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Too Much Yet Not Enough

Housing Segmentation and Household Consumption in China

Estelle Xue Liu and Jibingxin Han

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WORKING PAPER

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Too Much Yet Not Enough: Housing Segmentation and Household Consumption in China

Prepared by Estelle Xue Liu and Jibingxin Han

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ABSTRACT: China's urban housing system is structurally segmented: market-based residential housing accounts for only about 40 percent of occupied urban dwellings, with the remainder split between rental and legacy housing acquired outside the market. Using 2000–2020 Population Censuses and the 2019 China Household Finance Survey, this paper documents that housing tenure is systematically associated with distinct household consumption patterns. Conditional on income, wealth, and household characteristics, legacy homeowners exhibit lower discretionary consumption and higher income responsiveness than renters, while market homeowners' consumption is closely tied to housing wealth. These patterns are stable across survey waves and broadly consistent with panel-based evidence, pointing to structural balance-sheet differences across residential regimes as important correlates of household consumption behavior in China.

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I. Introduction

China's housing market is widely studied, yet it remains incompletely understood. Public and policy debates continue to focus narrowly on the market-based residential housing sector—its sales, investment, prices, and developer balance sheets.¹ This focus is understandable: since the post-1998 marketization of housing, market-based real estate has become deeply intertwined with fixed asset investment, local government finance, and macro-financial risks. It has also anchored a dominant narrative that China's core housing problem is primarily one of excess supply and overbuilding. China's homeownership rate (around 90 percent) ranks among the highest globally, and average living space per person (about 40 square meters) now exceeds that in several advanced economies, including the United Kingdom, France, and Japan (Rogoff and Yang, 2024a). Together with commonly cited indicators such as unsold inventories and vacancy rates, these facts have reinforced the perception that China's housing market is fundamentally oversupplied.

Such framing, however, may obscure important heterogeneity in how households actually experience the housing system. It says little about a large part of urban households who reside outside the market-based segment entirely. A significant share of urban households remain renters facing documented barriers to ownership entry—including high price-to-income ratios, large down-payment requirements, and hukou-linked eligibility restrictions (Chan, 2010; Au and Henderson, 2006)—suggesting that aggregate supply abundance and constrained household access can coexist. A further large share reside in legacy housing that is demonstrably older and less equipped with modern facilities than market-purchased dwellings, with limited tradability. That aggregate supply indicators can simultaneously suggest abundance while a substantial share of households face access barriers and structural housing deficiencies is the central tension this paper documents and analyzes.

To address this gap, this paper studies the broader occupied residential structure, classified into three distinct residential regimes, market homeowners, renters, and legacy homeowners. Using harmonized evidence from the 2000–2020 Population Censuses and microdata from the 2019 China Household Finance Survey (CHFS), we reconstruct China's occupied urban housing structure and show that market-purchased housing accounts for only about 40 percent of occupied urban dwellings. Another roughly 40 percent of urban households reside in legacy housing acquired outside the market, while the remaining households live in rental housing, even if some own housing in locations different from their place of residence.

These three residential regimes differ systematically across demographic, institutional, and financial dimensions.

- **Renters** are typically younger and more mobile households, many without local hukou, facing barriers to homeownership in their city of residence because of high house prices, large down-payment requirements, and hukou-linked eligibility restrictions (Chan, 2010; Au and Henderson, 2006).
- **Legacy homeowners** are generally older and concentrated in lower-income groups; many occupy self-built, formerly public, or subsidized housing that is demonstrably older and less equipped with modern

¹ Throughout the paper, we use the terms “commercial housing” and “market-based residential housing” interchangeably to refer to developer-built residential housing transacted at market-determined prices in China. “Commercial housing” is a direct translation of the Chinese term “商品房” and is widely used in policy and academic discussions on China. However, in English-language housing market studies, “commercial housing” typically refers to non-residential real estate. To avoid confusion, we therefore primarily use “market-based residential housing” after the first mention. The coexistence of these terms reflects the broader challenge of translating China-specific housing institutions into precise English terminology.

facilities, with limited tradability and poor collateral value—features that constrain the scope for monetizing existing housing assets (Wu, Zhang, and Webster, 2013; Deng, Gyourko, and Wu, 2012).

- **Market homeowners**, especially those who purchased during the housing expansion of the 2010s, are more likely to carry mortgage leverage and are more exposed to changes in housing valuations and financing conditions following the housing adjustment that began in 2021.

These distinctions, unlike the conventional homeowner-renter distinction, are economically important because housing enters household balance sheets in markedly different ways across tenure groups. Housing remains the single largest asset for Chinese households, accounting for roughly two-thirds of total household wealth in aggregate statistics and an even higher share in micro-survey evidence (Gan, 2010; IMF, 2025; Piketty and others, 2019). At the same time, the relationship between housing wealth and consumption depends critically on whether that wealth is liquid and tradable—a distinction that has been shown to shape consumption responses to housing market shocks in other contexts (Mian, Rao, and Sufi, 2013). Within China, Sun and Yao (2019) document significant heterogeneity in household consumption across sectors using a similar micro approach; this paper extends that line of inquiry by focusing on housing tenure as the key source of heterogeneity. These differences may shape households' saving behavior, discretionary consumption, and responses to income and housing-market shocks.

The paper then uses household consumption behavior to illustrate the broader economic relevance of these residential regimes. Using cross-sectional micro data for empirics, we document strong and systematic differences in both the level of discretionary consumption and its responsiveness to income across renters, legacy homeowners, and market homeowners, even after controlling for income, wealth, household characteristics, and location. Notably, conditional on income and wealth, legacy homeowners tend to devote less to discretionary consumption and exhibit greater sensitivity to income changes, consistent with the idea that housing ownership in China often involves significant balance-sheet commitments and exposure to illiquid housing wealth rather than functioning purely as a source of readily usable wealth. These patterns are stable across survey waves and are further supported by additional panel-based evidence using the 2017, 2019, and 2021 CHFS waves. The findings suggest that aggregate housing indicators focused primarily on market-based housing can mask substantial heterogeneity in household balance sheets and economic behavior across tenure groups.

The observed patterns are interpreted through model-based channels related to housing obligations, liquidity, leverage, and expected future housing expenditures. The paper does not separately identify these mechanisms empirically—they represent potential explanations consistent with the data rather than established findings. Establishing the relative importance of specific channels and their interaction with household characteristics would require further research with richer longitudinal and post-2021 data.

Most existing studies of housing and household behavior in China focus on housing wealth, house prices, or the homeowner-renter distinction. While these approaches have generated important insights, they do not fully capture the institutional diversity of China's housing system. By distinguishing residential regimes defined by housing acquisition history and occupancy rather than ownership alone, this paper uncovers heterogeneity in household balance sheets and economic behavior that conventional classifications may overlook.

The analysis is conducted in a research capacity and does not assess policy options or make policy recommendations. The remainder of the paper proceeds as follows. Section II traces the institutional evolution that produced China's three residential regimes. Section III reconstructs the distribution of dwelling types and documents who lives where across demographic and regional dimensions. Section IV presents micro-

econometric evidence on how consumption varies across housing status and discusses the implications of the recent housing market adjustment. Section V concludes.

II. Origins of China's Housing Structure: From Welfare to Marketization

China's contemporary housing landscape cannot be understood without tracing the transformation that shifted the country from full public provision to near-complete marketization within one generation. This transition—unparalleled in scale and speed—did not replace one system with another but instead layered successive institutional regimes on top of one another. As a result, different phases of policy reform left behind distinct segments of dwellings—segments that continue to shape where households live, how housing is accessed, and the scope for mobility and upgrading today.

2.1 A Five-Phase Transformation

Phase 1: Welfare Allocation (1949–1978)

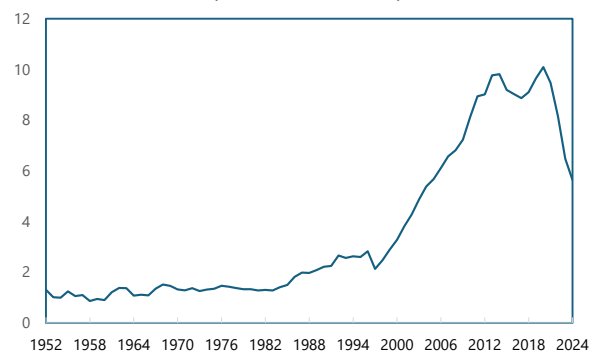
For the first three decades of the People's Republic, urban housing was treated as a basic component of the planned economy. Housing was financed and allocated by the state or state-owned enterprises (SOEs) as a form of social welfare, with access tied closely to employment and administrative status. Due to capital scarcity and an overriding industrial policy focus, housing construction was severely underfunded relative to industrial investment (Figure 1). The result was a stock of small, overcrowded units, often with shared facilities such as kitchens and toilets. Average urban living space hovered around 5 square meters per capita, reflecting widespread shortages of basic shelter. This welfare-based allocation model and its institutional consequences have been documented extensively in the Chinese context (Deng, Gyourko, and Wu, 2012; World Bank, 2014).

While this system ensured near-universal access to housing in cities, it also produced dwellings of highly uneven quality and location. These features would later shape the characteristics of housing assets inherited from the welfare era.

Phase 2: Partial Privatization and Self-Building (1978-mid-1990s)

The reform era that began in 1978 introduced partial market incentives into the housing sector without dismantling the welfare framework. Employees were gradually allowed to purchase their homes from work units, often at heavily subsidized prices. A common guiding principle was that the government, the employer, and the individual would each bear roughly one-third of the cost. Local governments and SOEs continued to construct housing as part of their welfare obligations, using proceeds from home sales or administratively allocated land. The privatization of state-owned enterprise housing at subsidized prices had highly uneven distributional consequences across income and occupational groups (Wang, Wang, and Bramley, 2005).

Figure 1. China's Housing Market Evolution
Real Estate Investment
(Percent of GDP)



Sources: CEIC Data Company Limited; and authors' calculations.

In parallel, self-built housing expanded on collectively owned peri-urban land and rural land, particularly around growing cities. These dwellings typically lacked formal land-use rights or complete property titles, limiting their tradability and access to finance. This period laid the foundation for a large stock of what we term legacy housing: dwellings not acquired through open-market transactions and often characterized by incomplete rights, outdated construction quality, or both. The partial privatization of work-unit housing at subsidized prices and the expansion of self-built housing on collectively owned land during this period have been analyzed as defining features of China's transitional housing system (Wu, Zhang, and Webster, 2013).

Phase 3: Dual-Track System and Weak Early Marketization (1994–1998)

In 1994, the government formally introduced a dual-track housing system, distinguishing between market-based housing for higher-income households and subsidized or affordable housing for the broader population. This marked the first explicit attempt to segment housing provision by income. In practice, weak income verification and administrative leakages meant that access to subsidized housing was uneven, and SOEs remained central to housing supply.

A decisive institutional break occurred in 1998, when employer-provided housing was terminated nationwide. Home purchase—either in the market or through subsidized channels—became the primary means of urban housing acquisition. This reform sharply accelerated the shift toward market-based housing, while locking in heterogeneity created during earlier phases.

Phase 4: Full Marketization and the Rise of Land Finance (1998-mid-2000s)

Following the 1998 reform, private developers expanded rapidly, mortgage credit became widely available, and real estate emerged as a pillar of economic growth. The 1994 fiscal reform, which reassigned land-sale revenues to local governments, underpinned the land finance model: local governments auctioned residential land at high prices to fund public investment, while supplying industrial land at low cost to attract firms (Tao and others, 2010).

Rapid urbanization, expanding credit access, and rising expectations of capital gains—amid limited alternative financial instruments—generated a broad-based housing boom (Pomeranz and Qin, 2018; Wang and Wen, 2015). At the same time, rural land on the urban periphery was increasingly absorbed into cities, giving rise to large-scale informal self-built housing and urban villages, particularly in migrant-heavy cities (Lin and Yi, 2011; Liu and others, 2010; Wu and others, 2013). These developments further expanded the stock of non-market and quasi-market housing.

Phase 5: Cyclical Management Under Market Dominance (mid-2000s-present)

Since the mid-2000s, authorities have sought to manage housing cycles under a predominantly market-based system. Policy discourse increasingly emphasized that “housing is for living, not for speculation,” while macroprudential tightening alternated with stimulus measures. Housing booms were reinforced by large-scale interventions, including the post-2008 fiscal stimulus and the 2015–2018 shantytown redevelopment program, which injected substantial liquidity into the sector through policy bank lending. These episodes reinforced expectations of sustained house price appreciation, shaping households' saving and asset allocation decisions (Fang and others, 2016).

Periodic tightening measures—such as purchase restrictions, mortgage caps, and developer financing rules—moderated cyclical fluctuations but did not fundamentally alter the structure of the housing system. By the late 2010s, real estate investment had peaked at over 13 percent of GDP (Figure 1), underscoring the sector's deep macro-financial integration.

2.2 Implications for Today's Housing Structure

Across these phases, China accumulated a highly diverse housing stock that reflects multiple institutional eras. The legacy of this path dependence is a structurally segmented residential system, combining a modern, credit-driven commercial market with a large stock of dwellings inherited from earlier welfare, transitional, and informal regimes (Wu and others 2012; Deng and others 2012). This segmentation is not transitional: it continues to shape affordability, housing mobility, and the distribution of housing wealth across households, providing the foundation for the empirical analysis that follows. The scale and speed of China's housing expansion have been widely documented, with market-based housing emerging as a dominant vehicle for household wealth accumulation (Glaeser and others, 2017).

III. Residence Structure Nationwide: A Complete Mapping Using Census and Micro-Level Data

This section maps China's residential structure using two complementary data sources: the 2000, 2010, and 2020 Population Censuses and the 2019 China Household Finance Survey (CHFS). The 2019 wave serves as the primary micro-level benchmark because it predates both the COVID-19 shock and the post-2021 housing adjustment, allowing the analysis to isolate structural features of the residential system. Evidence from the 2017 and 2021 CHFS waves is used in Appendix IV to assess robustness.

