

What Drives the US Housing Affordability Crisis?

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ABSTRACT: Rising house prices and housing affordability are key issues that affect US households and the economy. Previous research already highlighted rising concerns about US housing affordability, and since 2021, housing has become unaffordable for the median US household, as more than 30 percent of their income is spent on housing. This article takes a more in-depth look at US housing affordability at the metropolitan area level and finds a wide variation in affordability across metro areas. Although no single driver fits all, a case study of 7 metro areas finds that elevated interest rates and high building costs play a major role, in addition to strict regulations and some location-specific factors, such as the makeup of the metro area's economy, demographic changes, agglomeration effects, and income inequality. The importance of these factors, especially agglomeration effects, supply costs, and regulatory constraints, is confirmed by a panel econometric study of all 381 metro areas.

KEYWORDS: Economics, Real Estate Markets, Housing Supply and Markets, Housing Affordability, Housing Policy.

■ Introduction

Rising house prices and worsening housing affordability are key issues that affect US households and the economy. At the national level, the median house price increased by 85 percent, from \$222,900 in 2010 to \$405,300 by the end of 2025, according to the St. Louis Federal Reserve.¹ Affordability deteriorated, as evidenced by the increase in the cost of homeownership, rising from 30 percent of median income in 2010 to 42 percent in December 2025, according to the Atlanta Federal Reserve.² If the annual cost of homeownership exceeds a 30 percent share of the annual median household income, homeownership is considered unaffordable.³ The latter has been the case since May 2021. Worsening housing affordability adversely affects economic development and growth, as people may not be able to afford to live in an area with higher wages and need to move further out, which may hurt their chances to work there and impede local businesses from hiring workers and growing.⁴ Hsieh and Moretti estimated that such spatial misallocation of labor across US cities lowered aggregate US growth by 36 percent from 1964 to 2009.⁵

The housing market and housing affordability are, by themselves, very important for policymaking. Monetary policy decisions by the Federal Reserve may impact housing affordability and housing activity: when the Fed raises interest rates, homeowners with low fixed rates may become more reluctant to sell, thus constraining the housing supply and causing affordability to worsen.⁶ In macroeconomic policy terms, more affordable housing translates into greater tax generation, job creation, economic development, and an ability to address inequality.⁷ Affordable housing is also a recurrent political campaign issue and a top concern for voters across all age groups—as illustrated in a survey by Redfin on the 2024 presidential election—and by recent policy debates on this issue in the US government and Congress.⁸

Previous research has highlighted rising concerns about housing affordability in the U.S. Anthony noted the chronic

shortage of reasonably-priced housing, as about 30 percent of all US households, comprising both homeowners and renters, have been cost-burdened over the past 25 years.⁴ Richardson found that in 2012, 78 percent of new and existing home sales were affordable for a typical family based on incomes and prevailing interest rates, but in 2018, only 56 percent of homes on sale were affordable.⁹ By 2024, that share decreased to less than 25 percent.¹⁰ Moreover, metro area data reveal wide differences in affordability across the United States, with San Jose, CA, the most cost-burdened market, where 93 percent of a household's income is needed to make mortgage payments, and Decatur, IL, where typical households need to spend only 17 percent of their income for a mortgage in Q2 2025.¹¹ Glaeser and Gyourko found that the main explanation for this intensifying affordability crunch is that housing cost increases outpace income growth.¹² Some studies also point to the importance of local factors, such as the role of overtourism, out-of-town buyers, and housing supply constraints in mountain towns and coastal areas, and broader macroeconomic conditions, such as elevated mortgage interest rates and economic uncertainty.¹³⁻¹⁵

The main contribution of this article is to examine the evolution of US housing affordability and its main drivers at a granular geographical level. While the majority of past research focused on cross-country comparisons and national or state-level housing affordability, this article analyzes housing affordability at the metropolitan statistical area (MSA) level.¹⁶ This will allow more in-depth investigation of all the local factors underpinning housing affordability and price trends across different geographical parts of the United States, drawing on a comprehensive conceptual framework. This includes the role of government policy, factors that affect the housing supply and housing demand, and household characteristics.

