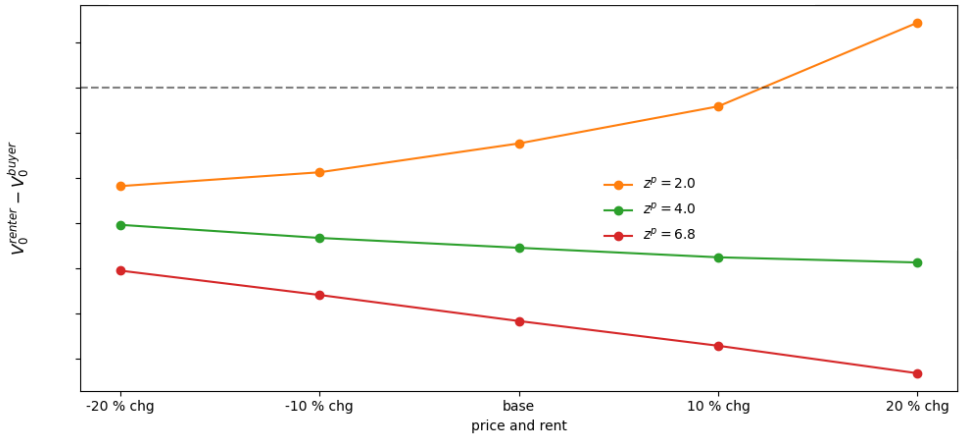
Methodology and model sketch Our framework simulates consumption and welfare paths for households under two scenarios: a "renter path" with no housing wealth, and a "buyer path" where households purchase their homes at a specific point. The model incorporates: (i) a household budget constraint that accounts for consumption, housing costs (rent or mortgage payments), saving, and investment returns; (ii) uninsurable idiosyncratic income risk, that affects households' ability to service mortgage debt; (iii) credit constraints including down payment requirements and payment-to-income ratios, and mortgage structures with realistic amortization schedules. By comparing welfare between these two paths, we measure the true opportunity cost of homeownership while controlling for housing quality and preferences.

As of now, in this conceptualization, we assume households face a clean buy or rent choice, enjoying the same housing services in both cases, i.e. living in a house of the same size or quality in both cases. This runs counter to the data that suggests significant segmentation in the housing market. This assumption is important, however, in order to isolate from the cost measure any effect of higher quantity/quality housing that would ensue if households would move to better or bigger homes in their *buyer path*. Second, we abstract from housing preferences, since the flow of housing services is identical across the two counterfactuals.

Data sources We calibrate our model to U.S. household-level data from the 2022 Survey of Consumer Finances (SCF), focusing on potential first-time homebuyers (renters under age 40). Our analysis examines variation across income quintiles, capturing significant differences in income levels, rent-to-income ratios, and liquid financial wealth. We will supplement this with Home Mortgage Disclosure Act (HMDA) data, and potentially other micro data sources, to incorporate granular mortgage terms and American Community Survey data for local housing market conditions.



Preliminary findings Our preliminary simulation plot demonstrates that as house prices rise relative to income—while the rent-to-price ratio remains constant—the welfare differential ($V_0^{\text{renter}} - V_0^{\text{buyer}}$) shifts markedly across income groups. Specifically, for higher-income households (red, z^p = 6.8), the value of buying improves (the differential becomes more negative), indicating that their ability to absorb higher down payment and mortgage payments makes homeownership increasingly attractive. In contrast, lower-income households (orange,z^p = 2.0) face a deteriorating value from buying, as the growing down payment requirement overwhelms any benefits, leaving them with a higher welfare cost relative to renting. The middle-income group (green, z^p= 4.0) exhibits a moderate response, reflecting a balanced trade-off.



These divergent responses are an example of why, in some contexts, aggregate affordability measures may show improvement while many households perceive worsening conditions—the benefits and costs of changing housing markets are unevenly distributed.

Conclusion Our measure of the cost of homeownership will provide a clear improvement over currently available alternatives by capturing household heterogeneity, credit constraints, and intertemporal tradeoffs. It will offer policymakers and researchers a sharper tool for evaluating how macroeconomic conditions, regulatory changes, and supply constraints affect different segments of the population. Our framework will also serve to assess the distributional impacts of housing policy interventions, such as down payment assistance, interest rate subsidies, or rent regulation, on home ownership affordability.

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