The objective is to reconstruct the distribution of occupied dwellings as comprehensively as possible and to identify who lives in each segment of the housing system. Together, these data document how the institutional reforms described in Section II translated into a structurally segmented residential landscape, providing the empirical foundation for the analysis of consumption and financial behavior in Section IV.

3.1 Data Sources

We begin with the Population Census, which provides the most comprehensive record of household residence across China. The Fifth (2000), Sixth (2010), and Seventh (2020) Censuses are particularly informative for housing analysis. The 2000 Census captures dwelling conditions shortly after the start of full marketization (Phase 4 in Section II), while subsequent rounds reflect the consequences of rapid urbanization, rising land prices, and large-scale housing investment.

A key advantage of the census is that it records occupied dwellings rather than transactions. This distinction is central to our analysis. Transaction-based statistics—such as housing sales, starts, or inventories—primarily reflect commercial housing activity, while occupied-dwelling data capture the stock of housing that actually anchors household balance sheets, mobility, and consumption decisions. This includes informal, inherited, self-built, and formerly public housing that plays little role in market turnover but remains economically consequential.

The census reports dwelling type, dwelling size, and access to basic facilities, but it does not include household characteristics such as income, education, hukou status, consumption, or debt, nor does it capture vacant

units. Given that more than 90 percent of China's housing stock is occupied, census data nevertheless provide a close approximation of the housing stock relevant for household behavior.²

To address these limitations, we complement the census with the 2019 China Household Finance Survey (CHFS), a nationally representative survey covering 34,640 households across 29 provinces. The CHFS provides detailed microdata on demographics, hukou status, income, consumption, balance sheets, and housing assets, allowing us to link residential status to economic behavior. Appendix I documents in detail how dwelling categories are harmonized between the census and the CHFS to ensure consistency.

Although the 2021 CHFS wave is available, it reflects a period marked by pandemic-related disruptions and the early phase of housing-market adjustment. For this reason, the 2019 wave is used as the structural benchmark in the main text, while the 2017 and 2021 waves are employed in Appendix IV to verify the stability of the documented patterns over time.

3.2. Classification of Residence Types

Households are classified as urban or rural based on place of residence rather than hukou registration, consistent with the Population Census. This residence-based definition captures differences in land rights, infrastructure, public services, and exposure to housing markets—dimensions that matter economically—rather than administrative status alone.

Figure 2 illustrates the share of households residing in urban areas across provinces, highlighting substantial spatial heterogeneity in the pace and extent of urbanization. Coastal and northeastern provinces exhibit the highest urban household shares, while interior and western provinces remain more rural, reflecting long-standing differences in industrialization, migration patterns, and administrative urban expansion. These spatial patterns shape the regional composition of rental, legacy, and market housing analyzed in subsequent sections.

To ensure comparability across data sources, we restrict the census sample to family households (家庭户) and exclude collective units (集体户).³ Family households account for the overwhelming majority of the population and form the relevant unit for analyzing dwelling conditions and household behavior. The CHFS surveys family households exclusively, making this restriction essential for comparability.

We classify households into three mutually exclusive residence categories based on housing acquisition channels:

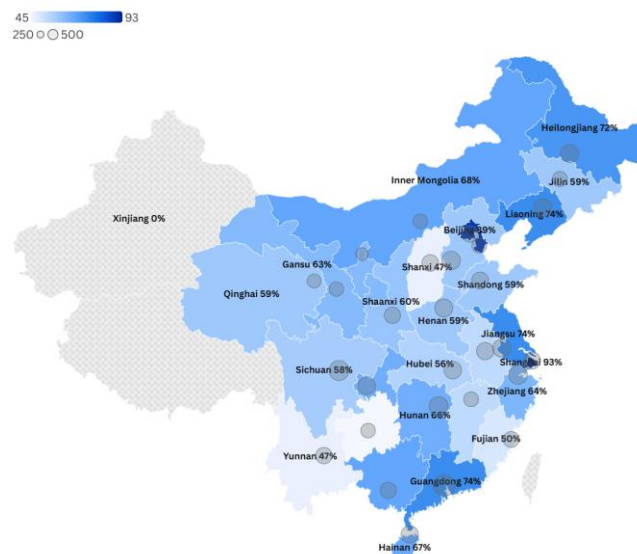
- **Renters:** households occupying dwellings they do not own, including both private-market and public rental housing.
- **Legacy homeowners:** households living in self-owned dwellings obtained outside the open market, often characterized by incomplete property rights, limited tradability, or outdated structure. Box 1 provides details of houses in this category.
- **Market homeowners:** households that acquired their primary residence through primary or secondary-market transactions, typically with standardized property rights and access to mortgage financing.

² The size of vacancy rates have been well-documented based on CHFS dataset.

³ Family households (家庭户) is defined as individuals living in the same dwelling and linked primarily by family or kinship ties. Collective units (集体户) include student dormitories or institutional housing.

This typology maps directly to the institutional phases of housing reform described in Section II and allows us to examine how historical acquisition channels continue to shape household constraints and economic behavior.

Figure 2. Share of Households Residing in Urban Areas, by Province



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

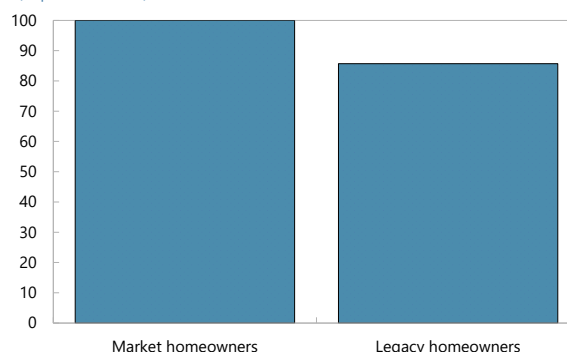
Note: The CHFS sample does not cover Xinjiang, Tibet, Hong Kong SAR, Macao SAR, and Taiwan Province of China.

Box 1. What is Legacy Housing

Legacy housing refers to dwellings that are owned and occupied by households but were not acquired through fully market-based transactions, and often lack complete tradability, liquidity, or legal clarity. These units are typically the result of earlier phases of China's housing reform (see Section 2.1) and remain functionally distinct from market-based housing in terms of ownership rights (Text Figure), quality, and marketability.

In this paper, legacy housing—classified using 2020 Population Census categories—includes:

Full Property Rights
(In percent, urban)



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

1. Former Publicly-Owned Housing (购买原公有住房)

Work-unit or state-owned housing privatized at subsidized prices during the reform period. Although ownership is formally recognized, resale may be constrained by incomplete land-use rights, non-standard documentation, or administrative frictions.

2. Self-Built Housing (自建住房)

Dwellings constructed on collectively owned rural or peri-urban land, common in urban villages and county-level cities (Song and Zenou, 2012). Many units remain non-tradable or non-mortgageable due to unresolved land or construction certification. This category is common in urban villages and among rural-to-urban migrants or households in county-level cities.

3. Subsidized Affordable and Restricted-Price Housings (购买经济适用房/两限房) Or Policy Housing

This includes two government-regulated housing types:

- Economically Affordable Housing (经济适用房): For low-income urban households. These units cannot be sold within five years. After five years, resale requires either paying back land-transfer fees or selling back to eligible buyers at the original price.
- Restricted-Price Housing (两限房): Targeted at middle- and low-income groups with price and size caps. After five years, units may be traded but only to eligible buyers, and 35% of the land transfer fee must be paid based on the assessed market value.

4. Inherited or Gifted Housing (继承或赠予)

Homes acquired outside market transactions. While legal ownership is typically recognized, these units may face heterogeneous documentation quality and limited market readiness.

5. Other

This residual category includes housing sources that do not clearly fall under market or public classifications. Given their small share, we include them within the legacy housing category for analytical purposes.

3.3 Dwelling Composition Across Time and Space

The census reveals a residential landscape shaped by both rapid marketization alongside persistent institutional legacies (Figure 3; Table 1).

Urban Areas

Urban housing experienced substantial commercialization: market homeowners increased from 11.7 million households (9 percent) in 2000 to 122.9 million (42 percent) in 2020. This expansion reflects the joint effects of mortgage availability, developer-led construction, rising incomes, and expectations of capital gains.

The rental sector also expanded, with renters rising from 27.0 million to 61.7 million households. Economically, this expansion is associated with a widening affordability gap: rapid house price growth outpaced income growth, delaying entry into ownership among younger and migrant households.

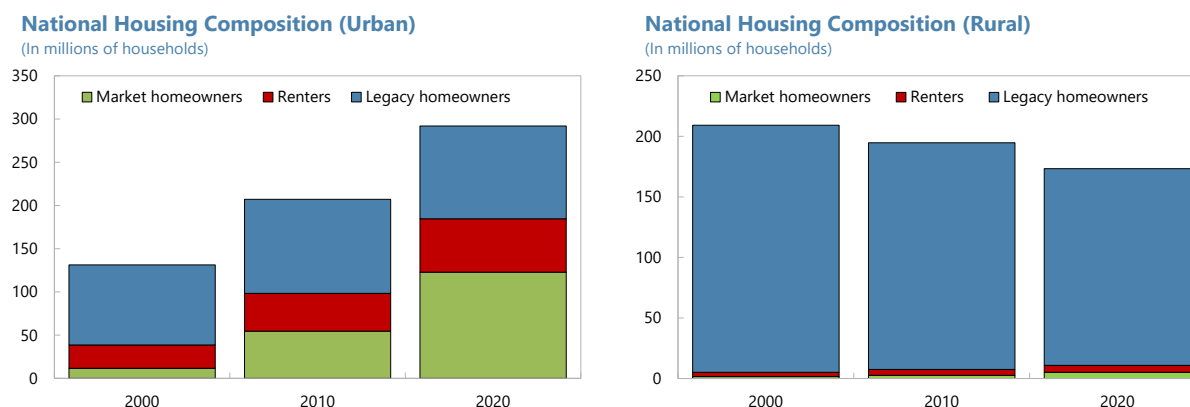
By contrast, legacy housing declined only gradually and still accounted for 107.3 million urban households—over one-third of all urban residences in 2020. The persistence of this segment reflects strong path dependence: dwellings created under earlier institutional regimes remain occupied even as market housing expands. The result is a dual urban structure, in which high transaction volumes in the commercial market coexist with a large stock of low-liquidity housing that rarely trades but continues to shape household economic outcomes.

Importantly, legacy housing is not economically marginal. CHFS 2019 data indicate that legacy homeowners account for roughly half of total gross housing assets among urban households, with market homeowners accounting for a comparable share. In net terms, the distribution shifts modestly toward market homeowners due to higher housing-related debt, but legacy housing remains balance-sheet relevant.⁴

Rural China

Rural housing exhibits a fundamentally different structure. Across all census waves, more than 90 percent of rural households reside in legacy dwellings, overwhelmingly self-built housing on collectively owned land. Market-based ownership and rental housing remain marginal, reflecting non-tradable land rights and limited penetration of mortgage finance. Given this highly uniform tenure structure, rural housing offers limited variation for analyzing household mobility, financial constraints, or consumption behavior. The remainder of the analysis therefore focuses on urban areas.

Figure 3. Housing Composition by Dwelling Type



⁴ Estimates based on CHFS 2019 urban household heads. Housing assets refer to reported self-occupied housing assets; net measures deduct outstanding housing-related debt. The figures are descriptive and not adjusted for regional price differences.

Sources: China Population Census Yearbooks (2000, 2010, 2020) by NBS; and authors' calculations.

Table 1. Breakdown of Households by Tenure and Type

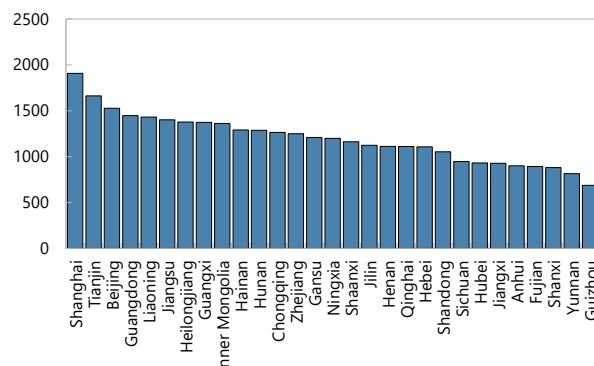
	Urban			Rural		
	2000	2010	2020	2000	2010	2020
<i>Unit: million households</i>						
Market Homeowners	11.7	54.7	122.9	1.7	2.7	5.0
Purchased new commercial housing	11.7	45.1	93.3	1.7	1.1	3.1
Purchased second-hand housing	-	9.6	29.6	-	1.5	1.9
Renters	27.0	43.6	61.7	3.6	5.1	5.6
Low-rent housing/Public rental housing	18.9	5.1	10.0	2.3	0.8	0.8
other rental housing	8.0	38.5	51.7	1.3	4.2	4.8
Legacy Homeowners	92.6	108.9	107.3	210.4	192.5	159.2
Self-built housing	46.9	65.2	61.2	201.4	188.7	151.3
Purchased formal publicly-owned housing	30.9	26.8	17.9	2.1	1.0	0.5
Purchased affordable housing/ restricted-price housing	7.8	8.4	11.0	1.3	0.5	0.9
Inherited or gifted housing	-	-	2.5	-	-	2.0
Others	7.0	8.5	14.6	5.5	2.4	4.5
Total	131.3	207.2	291.9	215.6	200.2	169.8

Sources: China Population Census Yearbooks (2000, 2010, 2020) by NBS; and authors' calculations.

3.4 Who Lives Where? Insights from CHFS Microdata

While the census documents where households live, it cannot reveal who occupies each segment. We therefore turn to the CHFS. After harmonizing dwelling categories across data sources (Appendix I), the CHFS allows us to characterize the demographic and economic profiles associated with each housing status. Figure 4 illustrates the provincial coverage of the CHFS sample, which is broadly representative of China's urban population.