The literature on housing affordability has emphasized several distinct theories, although an all-encompassing theory remains lacking. The major theory of housing affordability focuses on *the supply side*, gauging whether the housing market

is delivering appropriately priced units. Glaeser and Gyourko found that about 75 percent of US housing markets were priced near or below minimum profitable production costs in 2013.¹² However, subsequent work indicated that the intensity of new housing production dropped substantially over time across the entire US, while housing prices hit historic highs, which suggests that there has been an economically important flattening of the empirical housing supply curve, contributing to unaffordability.¹⁷ *Regulatory theories* argue that construction and zoning restrictions may heighten construction costs and dampen supply.¹⁸ Gyourko, Hartley, and Krimmel found further evidence of large differences in the land use regulatory environment in the US housing market.¹⁹ Baum-Snow and Duranton argue that land use regulation has grown more stringent as there is less land available for development in the most productive and highest-amenity locations.²⁰ This incentivizes incumbent property owners in the best locations to enact land use regulations to protect their property values, while at the same time prompting a decline in affordability. Such established residents' use of power is referred to in the literature as 'NIMBYism' for the 'not in my backyard' sentiments and has been found to constrain much-needed housing supply.²¹ *Growth theories* attribute increased demand to demographic changes and migration. Anthony found that MSAs with high population growth rates from 1990 to 2000 experienced greater increases in the number of housing-cost-burdened households.²² Gong and Yao showed that demographic changes can account for 40 percent of observed US house price growth from 1970 to 2010, through rising life expectancy, increased urbanization, and international immigration, more than offsetting the negative effect from lower fertility over this period.²³ *Income inequality theories* hold that widening disparities exacerbate housing inaccessibility by causing a concentration of purchasing power among high-income households, which are able to absorb escalating housing expenses and outbid others.^{10,24} *Agglomeration theories* contend that larger cities boost worker productivity, increasing housing demand, and *induced migration theories* explore how better amenities attract new residents and contribute to worsening affordability, in the absence of increased supply.²⁵ Combes and Gobillon reviewed the empirical evidence on urban agglomeration economics and found that average agglomeration effects, measured by the elasticity of productivity or wages with respect to density, are typically in the range of 1–8 percent.²⁶

The outline of this article is as follows. First, it presents the data and methodology and some broad trends in house prices and affordability across MSAs. Then, it takes an in-depth look at seven MSAs experiencing different house price and affordability developments to identify the different driving factors, including socio-economic, regulatory, demand, and supply-side factors. The next section provides a quantitative analysis to determine the relevance of the various factors identified from the case studies across all MSAs between 2006 and 2025. The last section concludes and offers suggestions for policy and further research.

■ Methods

This section describes the data used to assess housing affordability and the main drivers. It also outlines the methodology to assess housing affordability and presents the broad evolution of housing affordability across the 381 US metro areas.

Housing affordability is typically measured by income-based measures, most notably the share of income that households spend on housing.³ Lenders usually require housing costs to be less than 30 percent of monthly gross income. Anything higher would characterize a household as housing cost-burdened, and housing affordability problems arise if the median household, or a large share of households in a particular region, is housing cost-burdened.⁴ An alternative affordability measure is the house price to income (HPI) ratio. Typically, banks consider a good HPI for most homebuyers between two and three, and no more than three to five, but note that this depends on a household's personal situation, including income stability, monthly expenses, expected future earning power, and overall debt-to-income. As noted by Meen and Whitehead, the distinction between cost-to-income and HPI affordability in relation to home ownership reflects an emphasis on, respectively, repayment affordability—i.e., the proportion of income required for mortgage repayments plus other costs—and purchase affordability—i.e., the borrowing capacity and access to credit.²⁷ Both indicators focus on the economic dimension of affordability and are used widely due to their ease of computation. However, they ignore other aspects of affordability, such as social and environmental criteria, such as evolving quality standards, and neighborhood and transportation issues.²⁸

