Priced Out of Entrepreneurship:

Housing Affordability and Young Renters *

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Abstract

This study examines how housing costs affect entry into entrepreneurship, focusing on young renters. We hypothesize that rising house prices discourage entrepreneurial entry among young individuals who do not own homes and therefore face both higher rental burdens and tighter liquidity constraints. Using U.S. microdata and a life-cycle model with endogenous housing and occupational choices, we show that housing affordability plays a crucial role in determining who becomes an entrepreneur. While much of the existing literature highlights positive collateral effects of homeownership, our analysis emphasizes the asymmetric burden on renters, particularly the young, for whom rising housing costs crowd out entrepreneurial investment.

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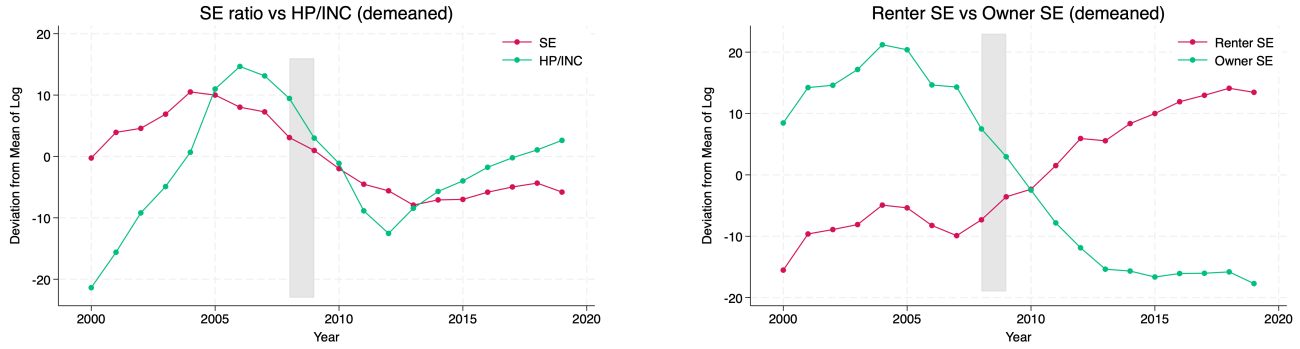
1 Introduction

Entrepreneurship has long been recognized as a central driver of innovation, productivity growth, and job creation. Yet in recent decades, the United States has experienced a striking and persistent decline in young business formation. This trend has raised widespread concern among policymakers and scholars, as a weakening of entrepreneurial entry may compromise the long-run renewal capacity of the economy. At the same time, housing costs have risen sharply relative to household incomes, particularly in major metropolitan areas, giving rise to what is commonly termed a "housing affordability crisis." The simultaneous decline in entrepreneurship and rise in housing costs invite an important question: *are these trends causally linked?*

1.1 Motivation

Two empirical patterns motivate our analysis. First, aggregate self-employment rates comove strongly with the house price-to-income ratio (HP/INC)—a widely used measure of housing affordability—over the past two decades. Second, this relationship masks stark heterogeneity by housing tenure: renter self-employment rates decline as housing becomes less affordable, while owner self-employment remains steady or even rises. These stylized facts suggest that housing markets not only influence the aggregate level of entrepreneurial activity but also shape *who* is able to become an entrepreneur.

Figure 1.1: Time Trend in Entrepreneurship and Housing Affordability.



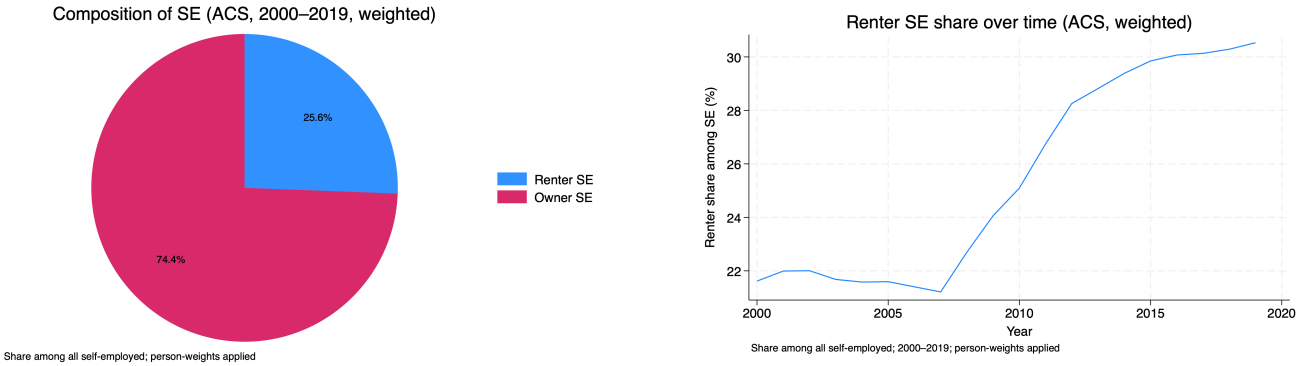
Sample: ACS microdata, 2000 - 2019, Aged 20 - 60.
Note: Zillow Home Value Index (ZHVI) is used as house prices; demeaned log series, person-weighted.

This divergence has an intuitive economic logic. Both entrepreneurship and homeownership require substantial capital. Rising house prices expand collateralizable housing wealth for owners, thereby

relaxing borrowing constraints. For renters, however, higher house prices tighten liquidity constraints by raising rents and increasing the difficulty of saving for down payments. This asymmetry is especially consequential for young households, who typically have not yet accumulated housing wealth. Young renters thus face a "double squeeze": immediate cash-flow pressure from rent and long-run barriers to wealth accumulation. These forces plausibly deter entrepreneurial entry precisely among those cohorts most critical for the renewal of the business sector.

1.2 Why Renters Matter Renters constitute a quantitatively important but understudied share of the entrepreneurial population. Using microdata from the American Community Survey (ACS), we show that renters account for roughly one-quarter of all self-employed workers, and that this share has been rising over time. Despite their prevalence, renters have received little attention in the literature. Existing research has focused primarily on homeowners, emphasizing how rising house prices relax collateral constraints and stimulate entrepreneurial activity. By neglecting renters, prior work overlooks a central source of heterogeneity: affordability shocks may discourage entrepreneurship among a substantial and growing share of potential entrants.