Figure 4. Provincial Coverage of the CHFS Sample (2019)
(Number of surveyed households)



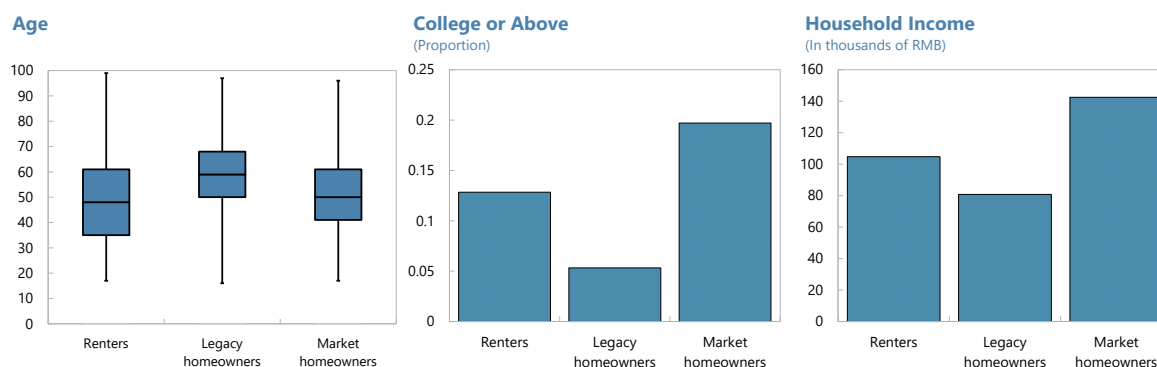
Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Socio-demographic Profiles

Figure 5 reveals pronounced gradients across housing types. Renters are the youngest group, reflecting early life-cycle stages and delayed access to ownership. Market homeowners cluster in middle age, consistent with income stabilization and accumulated savings. Legacy homeowners are significantly older on average, reflecting housing acquisition under earlier institutional regimes and limited upgrading over time.

Education and income follow similar patterns. Market homeowners exhibit the highest educational attainment and income, renters occupy an intermediate position, and legacy homeowners have the lowest current incomes. From an economic perspective, this implies that many legacy homeowners face a dual constraint: relatively low current income combined with housing wealth that is illiquid or difficult to leverage for upgrading or consumption smoothing (Box 1).

The relative ordering of age, income, and education across housing regimes is broadly consistent in the 2017 and 2021 CHFS waves (Appendix IV.A), suggesting that these socio-demographic gradients reflect persistent structural segmentation rather than year-specific shocks.

Figure 5. Urban Households by Housing Status: Age, Education, and Income (2019)

Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Note: The box-and-whisker plots show the minimum, first quartile, median, third quartile, and maximum age; age refers to the age of the household head. Education indicates the share of household heads with tertiary (college or above) education. Income denotes average total annual household income, including wage income, business income, transfers, and other income sources, expressed in thousand RMB. The sample includes urban household heads only.

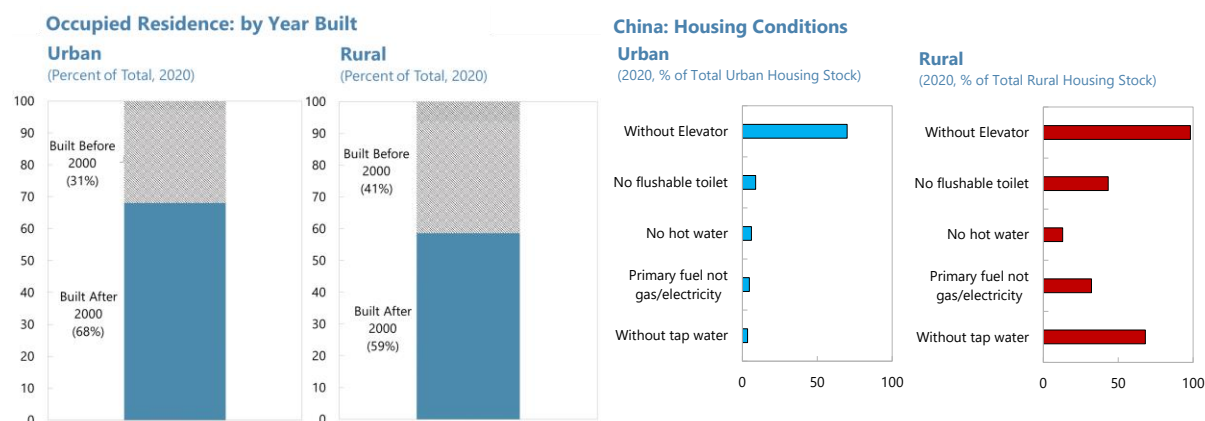
Housing Quality and Vintage

The demographic profile of legacy homeowners is mirrored by the physical characteristics of the housing stock they occupy. Using 2020 Census data, Figure 6 documents the age distribution and facility conditions of China's occupied urban housing stock. Around 31 percent of urban dwellings were built before 2000—predating modern construction standards and the large-scale commercial housing expansion of the 2000s and 2010s. These older units are disproportionately concentrated in the legacy housing segment.

Facility data from the same Census reveal meaningful deficits in basic amenities. The majority of urban housing units lack elevators, a particularly acute constraint in older mid- and high-rise blocks where upper-floor residents—often elderly legacy homeowners—face significant mobility limitations. Smaller but non-trivial shares of urban units lack flushable toilets, hot water, and tap water access. In rural areas, these deficits are substantially larger across all dimensions.

These quality characteristics matter economically for two reasons. First, they establish that legacy housing is not merely institutionally distinct from market housing—it is physically distinct in ways that affect habitability and market value. Second, they document the structural conditions under which upgrading constraints operate: households occupying pre-2000 units with missing amenities face not only liquidity and tradability barriers but also a larger quality gap relative to modern market housing. Whether this gap translates into active upgrading demand is not directly established here, but it provides observable context for the consumption patterns documented in Section IV.

Figure 6. Housing Quality and Vintage: Age of Stock and Facility Conditions (2020)

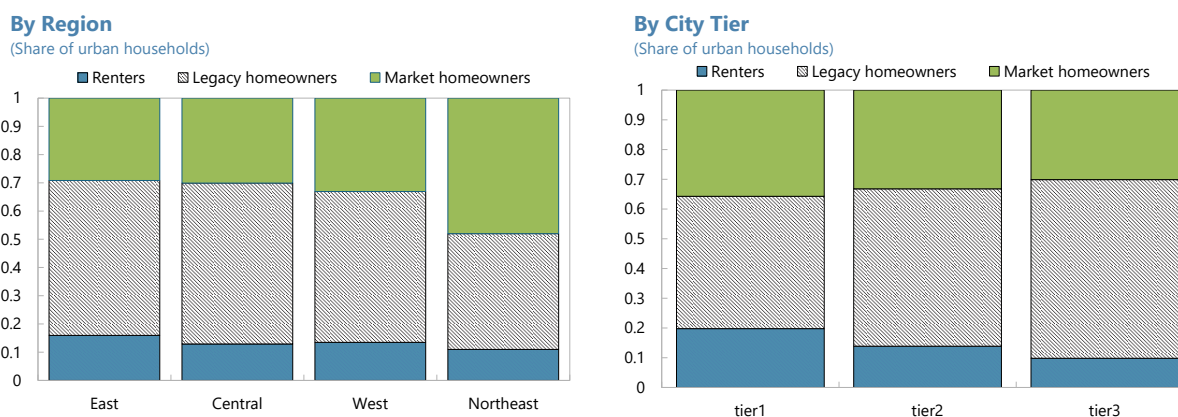


Sources: China Population Census Yearbook (2020) by NBS; and authors' calculations.

Spatial Distribution

Spatial patterns mirror these life-cycle and institutional differences (Figure 7). Rental housing is most concentrated in Tier 1 cities and the Eastern region, where labor-market opportunities are strongest but affordability constraints are most binding. Legacy housing dominates in Central, Western, and lower-tier cities, where gradual urban expansion absorbed non-market dwellings without full conversion into market-based housing. These place-based patterns shape not only housing access but also households' scope for mobility and upgrading.

Figure 7. Residential Composition of Urban Households by Region and City Tier



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

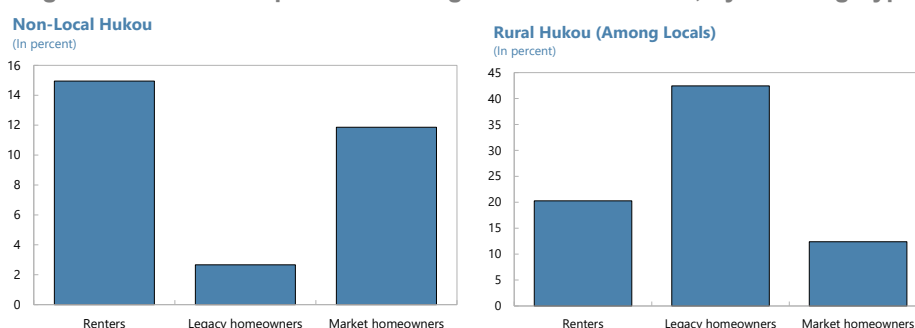
Hukou and Migration Patterns

Housing tenure in urban China is closely intertwined with hukou and migration histories (Figures 8 and 9). This has reflected institutional features associated with hukou status on access to public services and housing markets (Box 2). Legacy homeowners are predominantly local hukou holders, many retaining rural registration despite urban residence—consistent with self-built or formerly rural housing incorporated into cities (Knight and others, 2011). Renters and market homeowners are substantially more likely to lack local hukou.

Migration patterns suggest a sequencing in which households typically migrate first, rent upon arrival, and transition into ownership conditional on income growth and institutional eligibility.⁵ Legacy homeowners, by contrast, are the least mobile, reflecting settlement anchored in earlier allocation systems rather than recent labor-driven migration.

Taken together, Section III documents a housing system in which ownership status, location, and legal form are tightly intertwined with age, income, hukou, and migration histories. These structural differences imply heterogeneous affordability, liquidity, and institutional constraints across households—channels through which housing status may be associated with long-run consumption allocation and balance-sheet composition. Section IV examines how these structural differences are associated with household consumption behavior using micro econometric evidence.

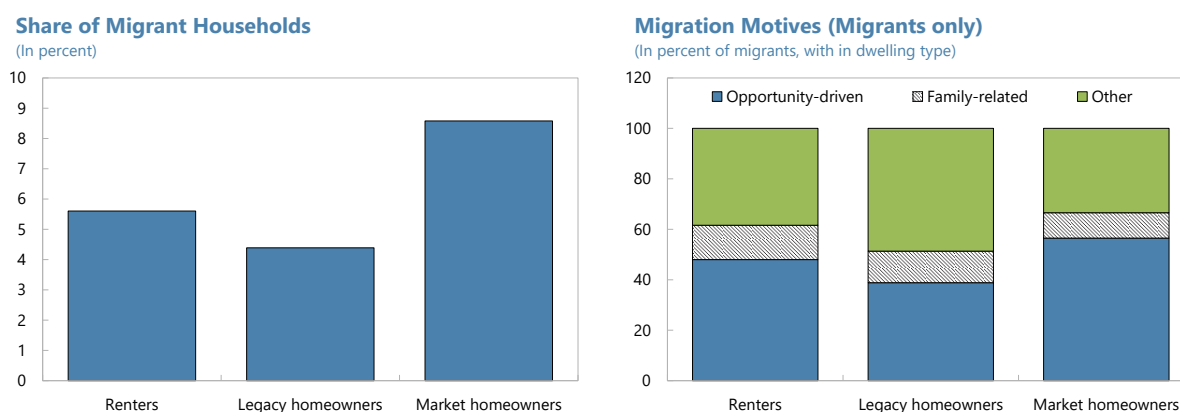
Figure 8. Hukou Composition among Urban Households, by Dwelling Type



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Note: Sample restricted to urban household heads. Panel A shows the share without local hukou. Panel B shows the share with rural hukou among local hukou holders.

Figure 9. Migration Patterns by Dwelling Type



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Note: Sample restricted to urban household heads. Panel A reports the share of households with migration experience (migrant households), as defined in the CHFS. Panel B reports stated migration motives among migrant households only. "Opportunity-driven" includes migration related to employment, education, or housing purchase; "family-related" includes marriage and family reunification; "other" includes military service/discharge and residual reasons.

⁵ Internal migration in China has been shaped by both labor market opportunities and institutional barriers, with hukou restrictions shown to significantly reduce the efficiency of labor reallocation across regions (Tombe and Zhu, 2019).

Box 2. China's Hukou System and Implications for Housing Access

China's household registration (hukou) system classifies individuals by place of registration and registration type—historically agricultural (rural) or non-agricultural (urban). While reforms since the early 2000s have eased mobility restrictions, hukou status continues to shape access to public services, housing eligibility, and economic opportunities in cities (Chan and Buckingham, 2008; Chan, 2010; Naughton, 2018).

Access to key public services—including compulsory education, basic healthcare, social insurance, and some forms of social assistance—remains largely tied to local hukou registration, rather than actual place of residence. Urban residents without local hukou often face higher out-of-pocket costs or must rely on services in their place of registration, raising the cost of long-term urban settlement (Au and Henderson, 2006). In many large cities, access to public schooling requires either local hukou or multiple years of continuous social-security contributions, disproportionately affecting migrant households. Additionally, Hukou restrictions have been shown to generate significant labor market segmentation, affecting wages, mobility, and access to urban public services for rural-registered workers (Meng, 2012).

Housing access is closely linked to these institutional arrangements. In higher-tier cities, eligibility for public rental housing, subsidized housing, and shared-ownership schemes typically requires local hukou or extended contribution histories. Commercial housing purchases have also been subject to hukou-related restrictions. In cities such as Beijing and Shanghai, non-local households have faced higher minimum down-payment ratios and limits on the number of homes they may purchase, while in Shenzhen and Guangzhou purchase eligibility has been explicitly linked to years of social-security contributions. Although these measures were introduced as macro-prudential tools, they have reinforced hukou-based segmentation in housing markets (State Council, 2014; 2020).