This article compiles house price and housing affordability indicators at the metro area level, using data from Zillow, the Census Bureau, the Bureau of Economic Analysis (BEA), and the Bureau of Labor Statistics (BLS). MSA-level data allow zooming in on specific trends in narrow geographical areas and provide the finest possible breakdown of economic statistics compiled by BEA and BLS. More specifically, Zillow compiles monthly housing affordability data starting in 2012 and house price data from the early 2000s onward for over 900 MSAs, while the Census Bureau's American Community Survey (ACS) publishes detailed annual housing indicators for 508 MSAs from 2006 onward. This survey also collects detailed socio-economic data at the MSA level that can be used to explain cross-sectional differences in MSA housing trends. The Census Bureau also undertakes decadal studies since 1940, which allow for the detection of longer-term trends at the state level, and since 1990, at the MSA level. BEA and BLS compile detailed data on income and household expenditures, employment, GDP, and prices for 384 MSAs starting in the early 2000s. Given the focus on metro area comparisons, this article combines data from these different sources, resulting in a matching data set of 381 MSAs with continuous data from 2006 onwards. Missing data points were backfilled using the variables' development at the state level or the average from other MSAs in the same state. Data for 2020 from the Census Bureau are missing since the census was canceled due to the pandemic, and census data for 2020 are averaged using observations from 2019 and 2021. Table 1 provides more

details on the explanatory variables used to study housing affordability and house prices, drawing on the various theories of affordability, reviewed above, and the conceptual framework from Galster and Lee.²⁹ The latter identified nine key relationships that shape urban housing affordability and their respective drivers, including not only housing supply, housing demand, household demographics and productivity, but also land, construction and other development costs, labor supply and labor demand, and market expectations.

Table 1: Variables included in this study of US housing affordability for each metro area.

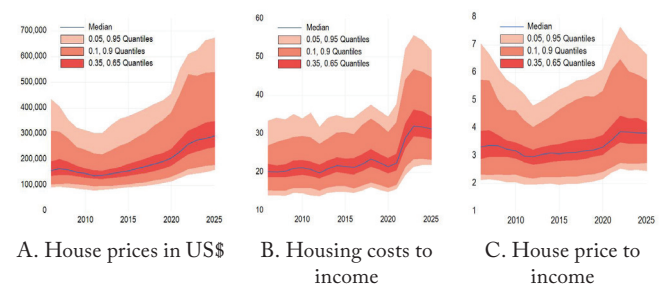
Housing affordability	
Zillow cost-income ratio ¹	Share of income that the median household would spend on a newly purchased home that falls in the 35th to 65th percentile range, comprising mortgage payments, homeowner insurance, property taxes, and maintenance costs. Monthly data (since 2012) averaged over the year. The series is backfilled using the Census cost-income trend.
Census cost-income ratio ²	Selected monthly owner cost (SMOC) divided by median household income, available on an annual basis (2024 data released in October 2025). Census affordability comprises both existing and newly purchased homes, with and without a mortgage, and is not confined to homes that fall within the median range.
House price-income ratio ^{1,2}	Zillow house price data comprises current-month sales prices, whereas Census Bureau house price data comprises valuations from both current sales and existing home prices based on their tax valuation.
Housing cost-burdened households	Share of households with SMOC exceeding 30 or 35 percent of the median income.
Socio-economic, household, and cost characteristics	
Local housing construction cost index ^{3,4}	Leland-Saylor national cost index of materials and labor, adapted to local cost by multiplication with the BEA regional price parity for goods (index = 100 in 2010)
Population growth ^{2,5}	Index for annual population growth (index = 100 in 2010)
Population density ^{2,3}	Population per square km
Share of non-white households ²	The complement of the share of the total population that identifies as white, non-Hispanic. Possible indicator to study the effect of race and/or migration
Median age ²	Median age of the homeowner
Household mobility ²	The share of households that moved in the last 2 and 3-5 years as a percentage of all households that occupied housing units
Local GDP and sector-specific GDP shares ⁵	Real gross domestic product (2017 prices) and shares of specific sectors (government, tourism/accommodation, health, and education)
Productivity ^{3,5}	Real GDP (in 2017 prices) divided by the labor force.
Commuting time ²	Average commuting time to work (in minutes)
Gini coefficient ²	Measure of income inequality (from 0: perfect equality, to 1: perfect inequality)
College population ²	Share of the over-25-year-old population with a bachelor's or higher degree
Unemployment rate ²	Unemployment rate for the population 16 years and over
Poverty rate ²	Percentage of families and people whose income in the past 12 months is below the poverty line
Proxies for housing policy strictness	
Average age of the housing stock ²	Weighted average age of housing, using total housing units built in each decade starting from the 1930s. A gradual increase over time in the average age of the housing stock may be indicative of metro area housing policies that restrict new housing development.
Vacancy rate ²	Share of housing units that are not occupied. A low vacancy rate may point to a housing (supply) shortage.
Density of 1-unit structures ²	Number of one-unit structures (detached and attached) as a share of total housing units. This indicator may capture the (change in) importance of zoning restrictions that favor low-rise, single housing development.