Figure 1.2: Why renters matter



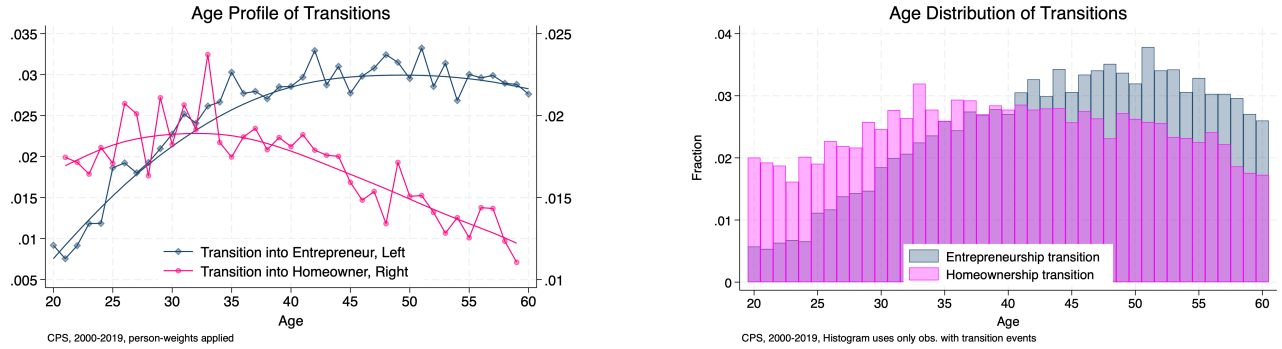
Sample: ACS microdata, 2000 - 2019, Aged 20 - 60.
Note: Zillow Home Value Index (ZHVI) is used as house prices; demeaned log series, person-weighted. Renters account for about 25% of all SE, and their share has increased over time.

Our contribution is to bring renters—particularly *young* renters—to the forefront of the analysis. By explicitly quantifying how affordability shocks affect renter entrepreneurship, we shed light on a margin that has become increasingly salient in contemporary housing markets.

1.3 Why Young vs. Old?

Age interacts with housing tenure in critical ways. The timing of transitions into homeownership and into entrepreneurship follows distinct life-cycle profiles. On average, households purchase homes in their late 20s and early 30s, while entrepreneurial entry peaks later, in the 40s and 50s. This mismatch in timing implies that affordability shocks affect cohorts very differently. Young households, who are more likely to rent and less likely to have accumulated wealth, bear the brunt of rising housing costs. By contrast, older households are more likely to already own homes and thus to benefit from collateral gains.

Figure 1.3: Why young vs. old



Sample: CPS microdata, 2000 - 2019, Aged 20 - 60.
Note: Zillow Home Value Index (ZHVI) is used as house prices; person-weighted. Homeownership and entrepreneurship transitions occur at different life-cycle stages, implying heterogeneous effects of HP/INC shocks.

This motivates our empirical focus on both the tenure divide (renters vs. owners) and the age divide (young vs. old). We show that rising housing costs disproportionately reduce entrepreneurship among *young renters*, while leaving older cohorts and homeowners unaffected or even positively stimulated.

1.4 Contribution and Main Message

This paper makes two main contributions. First, we shift the focus of analysis from homeowners to renters. While prior work has emphasized the collateral channel through which house price increases encourage entrepreneurship, we demonstrate that affordability shocks systematically reduce entrepreneurial entry among renters. Second, we introduce the house price-to-income ratio (HP/INC) as our key measure of affordability, in place of house prices alone. This measure captures the tightening of liquidity constraints more directly, making it particularly relevant for studying younger households.

Our main finding is that increases in HP/INC significantly reduce entrepreneurship among renters, with the effect concentrated among young renters. By contrast, homeowners—especially young homeowners—

display positive responses in incorporated self-employment, consistent with a collateral and wealth channel.

The central message is that housing affordability shocks reshape *who* becomes an entrepreneur. Rising housing costs crowd out young renters disproportionately, while homeowners remain unaffected or are even positively stimulated. These results highlight an overlooked mechanism through which housing markets shape entrepreneurial dynamics, one that cannot be explained by collateral channels alone.

1.5 Preview of What Follows

The remainder of the paper proceeds in five steps. Section II reviews the related literature along three lines and clarifies our contribution: we situate our question within research on liquidity constraints and entrepreneurial entry, studies of home equity as collateral for business formation, and work on the interaction between housing tenure and occupational choice. This discussion motivates our renter–age composition lens and the use of the house price–to–income ratio as an affordability metric. Section III describes the ACS and CPS microdata, the construction of our affordability measure log(HP/INC), and other key variables, and then documents state-level time-series and composition patterns—contrasting renters with owners and young with old—to establish the empirical motivation. Section IV presents the main empirical strategy and results. We implement an instrumental-variables approach that exploits plausibly exogenous variation in local housing affordability (e.g., housing-supply elasticity and related shifters) to identify the causal effect of affordability on entrepreneurial entry, and we report heterogeneous responses by tenure, age, and incorporation status. Section V develops a simple life-cycle model with endogenous housing and occupational choices that rationalizes the empirical asymmetries, highlights the mechanism linking affordability to entrepreneurial decisions for young renters, and delivers additional testable implications. Section VI concludes by summarizing the findings and discussing policy implications for settings facing persistent affordability pressures.

2 Relation to the Literature

Our paper relates to and extends three strands of research in economics: the literature on liquidity constraints and entrepreneurship, the work on home equity as collateral for entrepreneurial activity, and the studies examining the interaction between housing tenure and occupational choice. While each

of these literatures has yielded important insights, our contribution is to integrate them within a unified framework that emphasizes the role of housing affordability, with a particular focus on young renters.

Liquidity constraints and entrepreneurship A large body of research has emphasized how financing frictions shape entry into entrepreneurship. Evans and Jovanovic (1989) provided one of the earliest structural frameworks to demonstrate that liquidity constraints bind entrepreneurial choices: wealthier individuals are more likely to start businesses, even when controlling for ability. Subsequent empirical studies, such as Hurst and Lusardi (2004), have cast doubt on simple interpretations of the wealth–entrepreneurship gradient, suggesting that much of the observed relationship reflects heterogeneity in preferences rather than binding constraints. More recent theoretical and quantitative work, for example Francisco J. Buera and Shin (2015), highlights how persistent financial frictions can shape the aggregate distribution of firms and the pace of development.

Our contribution is to revisit the liquidity-constraint mechanism through the lens of housing affordability. Rather than focusing on wealth gradients per se, we use the house price-to-income ratio (HP/INC) as a tractable measure of liquidity tightening in local markets. Rising HP/INC simultaneously increases rental burdens and down-payment hurdles, thereby shrinking the disposable resources available to households for entrepreneurial investment. By examining how the composition of self-employment shifts across tenure and age groups, we provide new evidence consistent with the view that affordability constraints bind especially for young renters. In doing so, we complement the existing literature by reframing liquidity constraints in terms of cross-sectional composition rather than solely entry flows.