Hukou status further shapes asset accumulation and access to finance. Rural hukou holders retain rights to rural homestead land, which is non-tradable and cannot be mortgaged, while urban hukou holders benefited disproportionately from the privatization of public housing and access to mortgage finance during housing reforms after 1998. As a result, a substantial share of urban dwellers—especially in older neighborhoods, urban villages, and formerly rural areas absorbed by city expansion—continue to hold rural hukou.

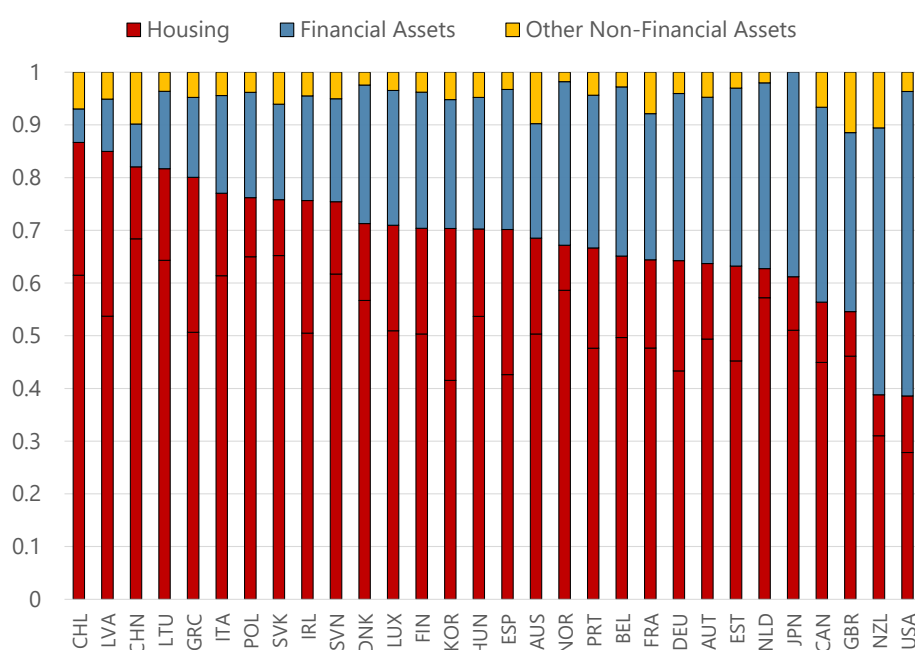
IV. Housing Status and Household Consumption: Micro Evidence

The residential structure documented in Section III has direct implications for how household economic behavior should be understood. When a large share of urban households resides outside the commercial housing market—living instead in rental units or legacy dwellings with distinct institutional and financial characteristics—housing entry, housing-related obligations, and the role of housing wealth differ systematically across dwelling types. These differences may shape households' housing-related expenditure commitments, balance sheets, and saving behavior.

Their economic relevance is amplified by the dominant role of housing in Chinese household balance sheets—the largest single asset class, accounting for roughly two-thirds of total household wealth (Figure 10)—and by affordability constraints that rank among the most binding globally (Figure 11). We examine these differences using microdata from the 2019 CHFS, the most recent pre-pandemic wave available, with the 2017 and 2021 waves used to assess robustness (Appendix IV).

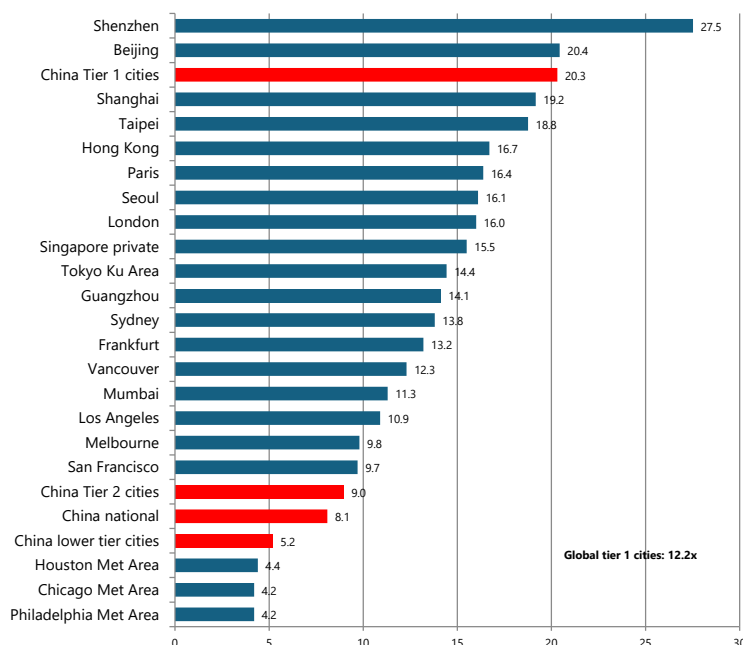
Appendix III formalizes these channels in a simple intertemporal household framework. In that model, consumption is shaped by three tenure-specific margins: recurring housing-related obligations (rent payments, maintenance costs, or down-payment accumulation), asset liquidity (the ability to borrow against or sell housing wealth to smooth consumption), and debt service commitments (mortgage obligations that reduce flexible resources). Structural differences across tenure groups in these three margins generate differences in both the level and income responsiveness of discretionary consumption—the comparative statics of the model. The model suggests that legacy homeowners—whose housing wealth is largely illiquid—may tend to exhibit lower consumption and higher income sensitivity; renters—facing large anticipated future housing expenditures—may tend to show a dampened consumption response as income rises;⁶ and market homeowners—carrying mortgage obligations while holding more tradable assets—may exhibit consumption closely tied to wealth and leverage. These predictions are tested in the cross-sectional and panel specifications that follow.

Figure 10. Composition of Household Assets by Category (2019 or latest available year)



Sources: OECD (2022); China Household Finance Survey (CHFS, 2019); and authors' calculations.

Figure 11. Global Property Affordability: Price-to-income ratio



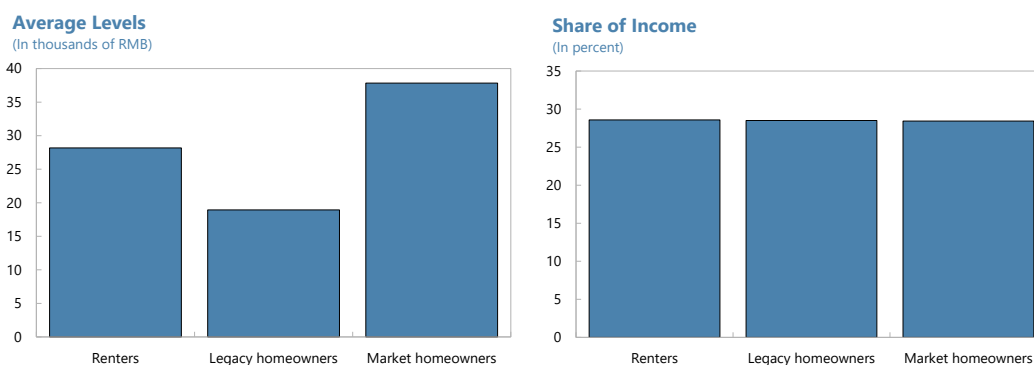
Sources: UBS; CREIS; CRIC; Wind; and authors' calculations.

4.1 Stylized facts: Consumption Across Dwelling Types

Figure 12 presents non-essential consumption across dwelling types in both levels and as a share of income. Panel A shows that market homeowners exhibit the highest average level of non-essential consumption, while legacy homeowners consume the least in absolute terms, with renters lying in between. These differences mirror the income gradients across dwelling types documented in Section III (Figure 5).

Panel B of Figure 12, which scales non-essential consumption by income, shows that non-essential consumption shares are broadly similar across dwelling types. At first glance, this appears to suggest that differences in consumption levels may simply reflect income differences rather than housing tenure per se. However, this comparison neither controls observable differences across groups—age, wealth, mortgage status, and location—nor detects whether households allocate income increments differently by tenure, which is precisely what the regression framework in Section 4.2 is designed to test. The apparent similarity in Panel B therefore motivates rather than resolves the analysis that follows.

Figure 12. Non-Essential Consumption by Dwelling Type

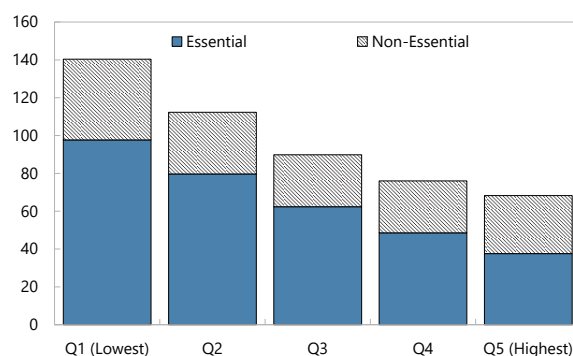


Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Note: Non-essential consumption excludes food, education, housing, and medical spending.

Figure 13 places these patterns in the context of the income distribution by decomposing spending into essential and non-essential components. In the lowest income quintile, essential consumption absorbs nearly all income—and in many cases exceeds it—leaving little scope for discretionary adjustment. As income rises, the share devoted to essential consumption declines monotonically, while non-essential spending increases both in absolute terms and as a fraction of income. These patterns underscore that the ability to adjust consumption at the margin is closely tied to income position, motivating a regression framework that conditions explicitly on income while allowing consumption responses to differ by housing status.

Figure 13. Budget Constraint by Essential and Non-Essential Consumption by Income Quintile
(In percent of income)



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Note: Essential consumption includes food, education, and medical spending; non-essential consumption is defined as total consumption excluding these categories and housing services. Shares are calculated relative to positive household income. To limit the influence of extreme observations driven by very low reported income, consumption-to-income ratios are winsorized at the 5th and 95th percentiles within each income quintile.

These stylized patterns raise a central question: to what extent do observed consumption differences reflect households' position in the income distribution, and to what extent are they shaped by housing status itself potentially through affordability, liquidity, and balance-sheet channels? The next section addresses this question using micro econometric evidence.

4.2 Micro econometrics Analysis

To quantify the association between dwelling type and household consumption, we estimate the following cross-sectional regressions of the form:

$$\ln C_{ig} = \beta_1 \text{LegacyOwner}_i + \beta_2 \text{MarketOwner}_i + \gamma \ln Y_i + X_i' \delta + \mu_g + \varepsilon_{ig}$$

Where C_{ig} denotes household i 's consumption in province g , Y_i is household total income, and μ_g captures province fixed effects. Renters serves as the omitted reference group, so β_1 and β_2 capture conditional differences in consumption between homeowners and renters. The vector X_i includes net wealth, mortgage status, household size, age, hukou status, and education. Standard errors are clustered at the province level.

We focus on non-essential consumption expressed in logarithms, as this category captures the most flexible components of spending. To examine whether consumption responds differently to income across housing regimes, we augment the baseline with interactions between housing status and log income. Because identification relies on cross-sectional variation in 2019, the estimates capture conditional associations rather than causal effects.

Because housing status is correlated with income and wealth, all specifications control for household income, net wealth, mortgage status, and demographic characteristics. The coefficients on housing tenure therefore capture conditional differences in consumption behavior across tenure groups with comparable observable economic resources. While residual selection cannot be ruled out, the inclusion of income, wealth, and demographic controls—together with the stability of results across survey waves and housing subtypes (Appendix IV)—mitigates concerns that the findings merely reflect income sorting into housing regimes. Before turning to the results, the identification strategy and its limitations warrant explicit discussion. The empirical approach relies on cross-sectional variation in housing tenure within the 2019 CHFS. Because households are not randomly assigned to tenure types, the estimated coefficients capture conditional associations rather than causal effects. The regressions compare households with similar observable income, wealth, and demographic characteristics, but unobserved differences—including preferences, family support, or risk tolerance—may still influence both tenure choice and consumption behavior. While robustness across survey waves and tenure subtypes suggests the patterns are stable, the estimates should still be interpreted as conditional associations rather than causal effects.

Main Results

Table 2 examines the relationship between housing status and discretionary (non-essential) consumption among urban households. Renters serve as the omitted reference group throughout. Columns (1)–(2) present baseline specifications with housing status and income, while Columns (3) and (5) allow the responsiveness of consumption to income to vary across housing regimes. Full balance-sheet variables, household characteristics, and province fixed effects are introduced only in Columns (4) and (5).

As controls are added progressively across columns, the raw consumption gaps across tenure groups narrow substantially—a pattern that underscores the importance of conditioning on income, wealth, and household characteristics before drawing conclusions about tenure-specific behavior. Column (5) is our preferred specification as it includes the full set of household controls, province fixed effects, and allows income responsiveness to vary across dwelling types. Formal tests confirm that this richer specification is warranted. An F-test rejects the restriction of common income elasticities across dwelling types ($F(2,28)=21.56$, $p<0.001$), indicating that the consumption response to income differs significantly across renters, legacy homeowners, and market homeowners—the interaction terms are jointly informative rather than merely adding noise. Tests further reject equality between legacy and market homeowners in both baseline consumption levels ($F(1,28)=16.63$,

$p < 0.001$) and income elasticities ($F(1,28) = 10.11$, $p = 0.004$), confirming that the two homeowner groups are economically and statistically distinct from each other, not just from renters.

In the baseline specification (Column (1)), legacy homeowners exhibit significantly lower discretionary consumption than renters, while market homeowners consume more in levels. Controlling for income in Column (2) attenuates these differences, indicating that part of the higher consumption observed among market homeowners reflects higher earnings rather than housing status per se. Nevertheless, income alone does not fully account for the observed cross-tenure differences.

Income Elasticity and Non-linearities

Column (3) highlights important non-linearities in how discretionary consumption responds to income across housing regimes. In this specification, the level coefficients capture differences in discretionary consumption at lower income levels, while the interaction terms govern how consumption diverges as income rises. Renters display higher discretionary consumption at lower income levels but exhibit the lowest income elasticity. In contrast, both legacy and market homeowners consume less at lower income levels, yet their discretionary consumption rises more rapidly with income.