Sources: ¹Zillow Research, ²Census Bureau's American Community Survey, ³Bureau of Economic Analysis, ⁴Leland-Saylor cost of construction labor/materials, ⁵Bureau of Labor Statistics, and author's computations.

To analyze changes in US housing affordability, this article adopts both a qualitative and a quantitative approach. The qualitative approach consists of detailed case studies of seven MSAs to analyze differences in affordability in different parts of the US and examine housing market, socio-economic, and regulatory policy factors. These seven MSAs are selected to cover different geographical parts of the US and to reflect different housing affordability environments. They include coastal areas in the East and West (New York and San Francisco), the capital (Washington, DC), the Midwest/Rust Belt (Detroit), the Pacific Northwest (Bend, OR), and the Sun Belt in the South (Miami, FL, and Austin, TX). These are mostly larger metro areas that account for 15 percent of US households and likely reflect important tendencies that extend to adjacent metro areas. Bend is included to reflect typical affordability challenges of smaller mountain towns and tourism-dependent metro areas stemming from the influx of wealthy second-home buyers.^{13,30} The qualitative case study aims to illustrate the relevance of various factors derived from the affordability the-

ories in the previous section. The quantitative analysis in the next section will examine more systematically the relevance of various housing factors for all 381 metro areas over the past 20 years (2006-2025), using a panel regression approach.

Before examining the 7 metro areas in detail, the rest of this section discusses broad trends in house prices and affordability across the 381 metro areas over 2006-2025. House prices increased in phases between 2006 and 2025 and show substantial variation across US metro areas. Between 2006 and 2011, the median house price across US metro areas declined slightly, from \$158,000 in 2006 to \$137,000, while the compression of house prices in the upper tail of the distribution was substantially stronger, from \$434,000 to \$302,000 at the 95th percentile (Figure 1.A). After 2011, the median house price increased strongly, initially gradually until 2019 to \$191,000, followed by a steep rise during the pandemic to \$261,000 in 2022, and a more modest rise, up to \$292,000 in 2025. After 2011, the dispersion in house prices became more pronounced, as evidenced by the difference between the low end and the high end of the distribution, especially after the end of the financial crisis in 2011-2012, and during and after the pandemic, between 2022 and 2025.



Source: Zillow Research, Census Bureau, author's computations.

Note: Panel figures show fan charts with the median for each variable (blue line) and the distribution around the median in different shades of red, with the middle third (35-65th percentile) in dark red, the 10th and 5th percentile range in medium and light red. Panel A shows the evolution of period-average US house prices for 381 metropolitan statistical areas (MSAs) identified by BEA and BLS using Zillow's smoothed, seasonally adjusted ZHVI series. Panel B shows the Zillow housing cost-to-income ratios for 381 MSAs. Panel C shows the evolution of an alternative affordability metric, house prices to median household incomes.

Figure 1: House price and affordability developments across US metro areas, 2006-2025.

Housing affordability, as measured by the housing cost-to-income ratio, deteriorated most notably in 2022 and 2023 (Figure 1.B). Median housing affordability was well below the 30 percent affordability limit until 2021 and crossed the 30 percent limit in 2023, implying that affordability concerns have affected half of all the US metro areas since 2023. In contrast, 10 percent of all metro areas experienced affordability concerns already starting in 2013, when their cost-to-income ratio passed the 30 percent threshold. Over time, the median housing cost-to-income ratio distribution also shifted upwards, with the range between the lowest and highest 1 percent affordability shifting from 14-33 percent in 2006 to 22-52 percent in 2025, and the middle third of the distribution increasing from 19-22 percent in 2006 to 29-34 percent

in 2025. This confirms earlier research raising the alarm over housing affordability.^{4,31}