Home equity as collateral A second strand of literature emphasizes the collateral channel through which housing wealth supports entrepreneurship. Martin C. Schmalz and Thesmar (2017) show that increases in house prices boost homeowners' propensity to start incorporated businesses, consistent with the idea that home equity provides valuable collateral for external borrowing. Similarly, Corradin and Popov (2015) provide cross-country evidence that rising house values translate into greater entrepreneurial activity through credit supply expansions. These findings suggest that housing markets play a critical role in financing small business formation.

Our work complements and extends this literature by highlighting the asymmetry between owners and renters. We provide tenure-comparative evidence showing that, while owners' self-employment

shares tend to rise or remain stable as HP/INC increases, renters' shares decline sharply—especially among the young. This asymmetry is precisely what one would expect if house price appreciation generates collateral gains for owners but affordability losses for renters. In this sense, we extend the collateral literature into a broader tenure-comparative framework, demonstrating that the same housing shock can have opposite effects on different segments of the population.

Tenure and occupational choice A third line of research examines the relationship between housing tenure decisions and occupational choice. Corradin and Popov (2015) emphasize that tenure choice (own versus rent) and entrepreneurship are interrelated but are often studied separately. More recent work, such as **?**, provides evidence that homeownership can alter labor market choices, for example by reducing mobility and shaping the types of occupations workers pursue. Yet this literature typically analyzes housing and occupational outcomes in isolation rather than in an integrated framework.

We contribute by showing that these decisions are in fact competing uses of scarce household resources. When HP/INC rises, young households are pushed further into renting and away from entrepreneurship, as both housing and business investment require large up-front capital. We also distinguish between incorporated and unincorporated self-employment, following the framework of **?** and Levine and Rubinstein (2017), to differentiate opportunity-driven versus necessity-driven entrepreneurship. Our evidence indicates that affordability shocks reduce precisely the types of entrepreneurial entry most likely to reflect growth-oriented, incorporated businesses among young renters. In this way, we bring together the literatures on tenure choice and occupational choice into a unified empirical picture of how housing affordability shapes the composition of entrepreneurship.

Summary Taken together, these strands of literature emphasize the importance of financing constraints, housing wealth, and tenure status in shaping entrepreneurial dynamics. Our contribution is to integrate these insights, reframing the debate around housing affordability as a determinant of *who* gets to become an entrepreneur. By focusing on renters—and in particular young renters—we highlight a group that has been largely overlooked in prior research but is central to understanding the contemporary decline in business dynamism.

3 Data

This section describes the data sources, sample restrictions, and construction of key variables used in our analysis. Our empirical strategy relies on combining repeated cross-sectional microdata on households and workers with measures of local housing prices, incomes, and credit supply. We supplement these with instruments capturing variation in the elasticity of local housing supply. Following Davis and Haltiwanger (2024), we aggregate microdata to consistent geographic panels and carefully define measures of entrepreneurship, housing tenure, and affordability.

3.1 Primary Household Microdata: ACS and CPS

Our primary source for entrepreneurial outcomes and housing tenure is the *American Community Survey* (ACS). We use annual ACS microdata from 2000 through 2019, restricted to individuals ages 20–60. The ACS provides large representative samples of U.S. households with detailed demographic, labor market, and housing information. We construct repeated cross-sections of individual-year observations and aggregate them to both state-year and metropolitan statistical area (MSA)-year panels. This aggregation allows us to exploit within-state and within-MSA variation over time, while retaining sufficient sample size for analysis by tenure and age group.

Entrepreneurship is measured using self-employment status in the ACS. We follow the convention of distinguishing between *incorporated* self-employment—often interpreted as growth-oriented or "opportunity-driven" entrepreneurship—and *unincorporated* self-employment, which more frequently captures necessity or informal activity. To construct our outcome variables, we compute the share of individuals in each geography–year who report being self-employed, both overall and separately by incorporation status. Throughout the analysis, we apply ACS person-weights to ensure representativeness.

We supplement the ACS with the *Current Population Survey* (CPS), which offers complementary strengths. The CPS provides a long-running monthly labor force survey with more detailed information on labor market dynamics, albeit with smaller sample sizes than the ACS. We use the CPS to construct age profiles of entrepreneurship and homeownership, as well as to conduct supporting descriptive analysis at the state level. The CPS is particularly valuable for documenting the life-cycle timing of transitions into self-employment and homeownership, which helps motivate our empirical focus on young versus

old households.

3.2 Housing Prices and Affordability

To measure housing prices, we rely on the *Zillow Home Value Index* (ZHVI). We use the middle quantile range of the ZHVI (35th to 65th percentile) at the state and MSA level from 2000 through 2019. The ZHVI provides a consistent series of median home values based on transaction and appraisal data. We construct log house prices at the relevant geographic level, demeaned by national trends when appropriate.

A central contribution of our analysis is to move beyond house prices alone and focus instead on housing *affordability*. We define affordability as the ratio of house prices to local incomes, log(HP/INC). While much of the literature uses house prices in levels, our measure embeds both the cost of housing and the earning capacity of local residents, thereby providing a more direct proxy for the burden of housing costs. Specifically, HP denotes the ZHVI measure at the state or MSA level, while INC denotes average individual income in the ACS for the corresponding geography–year. By construction, a higher value of HP/INC indicates that housing is less affordable relative to local earnings. We show in Section **??** that this measure tracks the cross-state and cross-MSA variation in entrepreneurial activity more tightly than house prices alone.

3.3 Credit Supply and Local Economic Controls

Because entrepreneurial entry is shaped not only by household resources but also by local credit conditions, we incorporate additional data from the *Community Reinvestment Act* (CRA) small-business lending disclosure files. These data, mandated under the 1996 CRA reforms, report loan originations for small businesses at the MSA level. Following Davis and Haltiwanger (2024), we construct measures of credit supply intensity by geography and year, which serve as controls in our empirical specifications. These measures help account for variation in local financing availability that may independently affect entrepreneurship.

We further control for local demand and labor market conditions using data from the *Bureau of Labor Statistics* (BLS) and the *Quarterly Census of Employment and Wages* (QCEW). From the QCEW we construct Bartik-style demand shifters, which combine national industry growth with local industry composition, to proxy for local labor demand shocks. We also incorporate state and MSA-level unemployment rates and population measures. These controls ensure that our results are not driven by cyclical fluctuations in local demand or demographic change.