Using the estimated coefficients, the implied crossover points—where predicted discretionary consumption of homeowners exceeds that of renters—occur at relatively low annual income levels for market homeowners (approximately 4,630 yuan) but only at the upper end of the income distribution for legacy homeowners (about 80,000 yuan). This pattern suggests that rising income relaxes liquidity constraints earlier for market homeowners, while legacy homeowners—often holding illiquid or lower-quality housing assets—remain constrained until much higher income levels.

Table 2. Impact of Housing Status on Non-Essential Consumption

	<i>Dependent variable: log annual non-essential consumption</i>				
	(1) Housing Status Only	(2) + ln (Income)	(3) +ln(Income)* Housing Status	(4) Full controls	(5) Full controls + income interactions
Dwelling Type (Renters are the omitted housing category)					
Legacy homeowners	-0.317*** (0.026)	-0.255*** (0.044)	-1.447*** (0.395)	-0.314*** (0.037)	-1.779*** (0.240)
Market homeowners	0.386*** (0.028)	0.260*** (0.035)	-0.574 (0.400)	-0.140*** (0.028)	-1.087*** (0.262)
Income, wealth and balance sheet					
ln(income)		0.428*** (0.013)	0.346*** (0.031)	0.243*** (0.008)	0.143*** (0.017)
Legacy homeowners * ln(income)			0.110*** (0.034)		0.134*** (0.021)
Market homeowners * ln(income)			0.077** (0.036)		0.086*** (0.023)
ln(net wealth)				0.268*** (0.010)	0.268*** (0.010)
Has mortgage				-0.325*** (0.074)	-0.321*** (0.074)
Demographic and institutional controls					
Household size				0.013*** (0.001)	0.013*** (0.001)
Age				-0.025*** (0.001)	-0.025*** (0.001)
Hukou: non-rural				-0.085*** (0.024)	-0.094*** (0.024)
Hukou: unified residence hukou				-0.101*** (0.035)	-0.109*** (0.036)
No Hukou				-0.196*** (0.041)	-0.168*** (0.042)
Education: Secondary				0.103*** (0.026)	0.091*** (0.026)
Education: Tertiary				0.298*** (0.035)	0.297*** (0.034)
Constant	9.607*** (0.024)	5.117*** (0.156)	6.006*** (0.346)	5.123*** (0.171)	6.224*** (0.239)
R-squared	0.061	0.264	0.265	0.430	0.432
Observations	19935	19847	19847	14052	14052
Province FE	Y	Y	Y	Y	Y

Province-clustered robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

All regressions are estimated on urban household heads only.

This divergence in slopes implies meaningful differences in consumption volatility. A 10 percent decline in income is associated with an approximately 3.7 percent reduction in discretionary consumption for renters, compared with about 4.5–4.7 percent for homeowners. Legacy homeowners exhibit the highest sensitivity, consistent with limited ability to smooth consumption through housing assets given restricted tradability and lower quality.

Wealth Controls and the Role of Housing Assets

Once net wealth and housing-related financial exposure are introduced (Columns (4) and (5)), the coefficients on housing status shift in economically meaningful ways. The negative coefficient on legacy homeowners remains large and statistically significant, while the coefficient on market homeowners turns negative. This sign

reversal reflects the inclusion of net wealth: in earlier specifications, market homeowners appear to consume more largely because they hold more wealth.⁷ Conditional on comparable income and wealth levels, however, market homeowners devote less to discretionary consumption than renters.

This finding underscores the role of housing wealth as an illiquid asset. While housing constitutes a substantial share of household net worth, it is tied to ongoing financial commitments and cannot be easily adjusted to smooth short-term consumption. As a result, households with wealth concentrated in housing—particularly mortgaged market homeowners—exhibit lower flexible consumption once wealth is held constant.

Institutional Factors

The hukou coefficients should be interpreted cautiously. The ordering across non-rural categories is intuitive: consumption declines as formal urban integration weakens, consistent with stronger precautionary saving motives among households with less secure institutional access. The rural hukou reference group exhibits higher discretionary consumption than all other categories conditional on income and wealth—apparently at odds with the prior literature finding that migrant households tend to save more due to limited access to social safety nets (Chamon and Prasad, 2010; Yang, Zhang, and Zhou, 2011). In practice, however, the relationship between hukou status, migration history, and urban integration is highly complex: rural hukou holders in urban areas include both migrant workers from other localities and long-settled residents absorbed into cities through administrative boundary expansion, while migrant workers themselves may hold various Hukou types depending on origin and registration history.

This heterogeneity within hukou categories—which is not the focus of this paper—makes clean interpretation of the coefficients difficult. A more granular analysis distinguishing local versus non-local registration and migration history would be needed to disentangle these effects, which we leave for future research. Because hukou is included as a control variable rather than a central object of interest, we refrain from drawing broader conclusions from this result.

Alternative specifications

The results are robust to alternative specifications, including the use of consumption-to-income ratios, alternative definitions of non-essential spending, and replacing mortgage-status indicators with the logarithm of outstanding housing debt as a proxy for housing-related payment burdens. Across these checks, the estimated income elasticities and housing-status effects remain broadly unchanged.

Aggregate Implications

Across tenure groups, the evidence reveals a segmented consumption landscape in urban China. Renters exhibit relatively stable consumption with low income responsiveness. Legacy homeowners consume the least on average and are the most sensitive to income fluctuations, consistent with limited ability to smooth consumption through housing assets given restricted tradability and lower quality, as suggested by the model (Appendix III). Market homeowners' consumption levels are closely tied to housing wealth, while their responsiveness to income may reflect the interaction of leverage, liquidity constraints, and expectations. Overall, housing status emerges as a first-order correlate of household consumption behavior within China's segmented residential system.

⁷ As discussed in Section III, housing wealth is economically substantial across tenure groups. The presence of significant housing assets outside the commercial market underscores that legacy housing is not merely a marginal segment but an integral part of household balance sheets.

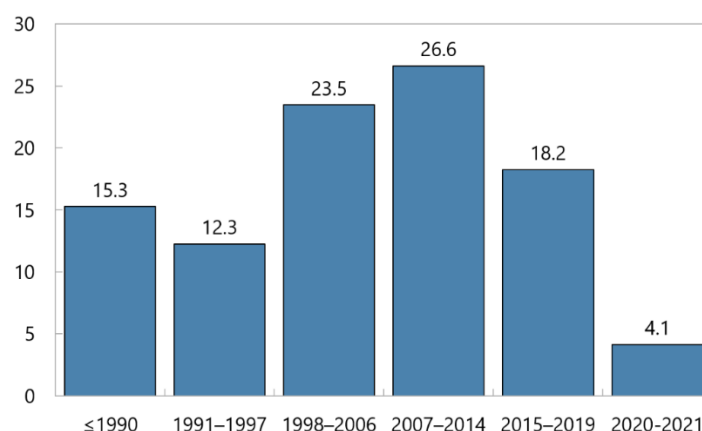
4.3. From Micro Evidence to Macro Dynamics: Consumption Channels in China's Post-2021 Housing Adjustment

The cross-sectional evidence from 2019 provides a useful framework for interpreting how different household groups may be affected by China's housing adjustment since 2021. The paper does not directly estimate post-2021 behavioral responses or separately identify the mechanisms underlying tenure-specific consumption patterns. Instead, this section interprets the observed differences in consumption behavior through the lens of housing liquidity, leverage, and balance-sheet composition.

This section is interpretive in nature and does not assess specific policies or propose policy responses; rather, it maps the micro-level relationships documented above to aggregate consumption dynamics in the context of the recent housing adjustment.

Importantly, the analysis does not rely on observing realized post-2021 outcomes.⁸ The mechanisms discussed here operate primarily through medium- to long-run balance-sheet structure and housing-related allocation decisions, rather than short-run income fluctuations, which the panel evidence suggests are smoothed across tenure groups.

Figure 14. Distribution of Purchase Years of Market-purchased Housing
(In percent, urban households, 2021)



Sources: China Household Finance Survey (CHFS, 2021); and authors' calculations.

Market Homeowners: Balance-Sheet Exposure and the Valuation Channel

For market homeowners, the housing adjustment operates primarily through balance-sheet exposure and changes in the valuation role of housing.

Figure 14 shows the distribution of purchase years for market-purchased housing using the CHFS 2021 wave. A large share of market homeowners (around 78 percent) purchased their primary residence between 1998 and 2014, with a substantial fraction acquiring housing well before the late-2010s price peak. Only a relatively small share (four percent) purchased during 2020–2021.

The post-2021 housing market correction has been analyzed as a significant structural adjustment with broad macroeconomic implications (Rogoff and Yang, 2024b).

As a result, the post-2021 price correction does not generally imply large realized wealth losses for this group. Instead, it reduces the scope for further capital gains and weakens housing's role as a vehicle for upgrading, refinancing, or supporting discretionary consumption. Consistent with the regression results in Section 4.2, once housing wealth is explicitly controlled for, market homeowners devote less to discretionary consumption than renters at comparable income and wealth levels, reflecting the illiquidity of housing assets and ongoing housing-related financial commitments.

Legacy Homeowners: Illiquidity, Quality, and the Upgrading Constraint

Legacy homeowners face a fundamentally different constraint. Their housing wealth is typically embodied in older, lower-quality dwellings—often self-built, formerly public, or subsidized units—with limited tradability and weak collateral value. As documented in Section III, around 31 percent of urban dwellings were built before 2000, with a disproportionate share in the legacy segment. Census data show that a majority of these older units lack elevators, and meaningful shares lack flushable toilets and hot water—deficiencies that create a significant quality gap relative to modern market housing. In many cases, the structure itself contributes little to marketable wealth, while land value is difficult to realize without relocation or redevelopment.

The consumption evidence in Section 4.2 is consistent with these structural conditions. Legacy homeowners exhibit the lowest discretionary consumption levels conditional on income and wealth, and the highest sensitivity to income fluctuations among the three tenure groups. The inability to leverage, monetize, or borrow against existing housing limits their capacity to smooth consumption when income declines. These patterns are consistent with severe asset illiquidity operating as a binding constraint on consumption behavior.

The inability to leverage, monetize, or borrow against existing housing limits their capacity to smooth consumption when income declines, consistent with severe asset illiquidity operating as a binding constraint on consumption behavior.⁹

Renters: Affordability Uncertainty and Defensive Saving

The regression evidence in Section 4.2 shows that renters exhibit relatively higher discretionary consumption at low income levels but the lowest income elasticity among the three tenure groups—that is, as income rises, renters increase discretionary spending by proportionally less than homeowners do. This pattern is not immediately intuitive and warrants careful explanation.

In the intertemporal framework of Appendix III, a household facing a large deferred housing expenditure—here, a down payment required for market entry—may optimally divert a growing share of income toward accumulating that expenditure as income rises and market entry becomes more feasible, rather than increasing current discretionary consumption proportionally.¹⁰ At low income levels, down-payment accumulation is not yet feasible regardless, so the marginal propensity to consume discretionary goods is relatively high. As income rises, the competing claim of down-payment accumulation may progressively dampen the consumption response, yielding a lower measured income elasticity. Uncertainty about when market entry becomes feasible—given high price-to-income ratios, hukou-linked eligibility restrictions, and uncertain credit conditions—may

⁹ Whether these constraints reflect unmet housing demand—that is, whether legacy homeowners actively desire to upgrade but are prevented from doing so—cannot be established from the consumption evidence alone. Doing so would require direct evidence on household housing preferences and search behavior beyond the scope of this paper. The physical deficiencies documented in Section III—including aging structures and missing basic facilities—establish that structural conditions for constrained upgrading are present, but the extent to which this translates into active upgrading demand may vary considerably across households depending on age, income, and location.

¹⁰ Credit constraints and down-payment requirements have been shown to shape household saving behavior and consumption trajectories in economies with rapidly rising house prices (Coeurdacier, Guibaud, and Jin, 2015).

further reinforce this pattern by directing income gains toward precautionary savings rather than current spending.

We acknowledge that this interpretation may not be the only one consistent with the data. The lower income elasticity among renters could also reflect compositional differences or other unobserved factors not fully absorbed by the controls. We nonetheless find this channel intuitive and consistent with the broader patterns documented in the paper.

Aggregate Implications

Taken together, the evidence suggests that housing tenure is associated with systematically different consumption levels and income responsiveness across urban households. Because a large share of households live outside the market-based residential segment, these differences may matter for aggregate consumption dynamics during housing-market adjustment. The underlying mechanisms likely differ across tenure groups—including housing liquidity, leverage, and anticipated future housing expenditures—though the paper does not separately quantify their aggregate contribution.

The drag on consumption arises less from immediate balance-sheet impairment and more from heightened uncertainty and weakened confidence in housing's future role in households' financial planning, as inferred from observed differences in consumption levels and income sensitivity across housing regimes.

By documenting how consumption behavior differed systematically across housing statuses even before the downturn, this paper provides micro-level evidence that these mechanisms were already present prior to 2021 and are likely to have been reinforced by subsequent housing-market developments.

4.4. Robustness Check

This section evaluates the robustness of the main findings along three dimensions: (i) stability across survey waves, (ii) heterogeneity within legacy homeownership, and (iii) within-household income and consumption changes. Detailed figures and regression results are reported in Appendix IV.A–IV.D.

Robustness Across Survey Waves (2017, 2021)

The central patterns documented in Section 4.2 are stable across survey waves. Using harmonized samples from the 2017 and 2021 CHFS, we replicate the baseline specifications and income-interaction regressions. The relative ordering of discretionary consumption levels and income elasticities across renters, legacy homeowners, and market homeowners remains unchanged (Appendix IV.A).

In each wave, renters exhibit higher discretionary consumption at lower income levels but lower income elasticity, while both legacy and market homeowners display lower baseline consumption and higher responsiveness to income. Income elasticities remain lowest among renters and highest among legacy homeowners, even as aggregate consumption levels shift over time.

The inclusion of the 2021 wave—collected during the COVID period—does not materially alter the qualitative results. Although overall discretionary consumption levels are lower in 2021, consistent with heightened uncertainty and pandemic-related disruptions, the cross-tenure ranking and elasticity patterns remain intact. For this reason, the 2019 wave serves as the primary benchmark, while the additional waves validate the structural persistence of the findings.

Heterogeneity Within Legacy Homeownership

We further assess robustness by disaggregating legacy homeowners according to housing acquisition channels, including policy housing, former company (work-unit) housing, self-built housing, resettlement housing, and inheritance/gift channels (Appendix IV.B).

Across these subgroups, the qualitative consumption patterns relative to renters and market homeowners are broadly similar, indicating that the main results are not driven by any single legacy subtype. However, meaningful heterogeneity exists within the legacy group.

Descriptive evidence (Appendix Figures IV.5–IV.6) shows that policy and former company housing households tend to have higher education and income levels, while self-built and resettlement households are older and more likely to hold local rural hukou. Regression results confirm that all legacy subtypes exhibit significantly lower discretionary consumption than renters, with positive income elasticities that exceed those of renters. Notably, self-built homeowners display particularly strong income responsiveness, consistent with limited consumption smoothing capacity given lower housing quality and weaker collateral value.

These results reinforce the interpretation advanced in Sections 4.2 and 4.3: muted upgrading or consumption among legacy homeowners may be associated with binding liquidity and asset-conversion constraints that would limit upgrading capacity regardless of preferences.

Within-Household Income and Consumption Changes (2017, 2019, 2021)

To complement the cross-sectional analysis, we examine within-household changes using two panel specifications. The first uses a balanced panel of urban household heads observed in both 2019 and 2021 (Appendix IV.C). The second extends this to an unbalanced panel combining all three CHFS waves—2017, 2019, 2021—with annualized first differences and year fixed effects (Appendix IV.D).

The 2019–2021 balanced panel results (Table A7) indicate that discretionary consumption responds positively to income changes within households, with the elasticity of approximately 0.09–0.11 substantially smaller than the cross-sectional estimates in Section 4.2. The interaction terms between income changes and tenure are economically small and statistically insignificant. Short-run consumption responses to income fluctuations therefore do not differ systematically across tenure groups during this period.

This pattern may suggest that over the short run and during the COVID-affected 2019–2021 period, income variation was predominantly transitory and compressed across all households simultaneously, limiting the extent to which tenure-specific balance-sheet differences translated into differentiated consumption responses. The cross-sectional heterogeneity documented in Section 4.2 therefore reflects structural differences in how income is allocated across tenure groups over the medium to long run rather than differential responses to short-lived income fluctuations.

However, when the 2017–2019 transition is included in the three-wave unbalanced panel (Appendix IV.D, Table A8)—a period of more normal income variation without a dominant aggregate shock—tenure-specific differences re-emerge. Legacy homeowners exhibit stronger consumption responses to income changes than renters. Market homeowners show a similar but weaker pattern. These results are stable across alternative tenure classifications and the non-switcher sample. The difference between IV.C and IV.D is therefore informative: tenure-specific balance-sheet differences—identified in Appendix III—appear to matter more for consumption responses when income variation is more persistent, and less so when it is predominantly transitory or driven by a common aggregate shock. Given the complexity of the multi-wave panel structure and

the caveats noted in Appendix IV.D, we treat this as directional corroboration rather than independent confirmation.

Taken together, the cross-sectional and panel results are mutually consistent. The cross-section identifies structural differences in how income is allocated across tenure groups over the long run. The 2019–2021 panel may suggest that transitory shocks—particularly under exceptional aggregate conditions—are smoothed similarly across groups. The three-wave panel suggests that tenure-specific differences in consumption responses re-emerge under more normal income variation. The absence of strong tenure heterogeneity in the short-run panel therefore does not necessarily contradict the main findings; rather, the two sets of panel results together support the interpretation that tenure shapes consumption through structural balance-sheet features rather than differential sensitivity to transitory income shocks.

Summary

The robustness exercises confirm that the paper's core findings are stable across time, survey waves, housing classifications, and empirical specifications. Cross-sectional tenure differences in consumption levels and income elasticities persist across waves and within legacy subtypes. Panel evidence suggests that short-run response could be more uniform across tenure groups under a major common external shock, while more persistent income variation over longer horizons pointed at tenure-differentiated responses consistent with the cross-sectional findings. These results support the interpretation that housing tenure is closely linked to structural features of income allocation and balance-sheet composition in China's segmented residential system, rather than reflecting period-specific shocks or measurement artifacts. Appendix IV provides full documentation of these robustness checks.

V. Conclusion

This paper reexamines China's housing market from the perspective of households' lived residential conditions and housing-related constraints. Moving beyond transaction-based indicators and the market-based housing sector alone, we show that China's urban housing system remains structurally segmented across renters, legacy homeowners, and market homeowners—groups shaped by different phases of housing reform and facing distinct affordability, liquidity, and balance-sheet constraints

Using harmonized Population Census data and household microdata, we document that market-purchased housing accounts for only a minority of occupied urban dwellings. A substantial share of households continue to reside in rental or legacy housing acquired outside the market. These patterns reflect persistent institutional and structural features of China's housing system rather than transitional frictions. As a result, aggregate indicators of housing supply, inventories, and homeownership may obscure meaningful heterogeneity in household economic conditions and financial constraints across tenure groups.

Linking housing status to household behavior, the paper provides micro-level evidence that consumption differs systematically across residential regimes. Conditional on income and wealth, homeowners—particularly legacy homeowners—exhibit lower discretionary consumption and greater income responsiveness than renters. These patterns are stable across survey waves and across legacy housing subtypes. Complementary panel evidence shows more uniform short-run consumption responses across tenure groups during the COVID-affected 2019–2021 period, while tenure-specific differences re-emerge over longer horizons under more normal income variation—consistent with structural balance-sheet differences shaping consumption behavior when not obscured by a large common aggregate shock.

Interpreted in the context of the housing market adjustment since 2021, the results suggest that housing affects consumption less through widespread realized wealth losses and more through balance-sheet rigidity, asset illiquidity, and diminished scope for housing-related adjustment. Housing has increasingly ceased to function as a flexible buffer supporting consumption smoothing, instead reinforcing precautionary behavior across tenure types and constraining housing entry.

Overall, the paper reframes China's housing challenge as one of constrained household access and consumption capacity within a segmented residential system, rather than a purely supply-driven imbalance. By integrating institutional history, residential structure, and household consumption behavior, it highlights why housing remains a structural drag on consumption and a key channel shaping China's broader macroeconomic adjustment.

Appendix I. Cross-Checking CHFS with Census Data on Housing Categories

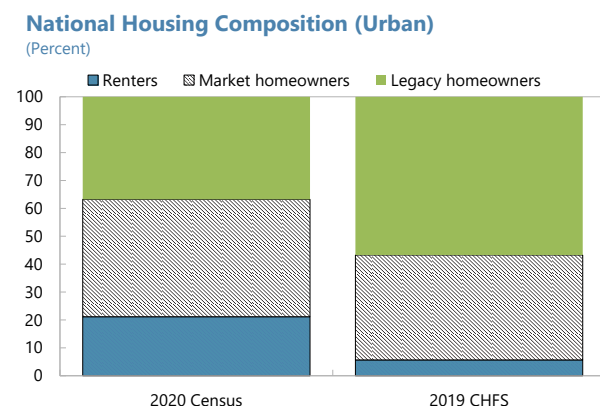
This appendix assesses how the China Household Finance Survey (CHFS) conveys similar information on housing tenure as the *Population Census*, allowing us to compare conclusions across the two sources. We classify households into renters, legacy homeowners, and market homeowners, and evaluate how the distribution of these tenure types aligns between datasets.

The census provides full structural coverage, while CHFS offers richer household and financial details. By aligning tenure definitions, we can examine whether the CHFS reproduces the key structural patterns seen in the census and identify where its sample tilts toward specific ownership types (Table A1).

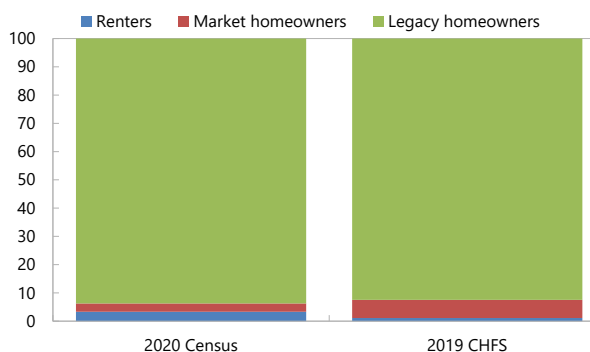
Table A1. Mapping of Dwelling Types: Census vs. CHFS

DWELLING TYPE	CENSUS CATEGORIES	CHFS CATEGORIES
Renters	Rental	Rental
Legacy Housing		
Public housing	Purchase of economically affordable / price-capped housing	Purchase of policy-supported housing (e.g., economically affordable housing and price-capped commodity housing) 1. Collectively funded housing ¹ ; 2. Self-built / extended housing;
Self-built	Self-built housing	Acquired from the work unit at below-market prices (e.g., housing reform units, welfare housing)
Previously publicly owned	Purchase of former public housing	1. Resettlement housing (in-kind compensation housing for demolition/expropriation) 2. Purchase of small-property-rights housing 3. Other 4. Inherited or gifted housing
Others	1. Inherited or gifted housing 2. Other	
Market-housing		
Purchased through commercial market	Purchase of newly built commercial housing	Purchase of newly built commercial housing
Purchased through secondary market	Purchase of second-hand housing	Purchase of second-hand commercial housing

Figure A1. Housing Tenure Composition: CHFS vs. Census



National Housing Composition (Rural)
(Percent)



Sources: China Population Census Yearbook (2020) by NBS; China Household Finance Survey (CHFS, 2019); and authors' calculations.

According to Figure A1, both CHFS and Census data show rural housing overwhelmingly self-built, exceeding 90 percent. The remaining shares—legacy and rental housing—are minor but broadly consistent across the two datasets, confirming CHFS's strong coverage of rural housing structure.

In urban areas, patterns differ more visibly between these two datasets. The CHFS reports a smaller renter share than the Census, while legacy homeowners (including public and welfare housing) occupy a larger share. This likely reflects CHFS's bias toward stable, owner-occupier households and underrepresentation of transient renters. Market homeowners remain the largest group in both datasets, with shares somewhat higher in CHFS due to its stronger coverage of mortgage borrowers and recent buyers.

Taken together, both datasets portray similar structural hierarchies of tenure, but with differing emphasis. The Census provides the benchmark for national housing distribution, whereas the CHFS complements it by revealing the financial profiles and consumption behavior of different tenure groups—crucial for the analysis in Section 3.3.

Appendix II. Regional and City-Tier Definitions

Table A2. Regional Classification (CHFS 2019)

Region	Provinces / Municipalities
Eastern	Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan
Central	Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan
Western	Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang
Northeastern	Liaoning, Jilin, Heilongjiang

Source: China Household Finance Survey (2019).

Note: Regional groupings follow the NBS definition of eastern, central, western, and northeastern China. The regional classification does not include Hong Kong SAR, Macao SAR, and Taiwan Province of China.

Table A3. City-Tier Classification (CHFS 2019)

Region	Provinces / Municipalities
Tier 1	Beijing, Shanghai, Shenzhen, Guangzhou
New Tier 1	Chengdu, Hangzhou, Chongqing, Xi'an, Suzhou, Wuhan, Nanjing, Tianjin, Zhengzhou, Changsha, Dongguan, Foshan, Ningbo, Qingdao, Shenyang
Tier 2	Hefei, Kunming, Wuxi, Xiamen, Jinan, Fuzhou, Wenzhou, Dalian, Harbin, Changchun, Quanzhou, Shijiazhuang, Nanning, Jinhua, Guiyang, Nanchang, Jiaxing, Zhuhai, Nantong, Huizhou, Taiyuan, Zhongshan, Xuzhou, Shaoxing, Changzhou, Taizhou, Yantai, Lanzhou, Weifang, Linyi
Tier 3 and below	All remaining cities

Source: China Household Finance Survey (2019).

Note: This city-tier classification adopts the Yicai (First Financial) city-tier framework based on commercial attractiveness and economic scale in 2021. <https://www.yicai.com/news/101063860.html>

Appendix III. Conceptual Framework: A Simple Household Problem with Housing

To discipline the interpretation of tenure differences in consumption (Section IV), this appendix outlines a stripped-down intertemporal framework in which housing affects household decisions through the budget constraint, liquidity, and expectations. The framework is illustrative rather than structural and is used to guide interpretation of the empirical patterns documented in the data.

One-period budget constraint with housing

Consider a household that derives utility from nondurable consumption c_t , holds non-housing liquid assets a_t , and owns housing assets h_t (e.g., housing quantity/quality). Housing is subject to housing-related liabilities b_t (e.g., mortgages). Income is y_t . Let R denote the gross return on liquid assets and R_b the gross interest factor on debt. Let p_t be the housing price (per unit), and δ_t capture housing-related expenditures beyond debt service—e.g., rent for renters, maintenance/renovation for owners, and transaction or down payments associated with housing purchases or upgrades.

A convenient reduced-form budget constraint faced by a household is:

$$c_t + a_{t+1} + \underbrace{p_t (h_{t+1} - h_t)}_{\text{net housing purchase/upgrade}} + \underbrace{R_b b_t - b_{t+1}}_{\text{debt service net of new borrowing}} + \delta_t = y_t + R a_t.$$

This expression makes clear that, holding income fixed, consumption is compressed by (i) housing purchase/upgrade needs, (ii) debt service, and (iii) recurring housing-related outlays (rent or maintenance/renovation).