3.4 Instruments for Housing Affordability

Our empirical strategy employs instrumental variables to address potential endogeneity of local housing affordability. Specifically, we use two instruments well established in the housing literature. The first is the housing supply elasticity measure from Saiz (2010), which captures variation in the physical and regulatory constraints on new housing construction across metropolitan areas. The second is the housing price sensitivity index developed by **?**, which measures how responsive local housing prices are to shifts in demand. Both instruments exploit long-run differences in the elasticity of supply, providing plausibly exogenous sources of variation in local affordability. We interact these instruments with national housing demand shocks to construct shift-share style instruments for log(HP/INC).

3.5 Sample Restrictions and Aggregation

Our main analysis sample includes individuals aged 20 to 60 in the ACS and CPS, observed annually between 2000 and 2019. We restrict the sample to prime-age workers in order to focus on periods of life when both entrepreneurial entry and homeownership transitions are most salient. Within each geography–year, we compute the self-employment shares for four mutually exclusive groups: young renters, young owners, old renters, and old owners. We define "young" as individuals below the mean age in each survey year, with "old" defined as the complement. While alternative cutoffs (e.g., 35 years) produce qualitatively similar patterns, the mean-split ensures balanced group sizes across years.

The unit of observation in our main regressions is the MSA–year. In robustness exercises we also conduct analysis at the state–year level, which provides broader coverage but coarser geographic resolution. For each unit we construct measures of self-employment shares by tenure–age group, local housing affordability, credit supply intensity, and labor market controls.

3.6 Summary and Connection to Empirical Strategy

In summary, our dataset combines repeated cross-sectional microdata on individuals with geographically disaggregated measures of housing costs, incomes, and credit supply. By focusing on self-employment shares rather than individual transitions, we highlight the composition of entrepreneurship across tenure and age groups. The use of log(HP/INC) as a measure of affordability allows us to quantify how rising housing costs, relative to incomes, tighten liquidity constraints for renters while simultaneously expanding collateral for owners. The incorporation of CRA-based credit supply measures and Bartik-style labor demand controls further ensures that our estimates capture affordability effects rather than confounding local economic

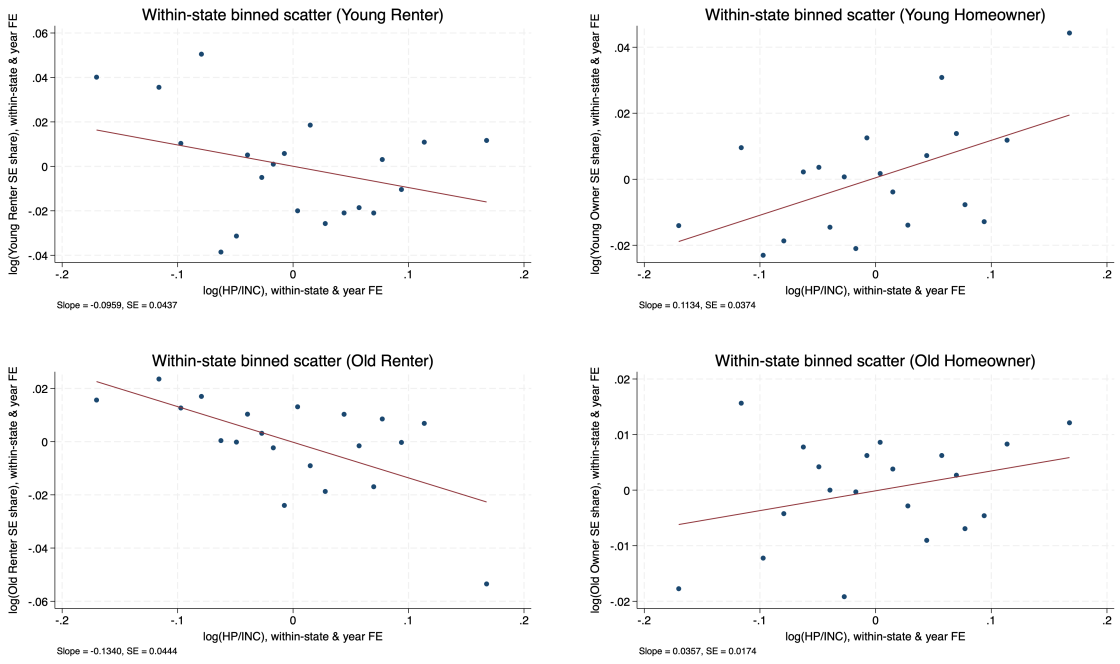
conditions. In the following section, we present descriptive evidence at the state level that illustrates the central patterns motivating our empirical analysis.

3.7 State-Level Evidence

Before turning to our main MSA-level regressions, we begin with descriptive evidence at the state level. State-level panels provide a natural starting point: they offer broad geographic coverage and sufficient sample size to examine the composition of entrepreneurship by tenure and age. Moreover, state-level variation is useful for illustrating the raw patterns that motivate our empirical strategy.

Figure 3.7 plots binned scatter relationships between housing affordability and self-employment shares across states from 2000 to 2019. On the horizontal axis we measure log(HP/INC), residualized with respect to state and year fixed effects to isolate within-state changes in affordability. On the vertical axis we plot the log of self-employment shares, also residualized on the same fixed effects. We present the results separately for renters and owners, and for young (below the annual mean age) and old (above the mean age) individuals.

Figure 3.1: Within-State Binned Scatter: HP/INC vs. SE Shares (ACS 2000–2019)



Sample: ACS microdata, 2000–2019, individuals aged 20–60, person-weighted. *Note*: Both axes are residualized with respect to state and year fixed effects. Binned scatter plots (20 equal-sized bins) are shown separately by tenure and age group.

The figure reveals several clear and consistent patterns. First, for renters, there is a pronounced

negative relationship between housing affordability and self-employment. Both young and old renters experience lower self-employment shares when the local house price-to-income ratio rises. The slope is steepest for young renters, consistent with the idea that they face the tightest liquidity constraints in markets where housing is less affordable.

Second, for owners, the relationship is reversed: self-employment shares tend to increase as affordability declines. This positive slope is evident for both young and old owners, though again the magnitude is larger for the young. This divergence between renters and owners suggests that rising housing costs simultaneously depress entrepreneurship for one group while stimulating it for another.

Third, the strongest contrast is between young renters and young owners. In states where HP/INC is high, young renters are much less likely to be self-employed, while young owners are more likely to be self-employed. This striking divergence is precisely what one would expect if affordability shocks operate through two distinct channels: a *liquidity constraint* channel that binds for renters and a *collateral channel* that benefits owners.

These state-level patterns provide descriptive support for our central hypothesis: housing affordability matters for *who* becomes an entrepreneur. They also illustrate the limitations of state-level analysis. Although residualizing on state and year fixed effects removes common shocks, unobserved local demand conditions may still confound the relationship. For instance, booming states may simultaneously experience rising house prices, rising incomes, and shifts in industry composition that affect entrepreneurship directly. To address these concerns, in the next section we turn to MSA-level analysis with instrumental variables that exploit exogenous variation in housing supply elasticity.

Taken together, the state-level evidence highlights the divergent experiences of renters and owners, and in particular the vulnerability of young renters to affordability shocks. These patterns provide the empirical foundation for our more formal identification strategy that follows.

4 Empirical Strategy: Instrumental Variables at the MSA Level

A central empirical challenge in estimating the effect of housing affordability on entrepreneurship is the endogeneity of local house price-to-income ratios (HP/INC). Changes in HP/INC may be jointly determined with local entrepreneurial outcomes through several channels. First, local demand shocks that stimulate business formation may also raise both incomes and housing prices, creating a spurious positive correlation between affordability and entrepreneurship. Second, reverse causality is possible: if a surge in entrepreneurial activity raises local productivity and incomes, it could itself push up house prices. Third, measurement error in local housing or income data may bias OLS estimates. For these reasons, ordinary least squares regressions cannot be interpreted as causal.

To address these concerns, we construct an instrumental-variables (IV) strategy that isolates plausibly exogenous variation in housing affordability. Our approach follows the well-established tradition in the housing and urban economics literature, which exploits geographic differences in the elasticity of housing supply as in Saiz (2010). The key intuition is that, while aggregate housing demand shocks are common across the nation, their impact on local housing affordability depends critically on underlying supply conditions. In markets with low elasticity—those constrained by geography or regulation—common demand shocks translate into larger increases in prices relative to income. In more elastic markets, the same shocks result in smaller price responses. Thus, by interacting national housing cycles with local supply elasticities, we generate exogenous variation in local affordability measures that is orthogonal to local entrepreneurial dynamics.

Formally, the first stage specification instruments local $\log(\text{HP/INC})_{m,t-1}$ with interactions of national HP/INC cycles and the Saiz elasticity index. Specifically, we use a cubic polynomial in elasticity to allow for nonlinear responses:

$$Z^{(k)}_{m,t-1} \;=\; \left(\log \tfrac{HP}{INC}\right)^{National}_{t-1} \times (Elasticity_m)^k, \quad k = 1, 2, 3.$$

The use of higher-order terms follows **?**, who document that nonlinear interactions improve explanatory power and capture heterogeneity in local price responses more flexibly. Intuitively, these instruments exploit the fact that low-elasticity MSAs experience disproportionately larger affordability shocks during national housing booms, whereas high-elasticity MSAs do not.

The identification assumption is that, conditional on controls, these instruments shift local affordability but do not directly affect entrepreneurial entry. Our baseline specification includes a rich set of controls to reinforce this assumption. We incorporate Bartik-style demand shifters constructed from national industry trends interacted with local employment shares, small-business lending volumes from CRA disclosure data to capture credit supply conditions, local unemployment rates, and full sets of MSA and year fixed effects. With these controls in place, the exclusion restriction requires that land-supply elasticity and its polynomial transformations affect entrepreneurship only through their impact on local housing affordability, not via any independent channel. This is plausible because supply elasticity is determined largely by exogenous geographic features (such as land availability and terrain) or long-standing regulatory environments, neither of which vary at the annual frequency of our panel.

The IV relevance condition is strongly supported in the data. In housing booms, low-elasticity MSAs exhibit significantly larger increases in HP/INC relative to high-elasticity MSAs, generating robust first-stage relationships. The polynomial specification ensures that the instruments capture both linear and nonlinear dimensions of this heterogeneity, with first-stage F-statistics comfortably exceeding conventional thresholds. These results confirm that the instruments provide strong predictive power for local affordability shocks.

Overall, the IV framework allows us to interpret the estimated coefficients as capturing the causal effect of affordability shocks—driven by national housing cycles interacting with local supply conditions—on entrepreneurial entry. In the following section, we implement this strategy using ACS-based MSA-year panels of self-employment shares by tenure and age, covering the period 2005–2019.

4.1 Credit Supply Controls: CRA-Based Small Business Lending Shocks

A distinct confounding factor in our setting is the evolution of local credit supply to small businesses. If bank-driven contractions in lending reduce entry into self-employment at the same time that local incomes and housing prices adjust, ordinary controls may be insufficient to isolate the affordability channel. Following the approach in **?**, we construct a measure of small business lending (SBL) shocks from Community Reinvestment Act (CRA) disclosure data and use it as a time-varying MSA-level control.[1] Intuitively, this measure captures changes in local credit availability that are driven by banks' nationwide balance

[1]The CRA requires large depository institutions (assets exceeding $1 billion) to report annual originations by loan size and borrower revenue category by geography. Public data are available at the county-year level since the mid-1990s. We deflate nominal dollar volumes using the GDP implicit price deflator.

sheet conditions, rather than by contemporaneous local demand.

4.2 Data and Aggregation The CRA micro-data report originations of small business loans by county and lending institution, with separate identification of loans to firms with gross revenue below $1 million. We aggregate these data to the MSA-year level following **?**. Let L_{mjt} denote real originations by bank j in MSA m at year t. We compute growth rates at the bank–MSA cell level, g_{mjt}, using log-differences of deflated lending volumes. Aggregation to the MSA-year level for outcome or control purposes proceeds by share-weighting on the prior-year footprint of each bank in each MSA. Throughout, we align the CRA panel to our ACS-based MSA–year panel (2005–2019).

4.3 Constructing SBL Shocks: A Two-Step Procedure Our goal is to isolate credit supply movements that are plausibly orthogonal to local demand conditions. To do so, we estimate bank-specific national lending shocks and then expose each MSA to those shocks according to the MSA's pre-existing bank composition. The construction proceeds in two steps.

Step 1: Bank-Level Lending Behavior. We estimate the following weighted least squares specification at the bank–MSA–year level:

$$g_{mjt} \;=\; \mu_{mt} \;+\; \upsilon_{jt} \;+\; \varepsilon_{mjt}, \tag{4.1}$$

where g_{mjt} is the real growth rate of small business originations by bank j in MSA m, μ_{mt} are MSA–year fixed effects that absorb local demand shocks and conditions common to all lenders in the same market-year, and υ_{jt} are bank–year fixed effects that capture nationwide movements in bank j's lending (e.g., balance sheet changes, portfolio reallocation, or regulatory shifts). The regression is weighted by the lagged lending share $\omega_{mjt-1} \equiv L_{mjt-1} / \sum_{j'} L_{mj't-1}$ so that cells with larger footprints receive more weight in identifying bank effects. The estimated $\widehat{\upsilon}_{jt}$ provide a time series of bank-level supply shocks purged of local demand.