Intertemporal (lifetime) budget constraint and housing valuation

Forward-iterating yields the standard intertemporal budget constraint (abstracting from borrowing limits for simplicity):

$$\sum_{s=t}^T \frac{c_s}{R^{s-t}} \leq a_t + \sum_{s=t}^T \frac{y_s - \delta_s}{R^{s-t}} + \underbrace{\frac{p_T h_T}{R^{T-t}}}_{\text{terminal housing value}} - \underbrace{b_t}_{\text{net debt}} + (\text{terms for housing transactions}).$$

Two features are particularly relevant for interpreting observed consumption responses:

1. **Income expectations** enter through $E_t[y_{t+k}]$, which affect perceived lifetime resources.
2. **Housing expectations** enter through $E_t[p_{t+k}]$ and **expected future housing transactions** (e.g., first purchase, upgrade, downsizing), embedded in $p_t(h_{t+1} - h_t)$ and the terminal value $p_T h_T$.

Importantly, expectations are not directly identified in the empirical analysis; rather, they provide an organizing lens for interpreting differences across tenure groups.

Marginal Propensity of Consumption (MPC) intuition and tenure-specific channels

In a standard Euler-equation setting, the MPC out of a transitory income change is higher when households are liquidity constrained or face binding near-term obligations. In the empirical analysis, we observe differences in income elasticities of discretionary consumption, which can be interpreted through the following channels:

(i) Income and housing expectations (precautionary saving channel): If housing is perceived to deliver reliable future capital gains, upward revisions in expected housing values can raise perceived lifetime

resources and support current consumption. Conversely, greater uncertainty or downward revisions in expected housing values—such as after a housing correction—can strengthen precautionary saving and dampen consumption.

In the paper, this channel is inferred indirectly through differential income responsiveness across tenure types, rather than explicitly estimated.

(ii) Expected expenditures tied to tenure (δ_t and $p_t(h_{t+1} - h_t)$):

- **Renters:** Face ongoing rent payments and often anticipate large future housing expenditures (e.g., down payments). These considerations can compress discretionary consumption and dampen income responsiveness.
- **Legacy owners:** Typically have limited current purchase or upgrade flows, but face persistent maintenance or renovation needs. While housing assets may be large in physical terms, their value is often illiquid and difficult to monetize, limiting their usefulness for consumption smoothing.
- **Market owners:** Mortgage servicing and upgrade decisions are central. These obligations reduce flexible consumption at lower income levels but can amplify consumption responses when income rises and constraints ease.

(iii) Debt burden and liquidity constraints ($R_b b_t$, borrowing limits): Higher required debt service mechanically reduces available resources for discretionary consumption. Binding borrowing constraints increase sensitivity to income fluctuations, consistent with the empirical finding that mortgaged households consume less on average but exhibit higher income elasticities.

Appendix IV. Robustness Checks and Extensions

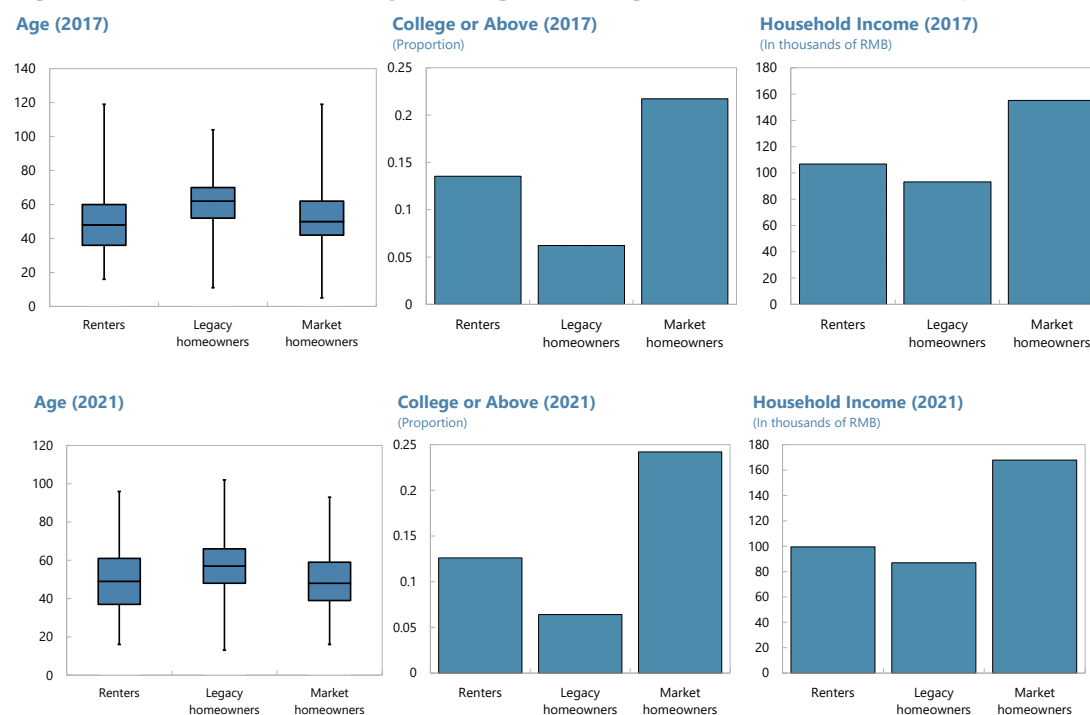
Appendix IV.A Cross-Wave Evidence (2017, 2021)

This subsection examines whether the tenure-specific consumption patterns documented in Section IV are stable across survey waves. We replicate key descriptive statistics and baseline regressions using the 2017 and 2021 CHFS waves. Because 2021 reflects pandemic conditions, 2019 remains our primary benchmark; the additional waves serve as validation that the structural ranking of consumption levels and income elasticities across tenure types is not specific to a single year.

Across waves, renters remain younger, market homeowners remain the highest-income group, and legacy homeowners remain older and lower-income. While aggregate consumption levels vary—particularly in 2021—the relative ranking across tenure types and the ordering of income elasticities remain broadly stable.

The 2021 wave coincides with COVID-related income disruptions and consumption compression; we therefore interpret level differences cautiously and focus primarily on cross-tenure differentials within each wave rather than intertemporal variation.

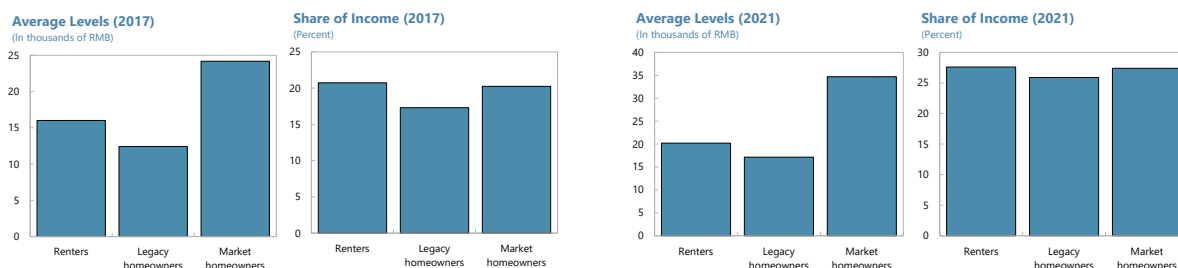
Figure A2. Urban Households by Housing Status: Age, Education, and Income (2017 & 2021)



Sources: China Household Finance Survey (CHFS, 2017, 2021); and authors' calculations.

Note: The box-and-whisker plots show the minimum, first quartile, median, third quartile, and maximum age; age refers to the age of the household head. Education indicates the share of household heads with tertiary (college or above) education. Income denotes average total annual household income, including wage income, business income, transfers, and other income sources, expressed in thousand RMB. The sample includes urban household heads only.

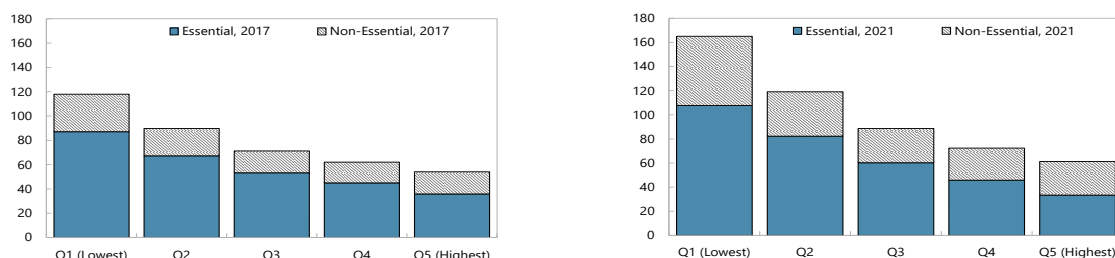
Figure A3. Non-Essential Consumption by Dwelling Type



Sources: China Household Finance Survey (CHFS, 2017, 2021); and authors' calculations.

Note: Non-essential consumption excludes food, education, housing, and medical spending.

Figure A4. Budget Constraint by Essential and Non-Essential Consumption by Income Quintile (In percent of income)



Sources: China Household Finance Survey (CHFS, 2017, 2021); and authors' calculations.

Note: Essential consumption includes food, education, and medical spending; non-essential consumption is defined as total consumption excluding these categories and housing services. Shares are calculated relative to positive household income. To limit the influence of extreme observations driven by very low reported income, consumption-to-income ratios are winsorized at the 5th and 95th percentiles within each income quintile.

Tables A4 and A5 replicate the baseline specifications from Table 2 using 2017 and 2021 data. Although coefficient magnitudes vary across waves, three findings are consistent: (i) legacy homeowners exhibit lower discretionary consumption conditional on income; (ii) market homeowners' apparent consumption premium attenuates once wealth is controlled for; and (iii) income elasticities remain higher for homeowners than renters. These patterns reinforce the interpretation that tenure-related heterogeneity reflects structural differences in balance-sheet composition and housing regimes rather than year-specific shocks.

Table A4. Impact of Housing Status on Non-Essential Consumption (2017)

Dependent variable: log annual non-essential consumption

	(1) Housing Status Only	(2) + ln (Income)	(3) ln(Income)* Housing Status	(4) Full controls	(5) Full controls + income interactions
Dwelling Type (Renters are the omitted housing category)					
Legacy homeowners	-0.299*** (0.022)	-0.278*** (0.041)	-1.352*** (0.351)	-0.288*** (0.025)	-1.358*** (0.203)
Market homeowners	0.413*** (0.023)	0.253*** (0.033)	-1.014*** (0.291)	-0.129*** (0.023)	-1.042*** (0.253)
Income, wealth and balance sheet					
ln(income)		0.439*** (0.015)	0.354*** (0.025)	0.253*** (0.012)	0.178*** (0.020)
Legacy homeowners * ln(income)			0.098*** (0.032)		0.097*** (0.019)
Market homeowners * ln(income)			0.115*** (0.027)		0.082*** (0.023)
ln(net wealth)				0.238*** (0.012)	0.238*** (0.012)
Has mortgage				-0.376** (0.152)	-0.363** (0.155)
Demographic and institutional controls					
Household size				0.015*** (0.001)	0.015*** (0.001)
Age				-0.023*** (0.001)	-0.023*** (0.001)
Hukou: non-rural				0.035** (0.015)	0.031** (0.015)
Hukou: unified residence hukou				0.027 (0.024)	0.023 (0.024)
Hukou: other				0.647*** (0.202)	0.658*** (0.191)
Education: Secondary				0.106*** (0.016)	0.101*** (0.016)
Education: Tertiary				0.267*** (0.026)	0.262*** (0.026)
Constant	9.199*** (0.019)	4.455*** (0.173)	5.384*** (0.275)	4.859*** (0.242)	5.677*** (0.283)
R-squared	0.071	0.280	0.281	0.456	0.457
Observations	24716	24716	24716	18654	18654
Province FE	Y	Y	Y	Y	Y

Province-clustered robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5. Impact of Housing Status on Non-Essential Consumption (2021)

Dependent variable: log annual non-essential consumption

	(1) Housing Status Only	(2) + ln (Income)	(3) ln(Income)* Housing Status	(4) Full controls	(5) Full controls + income interactions
Dwelling Type (Renters are the omitted housing category)					
Legacy homeowners	-0.131*** (0.039)	-0.092 (0.056)	-0.970** (0.363)	-0.048 (0.110)	-1.063 (0.888)
Market homeowners	0.556*** (0.041)	0.409*** (0.048)	-0.652 (0.462)	0.046 (0.093)	-0.867 (0.879)
Income, wealth and balance sheet					
ln(income)		0.305*** (0.015)	0.242*** (0.028)	0.215*** (0.033)	0.149** (0.072)
Legacy homeowners * ln(income)			0.082** (0.034)		0.089 (0.074)
Market homeowners * ln(income)			0.097** (0.039)		0.079 (0.074)
ln(net wealth)				0.241*** (0.017)	0.246*** (0.017)
Has mortgage				-0.312* (0.163)	-0.276* (0.160)
Demographic and institutional controls					
Household size				0.014*** (0.003)	0.014*** (0.003)
Age				-0.027*** (0.001)	-0.027*** (0.001)
Hukou: non-rural				-0.023 (0.033)	-0.037 (0.035)
Hukou: unified residence hukou				-0.067* (0.033)	-0.080** (0.032)
No Hukou				0.222 (0.610)	0.243 (0.561)
Education: Secondary				0.249*** (0.041)	0.244*** (0.042)
Education: Tertiary				0.384*** (0.042)	0.377*** (0.042)
Constant	9.552*** (0.031)	6.422*** (0.176)	7.109*** (0.315)	6.370*** (0.265)	7.106*** (0.269)
R-squared	0.061	0.227	0.229	0.421	0.424
Observations	6259	6259	6259	6116	6116
Province FE	Y	Y	Y	Y	Y

Province-clustered robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix IV.B. Legacy Housing Subtypes (CHFS 2019)

This subsection further disaggregates legacy homeowners in the 2019 CHFS by mode of housing acquisition—policy housing, former company (work-unit) housing, self-built housing, resettlement housing, and inheritance/gifted housing. The objective is to assess whether the consumption patterns documented in Section IV are driven by a specific subgroup within legacy housing or instead reflect broader structural features of non-market residential arrangements.