Step 2: MSA Exposure to National Bank Shocks. We then form a Bartik-style exposure index that maps the national bank shocks back to each MSA based on its lagged bank composition:

$$\text{SBL}_{mt} \;=\; \sum_{j} \omega_{mjt-1}\, \widehat{\upsilon}_{jt}. \tag{4.2}$$

By construction, SBL_{mt} varies across MSAs with different ex-ante bank footprints and over time with the evolution of banks' national lending behavior. Because the weights are lagged and the shocks come from bank–year effects, SBL_{mt} is designed to reflect credit supply movements that are not driven by contemporaneous local conditions.

4.4 Interpretation and Empirical Properties The SBL_{mt} index summarizes how national lending expansions or contractions at large banks transmit to local small business credit availability, conditional on the MSA's bank mix. Economically, a higher SBL_{mt} indicates more favorable credit supply to small—often young—firms in MSA m at time t. In our context, incorporating SBL_{mt} as a control helps separate the affordability channel from bank-driven credit cycles that may otherwise confound the relationship between log(HP/INC) and entrepreneurial entry.

Empirically, SBL_{mt} exhibits substantial time-series variation at business-cycle frequencies and cross-sectional dispersion across MSAs due to heterogeneity in bank footprints. In reduced-form specifications, the index is strongly associated with measures of young-firm activity and self-employment margins most sensitive to external finance. These patterns are consistent with the index capturing credit supply rather than local demand.

4.5 Integration into the Baseline and IV Specifications We include SBL_{mt} as a covariate in both OLS and IV regressions at the MSA–year level:

$$Y_{mt} \;=\; \beta\,\log(\text{HP}/\text{INC})_{m,t-1} \;+\; \chi\,\text{SBL}_{mt} \;+\; X'_{mt}\theta \;+\; \lambda_m \;+\; \lambda_t \;+\; \varepsilon_{mt}, \tag{4.3}$$

where Y_{mt} denotes the (log) self-employment share in MSA m and year t for a given tenure–age group, X_{mt} are additional controls (Bartik demand, population, unemployment), and λ_m and λ_t are MSA and year fixed effects. In the IV framework described in Section 4, we treat SBL_{mt} as an exogenous control and instrument $\log(\text{HP}/\text{INC})_{m,t-1}$ with interactions of national affordability cycles and Saiz-style supply elasticity (including higher-order terms). This design ensures that identification of β comes from price-driven affordability shocks orthogonal to both local demand and credit supply conditions.

4.6 Discussion and Robustness Including SBL_{mt} addresses a salient alternative channel: shifts in local credit supply to small and young firms. In our setting, the coefficients on SBL_{mt} are economically meaningful in the expected direction (more generous credit supply is associated with higher en-

trepreneurial activity in margins that are finance-sensitive). Importantly, the IV estimate of β remains negative and statistically significant for renters—especially young renters—when SBL_{mt} is included, while effects for homeowners are muted or positive in incorporated self-employment. These results reinforce our interpretation that affordability shocks, rather than coincident credit contractions, are the primary force depressing renter entry.

We conduct a number of robustness checks around the construction and use of SBL_{mt}. First, we vary the deflator (CPI-U vs. GDP deflator) and the growth-rate definition (log-difference vs. symmetric growth rates) and find similar results. Second, we replace prior-year weights ω_{mjt-1} with multi-year averages to reduce transitory noise in bank footprints; the results are unchanged. Third, we add MSA-specific trends and interactions between year fixed effects and broad Census regions; the coefficient on log(HP/INC) is stable. Finally, we show that the first-stage for affordability remains strong (F-statistics well above conventional thresholds) when SBL_{mt} enters the second stage, confirming that our instruments retain relevance even after accounting for credit supply fluctuations.

Taken together, the CRA-based SBL control strengthens the causal interpretation of our IV estimates by absorbing independent movements in small business credit that are plausibly orthogonal to the housing affordability channel. The combination of (i) price-driven affordability instruments and (ii) credit supply controls places the analysis on firmer ground for attributing the observed tenure–age heterogeneity in entrepreneurial responses to affordability shocks.

5 IV Regression: MSA-Level Estimates Using Saiz (2010)

A key empirical challenge in quantifying the causal effect of housing affordability on entrepreneurship is the endogeneity of local affordability measures. Ordinary least squares (OLS) estimates are difficult to interpret because local house price-to-income ratios (HP/INC) are jointly determined with entrepreneurial dynamics. For example, local demand shocks that encourage business formation may simultaneously push up both incomes and housing demand, generating spurious correlations. Reverse causality is also possible if entrepreneurial activity stimulates productivity and income growth, which in turn feeds back into higher housing demand and prices. Finally, classical measurement error in local income or house price indices may attenuate OLS coefficients toward zero. These concerns motivate an instrumental variables (IV) strategy to isolate plausibly exogenous shocks to local housing affordability.

5.1 Empirical Specification

We estimate a two-stage least squares model at the MSA-year level, using ACS microdata aggregated to metropolitan statistical areas (MSAs) between 2005 and 2019. The outcome variable Y_{mt} is the log share of self-employment in MSA m and year t, measured separately by tenure (renter versus homeowner) and age group (young versus old). The key endogenous regressor is the lagged log of the local house price-to-income ratio, $\log(\frac{HP}{INC})_{m,t-1}$.

Formally, the two-stage model is given by:

$$Y_{mt} = \beta \log\left(\frac{HP}{INC}\right)_{m,t-1} + \chi\, SBL_{mt} + X'_{mt}\theta + \lambda_m + \lambda_t + \varepsilon_{mt}, \tag{5.1}$$

$$\log\left(\frac{HP}{INC}\right)_{m,t-1} = \gamma \log\left(\frac{HP}{INC}\right)_{t-1}^{National} \cdot Z_m + \psi\, SBL_{mt} + X'_{mt}\phi + \delta_m + \delta_t + \eta_{mt}, \tag{5.2}$$

where SBL_{mt} denotes small-business lending shocks constructed from CRA disclosure data, X_{mt} is a vector of additional controls (Bartik demand shifts, log population, and the local unemployment rate), λ_m and λ_t are MSA and year fixed effects, and errors are clustered at the MSA level.

5.2 Instrument Construction and Identification

The instrument Z_m is derived from the Saiz (2010) index of local housing supply elasticity, which captures the extent to which topography and regulatory constraints limit new housing supply. Following **?**, we employ a cubic polynomial in elasticity

interacted with national housing cycles:

$$Z_{m,t-1}^{(k)} = \left(\log \frac{HP}{INC}\right)_{t-1}^{National} \times (Elasticity_m)^k, \quad k = 1, 2, 3.$$

This design allows for nonlinear amplification of national demand shocks across markets with different supply elasticities. Intuitively, when national demand rises, low-elasticity MSAs experience disproportionately larger affordability shocks relative to high-elasticity MSAs. The identification assumption is that, conditional on controls, this interaction shifts local affordability but has no direct effect on entrepreneurship.

The plausibility of this exclusion restriction rests on two points. First, Saiz elasticities are time-invariant, determined by exogenous geographic constraints (e.g., land availability, slope) and long-standing regulation, rather than by contemporaneous entrepreneurial dynamics. Second, our empirical models include a rich set of controls, notably Bartik demand shifters and CRA-based credit supply shocks, that account for alternative local channels. With these controls in place, it is unlikely that supply elasticity influences self-employment shares except through its interaction with national housing cycles.

5.3 First-Stage Results The first-stage regressions confirm strong instrument relevance. During housing booms, low-elasticity MSAs exhibit significantly larger increases in HP/INC relative to high-elasticity MSAs. The cubic polynomial specification yields robust explanatory power, with first-stage F-statistics above 25 across all specifications, comfortably exceeding conventional thresholds. This finding mirrors the evidence in **?**, who similarly emphasize the nonlinear responsiveness of house prices to national shocks across supply-constrained markets.

5.4 Second-Stage Estimates Table 5.4 and Table 5.4 present the IV estimates of Equation (5.1), disaggregated by tenure and age group.

The results reveal sharp heterogeneity. For renters, the estimated coefficients on $\log(HP/INC)$ are large and negative, particularly among young renters. A one-log-point increase in affordability pressure reduces renter self-employment by roughly 0.8 to 1 log point, with effects strongest for unincorporated self-employment. By contrast, for young homeowners, the coefficient is positive and significant in the incorporated self-employment specification, consistent with collateral effects of rising home values. For

IV Regression with Saiz (2010): Incorporated Self-Employment						
	Renter	Homeowner	Young		Old	
	(1)	(2)	(3) Renter	(4) Homeowner	(5) Renter	(6) Homeowner
Coeff. on log(HP/INC)	-0.8431**	-0.0040	-0.3116	0.7941**	-0.9806**	-0.1597
	(0.4154)	(0.1426)	(0.5015)	(0.3277)	(0.3899)	(0.1730)
Coefficient on SBL	0.0828	-0.0362	0.2506	0.1400	0.0626	-0.1071
	(0.1463)	(0.0611)	(0.2064)	(0.1695)	(0.1816)	(0.0810)
F-test for excl. instruments	33.85	29.88	32.42	29.40	28.04	29.88
OLS Regression: Incorporated Self-Employment						
Coeff. on log(HP/INC)	-0.3198***	-0.0888	-0.1693	0.2457*	-0.1621	-0.1872***
	(0.1223)	(0.0656)	(0.1505)	(0.1452)	(0.1487)	(0.0647)
Coefficient on SBL	0.0509	-0.0305	0.2426	0.1735	0.0184	-0.1053
	(0.1523)	(0.0643)	(0.2159)	(0.1712)	(0.1873)	(0.0867)
MSA Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes
MSA Bartik Demand control	Yes	Yes	Yes	Yes	Yes	Yes
MSA Population and Unemployment	Yes	Yes	Yes	Yes	Yes	Yes

IV Regression with Saiz (2010): Unincorporated Self-Employment						
	Renter	Homeowner	Young		Old	
	(1)	(2)	(3) Renter	(4) Homeowner	(5) Renter	(6) Homeowner
Coeff. on log(HP/INC)	-0.8138***	0.0835	-0.9572***	0.5343*	-0.6324**	0.0472
	(0.2307)	(0.1028)	(0.2914)	(0.3010)	(0.2559)	(0.1212)
Coefficient on SBL	0.0160	-0.0579	-0.1982	-0.1059	0.1689	-0.0708
	(0.0980)	(0.0484)	(0.1604)	(0.1177)	(0.1530)	(0.0556)
F-test for excl. instruments	29.72	29.88	31.06	30.20	30.83	29.88
OLS Regression: Unincorporated Self-Employment						
Coeff. on log(HP/INC)	-0.3282***	0.0542	-0.2496**	0.0433	-0.3956***	0.0739
	(0.0834)	(0.0439)	(0.1084)	(0.0975)	(0.1026)	(0.0506)
Coefficient on SBL	-0.0162	-0.0560	-0.2434	-0.0739	0.1526	-0.0726
	(0.1014)	(0.0503)	(0.1652)	(0.1193)	(0.1597)	(0.0578)
MSA Fixed	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed	Yes	Yes	Yes	Yes	Yes	Yes
MSA Bartik Demand control	Yes	Yes	Yes	Yes	Yes	Yes
MSA Population and Unemployment	Yes	Yes	Yes	Yes	Yes	Yes

old homeowners, the estimated effects are small and statistically insignificant, suggesting offsetting mechanisms.

5.5 Interpretation These patterns are consistent with our theoretical framework. Rising housing costs simultaneously tighten liquidity constraints for renters and expand collateralizable wealth for homeowners, generating asymmetric effects on entrepreneurial entry. The negative coefficients for young renters highlight how affordability shocks crowd out those with the least accumulated wealth and the greatest exposure to rental burdens. The positive effects for young homeowners reflect collateral channels: rising home values expand borrowing capacity, encouraging entry into growth-oriented incorporated businesses. That old renters and old homeowners exhibit muted or mixed responses is consistent with life-cycle considerations. Older households are less likely to make new entrepreneurial investments, and those who already own homes may be less sensitive to marginal fluctuations in housing wealth.

5.6 Comparison with OLS The contrast between OLS and IV estimates underscores the importance of addressing endogeneity. OLS coefficients are uniformly smaller in magnitude and occasionally positive for renters, reflecting upward bias from local demand shocks and attenuation from measurement error. Once we exploit exogenous affordability shocks through the IV design, the negative effects for renters and the positive effects for young homeowners become more pronounced. This pattern strengthens the causal interpretation of our findings: it is not general economic activity driving both housing demand and entrepreneurship, but rather affordability constraints and collateral channels working in opposite directions across tenure groups.