Table A6 reports estimates corresponding to the full specifications in Table 2 (columns (4) and (5)). Panel A shows that all legacy subtypes exhibit significantly lower discretionary consumption than renters, with coefficients of broadly similar magnitude across groups. This suggests that lower non-essential spending is not confined to a single acquisition channel (e.g., work-unit housing), but is common across forms of non-market ownership. Panel B indicates that income elasticities are consistently higher for legacy subtypes relative to renters, although the magnitude varies across acquisition channels. In other words, while legacy homeowners consume less in levels, their discretionary spending responds more strongly to income fluctuations. Together, these results reinforce the interpretation that the main findings in Section IV are not driven by compositional effects within legacy housing.

Figures A5 and A6 provide descriptive context for these patterns. Figure A5 shows systematic differences in age, education, and income across subtypes. Policy and former company housing households tend to have relatively higher education and income, consistent with their historical allocation to formal-sector urban workers. By contrast, self-built and resettlement housing households are more concentrated among lower-income groups and exhibit different demographic profiles. Figure A6 documents heterogeneity in hukou composition: self-built housing shows a notably higher share of rural hukou among local residents, pointing to different institutional backgrounds and migration histories across subtypes.

These descriptive differences underscore that legacy housing is far from homogeneous. Yet despite variation in income, education, and hukou status, the regression results reveal a common pattern: legacy subtypes are associated with lower discretionary consumption levels and higher income responsiveness relative to renters. This consistency across acquisition channels suggests that the consumption patterns identified in the main text reflect structural characteristics of non-market housing—such as limited asset liquidity and constraints on housing conversion—rather than the idiosyncratic features of any single legacy subgroup.

Table A6. Impact of Housing Status on Non-Essential Consumption: Legacy Housing Subtype (CHFS 2019)

Dependent variable: log annual non-essential consumption

Full specification with balance-sheet controls and province fixed effects (corresponding to Table 2, columns (4) and (5)).

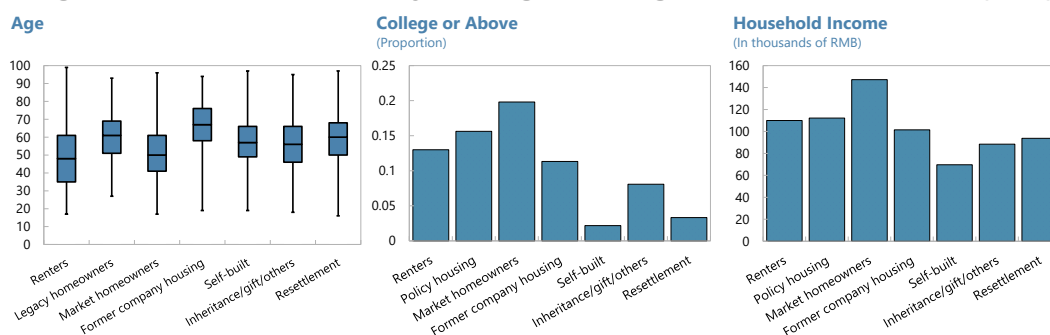
Renters are the omitted housing category.

Panel A: Consumption Levels (Reference group: renters)		
	(1) Full specification	(2) + income interactions
Legacy homeowners		
Policy housing	-0.288***	-2.545***
Former company housing	-0.271***	-2.302***
Self-built	-0.297***	-1.725***
Resettlement housing	-0.347***	-2.108***
Inheritance/gift/others	-0.431***	-1.287***
Market homeowners	-0.141***	-1.089***
Panel B: Income Elasticity Differences (Reference group: renters)		
		(2) + income interactions
Legacy homeowners		
Policy housing * ln(income)		0.202***
Former company housing * ln(income)		0.182***
Self-built * ln(income)		0.131***
Resettlement * ln(income)		0.160***
Others * ln(income)		0.077***
Market homeowners		0.086***
R-squared	0.431	0.433
Observations	13196	13916
Province FE	Y	Y

Regressions are estimated with province-clustered robust standard errors (not reported)

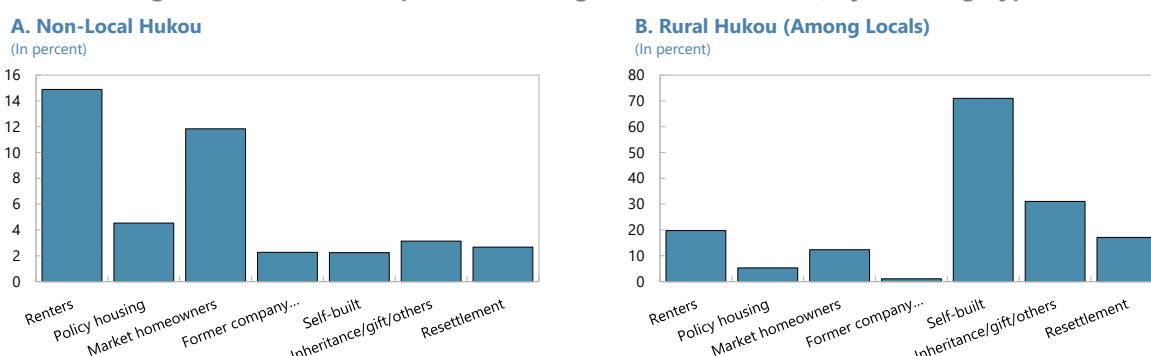
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A5. Urban Households by Housing Status: Age, Education, and Income (2019)



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Figure A6. Hukou Composition among Urban Households, by Dwelling Type



Sources: China Household Finance Survey (CHFS, 2019); and authors' calculations.

Note: Sample restricted to urban household heads. Panel A shows the share without local hukou. Panel B shows the share with rural hukou among local hukou holders.

Appendix IV.C. Within-Household Income and Consumption Changes (2019–2021)

This subsection examines whether the cross-sectional differences in income responsiveness documented in Section 4.2 are reflected in within-household consumption adjustments between 2019 and 2021. The objective is not to identify causal effects of income shocks, but to assess whether short-run income changes generate differential consumption responses across housing regimes.

The analysis uses a balanced panel of urban household heads observed in both the 2019 and 2021 waves of the CHFS. The 2021 wave is the most recent CHFS wave publicly available outside China at the time of writing. While subsequent waves (through 2023, with 2025 forthcoming) are available onshore, they are not yet accessible offshore. The panel therefore captures household adjustments during the COVID period but predates the post-2021 housing market correction.

We estimate first-difference regressions of the change in log non-essential consumption on the change in log income and its interaction with baseline (2019) housing status:

$$\Delta \ln C_i = \alpha \Delta \ln Y_i + \beta (\Delta \ln Y_i * Dwelling_{i,2019}) + \varepsilon_i$$

This specification removes time-invariant household characteristics and identifies responses from within-household variation over time.

The results (Table A7) indicate that discretionary consumption responds positively to income changes within households, with an elasticity of approximately 0.09–0.11. This elasticity is substantially smaller than the cross-sectional elasticities reported in Section 4.2. The relatively low R-squared reflects substantial idiosyncratic variation in short-run consumption changes. Moreover, the interaction terms between income changes and housing status are economically small and statistically insignificant. In short, short-run consumption responses to income fluctuations do not differ systematically across renters, legacy homeowners, and market homeowners.

This pattern is consistent with the framework in Appendix III. In that model, tenure-specific differences in consumption arise through structural features of households' medium- to long-run balance-sheet positions—recurring housing obligations, asset illiquidity, and debt service commitments—that are largely invariant to temporary income fluctuations. The model therefore predicts that all three groups will respond to transitory shocks through the same smoothing mechanism—adjusting savings or borrowing rather than consumption—generating similar first-difference responses across tenure groups regardless of the large cross-sectional differences between them.

The 2019–2021 period introduces a further consideration. Beyond the standard transitory shock interpretation, the COVID shock represented an exceptionally large and common aggregate disruption that compressed income across all households simultaneously. Under such conditions, tenure-specific differences in balance-sheet constraints may be overwhelmed by the sheer magnitude of the common shock, further compressing cross-tenure differences in consumption responses. The uniform responses documented here may therefore reflect both structural smoothing behavior and the particular character of the COVID period as an exceptional aggregate event.

The absence of tenure-differentiated short-run responses therefore does not contradict the structural interpretation of the main results. Rather, as Appendix IV.D shows, when income variation from the more normal 2017–2019 period is included alongside the COVID period, tenure-specific differences in consumption responses re-emerge. The panel evidence in this appendix and in Appendix IV.D together complement rather than contradict the cross-sectional findings, highlighting that structural balance-sheet differences across tenure groups shape consumption responses under normal income variation but may be less apparent when a large common shock dominates household income dynamics.

Table A7. First-Difference Specification (Baseline Tenure=Renters)Dependent variable: $\Delta \ln$ (non-essential consumption)

	(1) Baseline	(2) + Dwelling Interaction
$\Delta \ln$ (income)	0.112***	0.088***
Legacy * $\Delta \ln$ (income)		0.030
Market * $\Delta \ln$ (income)		-0.002
R-squared	0.022	0.022
Observation	11312	11312

p < 0.10, ** p < 0.05, *** p < 0.01.

Notes: Regressions estimated in first differences between 2019 and 2021 for urban household heads observed in both waves. Baseline tenure defined in 2019. Standard errors clustered at the province level.

Appendix IV.D. Unbalanced Panel Evidence Across Three Waves (2017, 2019, 2021)

We further exploit the panel structure of the CHFS, we construct an unbalanced panel combining all three CHFS waves. Of the full sample, 38,247 households are observed in one wave, 18,135 in two waves and 7,388 in all three waves. The estimation sample retains households observed in at least two waves.

The specification follows the first-difference approach in Appendix IV.C:

$$\Delta \ln C_{it} = \alpha \Delta \ln Y_{it} + \beta (\Delta \ln Y_{it} * Dwelling_{i,2019}) + r_t + \varepsilon_{it},$$

where changes in log discretionary consumption and log income are annualized by dividing by the gap between consecutive observed waves—either two years (2017–2019 or 2019–2021) or four years (2017–2021)—to ensure comparability across observations with different intervals. Year fixed effects r_t absorb common time trends across waves and standard errors are clustered at the province level. First differencing removes time-invariant household heterogeneity by construction, so the estimates reflect within-household responses to income changes rather than cross-sectional differences between households. We report four specifications: columns (1) and (2) use lagged dwelling type as the tenure classification; columns (3) and (4) fix tenure at 2019 to address measurement inconsistency in tenure switching across waves. Columns (2) and (4) further restrict to households with no raw own/rent switch between waves.

Several caveats apply. The annualized changes pool short-run and medium-run income variation across different gap lengths, which may capture different margins of adjustment. The sample spans a period of significant macroeconomic change—including the COVID shock and the early phase of the housing market adjustment—making it difficult to isolate structural tenure effects from period-specific factors. These results should therefore be interpreted as directional corroboration of the main findings rather than independent confirmation.

The results are reported in Table A8. We report four specifications: columns (1) and (2) use lagged dwelling type as the tenure classification; columns (3) and (4) fix tenure at 2019 to address measurement inconsistency in tenure switching across waves. Columns (2) and (4) further restrict to households with no raw own/rent switch between waves.

The baseline income elasticity for renters—the omitted tenure category—is 0.077–0.109 across specifications, significant at the one percent level: a 10 percent increase in income is associated with approximately a 0.8–1.1 percent annualized increase in discretionary consumption within the same household over time. Both legacy and market homeowners exhibit stronger consumption responses to income changes than renters. The legacy homeowner interaction is 0.050–0.058, significant at the one percent level in columns (1), (2), and (4), implying that legacy homeowners' within-household consumption response to a 10 percent income change exceeds that of renters by approximately 0.5–0.6 percentage points. The market homeowner interaction is smaller at 0.035–0.043 and significant at the 10 percent level. These patterns are stable across lagged and 2019-frozen tenure classifications and survive the non-switcher restriction, suggesting they are not driven by households transitioning between tenure types.

The contrast between the three-wave panel here and the two-wave balanced panel in Appendix IV.C is itself informative. Appendix IV.C, which covers only the 2019–2021 period, finds more uniform consumption responses across tenure groups. This may reflect the dominance of the COVID shock as a large common aggregate disruption that compressed income across all households simultaneously, potentially overwhelming tenure-specific differences in balance-sheet constraints. When the 2017–2019 transition is included—a period of more normal income variation without a dominant aggregate shock—tenure-specific differences re-emerge, with legacy homeowners responding more strongly to income changes than renters. This pattern is consistent with the interpretation that structural balance-sheet differences across tenure groups shape consumption responses under normal income variation, but may be less apparent when a large common shock dominates household income dynamics.

Table A8. Unbalanced Panel: Income Responsiveness by Tenure (2017–2021)

Dependent variable: annualized change in log non-essential consumption.

	Lagged tenure	Non-switchers	2019 tenure	Non-switchers
$\Delta \ln(\text{income})$	0.088*** (0.014)	0.081*** (0.018)	0.109*** (0.019)	0.077*** (0.018)
Legacy homeowners * $\Delta \ln(\text{income})$	0.050*** (0.014)	0.058*** (0.019)		
Market homeowners * $\Delta \ln(\text{income})$	0.035* (0.019)	0.039* (0.022)		
Legacy homeowners * $\Delta \ln(\text{income})$			0.026 (0.021)	0.058*** (0.019)
Market homeowners * $\Delta \ln(\text{income})$			0.009 (0.023)	0.043* (0.023)
Observations	28,839	26,748	26,493	24,682
R-squared	0.062	0.062	0.067	0.064

Province-clustered standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: All specifications include year fixed effects. Renters are the omitted tenure category. Columns (1) and (2) use lagged dwelling type; Columns (3) and (4) fix tenure at 2019. Non-switcher sample restricts to households with no change in raw own/rent status between waves.

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