5.7 Discussion Taken together, the IV results provide causal evidence that housing affordability shocks are an important determinant of who becomes an entrepreneur. The divergence between renters and owners, and between young and old, highlights the distributional nature of affordability pressures. Rising housing costs do not simply reduce aggregate entrepreneurial activity; they reallocate entrepreneurial opportunity away from young renters and toward relatively better-capitalized homeowners. These findings suggest that housing markets may contribute to the broader decline in business dynamism by selectively constraining the entry of financially fragile but potentially innovative young entrepreneurs.

6 Within Renter Heterogeneity

7 Robust Check with Housing Price Sensitivity

8 Model

In this section, we formalize the mechanism through which housing affordability shocks affect entrepreneurship decisions for *renters*. The empirical evidence documents sharp compositional shifts by tenure and age, but reduced–form regressions cannot isolate whether these patterns are driven by liquidity constraints, budget reallocations, or selection. To discipline the interpretation, we develop a simple two–period model of occupational choice under housing constraints. The model is deliberately parsimonious: it captures the rent–burden channel, features a borrowing limit, and delivers closed–form decision rules for entrepreneurial entry. The comparative statics then allow us to map an increase in the house price–to–income ratio (HP/INC) into differential entry responses for renters.

8.1 Setup

Agents live for two periods, $t = 0, 1$, and choose whether to enter entrepreneurship at $t = 0$. Preferences are given by

$$U \;=\; \frac{\left(C_0^{1-\mu}(h_0 - \bar{h})^{\mu}\right)^{1-\gamma}}{1-\gamma} \;+\; \kappa^a \beta\, \mathbb{E}\left[\frac{\left(C_1^{1-\mu}(h_1 - \bar{h})^{\mu}\right)^{1-\gamma}}{1-\gamma}\right], \tag{8.1}$$

where C_t denotes non–housing consumption, h_t denotes housing services, $\bar{h} > 0$ is a minimum subsistence requirement, $\mu \in (0, 1)$ is the housing expenditure share, $\gamma > 0$ is relative risk aversion, β is the discount factor, and κ^a is an age shifter (κ^a larger for young households).

At $t = 0$, an agent decides whether to pay a fixed cost $F > 0$ to become an entrepreneur at $t = 1$. If the agent enters ($e = 1$), the project yields stochastic profits $\pi \sim N(\mu_\pi, \sigma_\pi^2)$ at $t = 1$. If the agent does not enter ($e = 0$), they receive wage income y_1 instead. Initial liquid wealth is W_0, and wage income at $t = 0$ is y_0. The gross risk–free return is R_f.

8.2 Budget constraints

For renters, period–0 and period–1 budgets are

$$\begin{aligned}
R_0\bar{h} + m_0 + s + Fe \;&\le\; W_0 + y_0, \quad m_0 = C_0 + R_0(h_0 - \bar{h}), && \text{(Period 0)}\\
s \;&\ge\; -B, && \text{(Borrowing constraint)}\\
R_1\bar{h} + m_1 \;&\le\; (1-e)y_1 + e\pi + R_f s, \quad m_1 = C_1 + R_1(h_1 - \bar{h}), && \text{(Period 1)}
\end{aligned}$$

where R_t is the rental price in period t, m_t denotes discretionary composite spending, and s is saving ($s < 0$ indicates borrowing). The borrowing limit B ensures that entry costs F must be financed from

available liquidity.

8.3 Entry threshold Following intratemporal optimization, the marginal utility of composite spending is

$$\phi(R) \equiv \left[(1-\mu)^{1-\mu}\left(\frac{\mu}{R}\right)^{\mu}\right]^{1-\gamma}. \tag{8.2}$$

Let $m_{0,W}$ and $m_{1,W}$ denote the composite allocations for a worker (no entry), and $\bar{m}_{1,E}$ the expected allocation for an entrepreneur. The shadow value of liquidity at $t = 0$ is

$$\lambda^B = \phi(R_0)m_{0,W}^{-\gamma} - \kappa^a \beta R_f \phi(R_1) m_{1,W}^{-\gamma}. \tag{8.3}$$

If the borrowing constraint binds, $\lambda^B > 0$; otherwise $\lambda^B = 0$.

The renter's entry rule is characterized by a threshold for expected profits:

$$\mu_\pi^* = y_1 + \frac{\gamma}{2}\frac{\sigma_\pi^2}{\bar{m}_{1,E}} + \left[R_f + \frac{\lambda^B}{\kappa^a \beta \phi(R_1) m_{1,W}^{-\gamma}}\right] F. \tag{8.4}$$

Equation (8.4) shows that entrepreneurship is viable only if expected profits exceed three components: (i) baseline earnings y_1, (ii) a risk premium proportional to σ_π^2, and (iii) the cost of financing F, which is inflated when liquidity is scarce ($\lambda^B > 0$).

8.4 Comparative statics: the role of rents Differentiating (8.4) with respect to R_0 gives

$$\frac{\partial \mu_\pi^*}{\partial R_0} = \frac{F}{\kappa^a \beta}\frac{\phi(R_0)}{\phi(R_1)}\left(\frac{m_{0,W}}{m_{1,W}}\right)^{\gamma}\left[-\frac{\mu(1-\gamma)}{R_0} + \frac{\gamma \bar{h}}{m_{0,W}}\right]. \tag{8.5}$$

Both terms in brackets are positive for $\gamma > 1$, implying that higher rents increase the expected return required to justify entry. Intuitively, rising rent tightens the period–0 budget, raises the marginal utility of liquidity, and makes sacrificing F for entry more costly. This is precisely the "rent–burden channel" through which housing affordability shocks reduce entrepreneurship among renters.

8.5 Interpretation Equation (8.5) highlights several comparative statics:

- Larger F (startup cost) $\Rightarrow$ stronger sensitivity of entry to rents.
- Higher μ or larger $\bar{h}$ (housing share) $\Rightarrow$ greater rent burden and sharper negative effects.

- Smaller B (tighter borrowing constraint) $\Rightarrow$ liquidity wedge amplifies rent sensitivity.
- Lower κ^a (older agents discounting the future more) $\Rightarrow$ stronger negative effects of rent shocks relative to expected future payoffs.

Thus, in the model, young renters—who typically have small W_0, high $\bar{h}$ relative to income, and face binding liquidity constraints—exhibit the steepest negative response to affordability shocks. This analytical result rationalizes the empirical finding that self–employment among young renters falls most strongly when HP/INC rises.

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A Appendix