The worsening housing affordability is also reflected in the house price to income (HPI) ratio. The median HPI remained in the 3 to 3.3 range between 2006 and 2020 but sharply increased in 2021 to 3.6 and to 3.9 afterward (Figure 1.C). Thus, the median HPI followed a broadly similar trend as the median cost-income ratio and suggests widespread affordability concerns since 2021 across the majority of US metro areas. Also notable is the sharp decline in the top 5th and top-10th percentile HPI ratios between 2006 and 2012, from 7 to 4.8 and from 5.7 to 4.0, respectively, and their subsequent increase, to 6.1 and 5.3 in 2020, and to 7.7 and 6.5 in 2022, before receding a bit to 6.7 and 5.7 in 2025. Thus, for 10 percent of the metro areas, affordability concerns based on the HPI seem to be even more prevalent and for a longer period of time compared to an assessment based on cost-income. These shifts in the distribution of the HPI and down- and uptrends appear to broadly mirror the acceleration and deceleration of house price increases across these various subperiods, suggesting that incomes developed more slowly. This finding will become more evident in the next section.

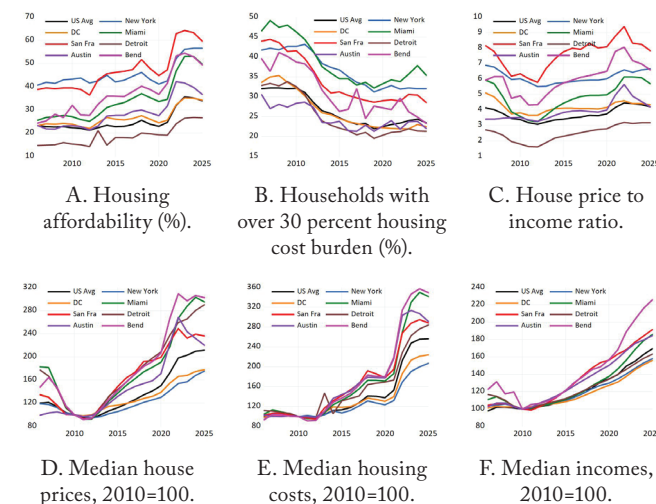
■ Results and Discussion

Housing affordability in seven US metro areas:

This section examines housing affordability in seven MSAs from across the US and local authorities' responses. It finds that affordability issues are due to a combination of factors unique to each metro area.

Housing affordability deteriorated across all seven metro areas, especially after 2020, and notwithstanding some differences, each one has declared a housing affordability crisis. The ratio of housing expenditures to median household income was initially below 30 percent in all metro areas except San Francisco and New York (Figure 2.A). Over time, in all MSAs except Detroit, this affordability ratio crossed the 30 percent threshold, first in Bend in 2010, then Miami in 2012, and during or after the pandemic in the other three MSAs. Housing costs to income in all these MSAs except Washington, DC, and Detroit far exceed the US average. That said, the share of households with a housing cost burden exceeding 30 percent of their income fell between 2006 and 2019 in all MSAs, before increasing again in subsequent years, and appears to be correlated with affordability: the three most unaffordable MSAs (San Francisco, New York and Miami) also have the highest share of households with excessive housing cost burden (Figure 2.B). The alternative affordability indicator, the house price to income ratio, shows a very similar evolution as the housing cost to income ratio, ranking the seven MSAs broadly similarly, and with the same large variation between MSAs, ranging from 2.7 to 8.2 in 2006 and from 3.2 to 7.8 in 2025 (Figure 2.C). This means that the average home in San Francisco costs nearly 8 times the median household's annual income in 2025, whereas it would cost only about 3.4 times a median household's income in Detroit. Despite these differences, authorities in each metro area have declared a

housing affordability crisis and announced plans to address this problem (see further below).

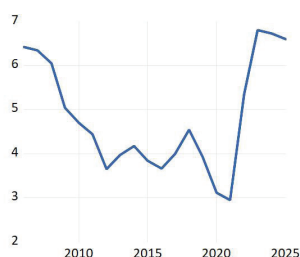


Source: Zillow Research, Census Bureau, authors' computations. See also Table 1 for data description. Note: Figures 2.A to 2.C show worsening housing affordability ratios and figures 2.D to 2.F show the underlying elements (indexed with 2010=100), with increases in house prices and cost of housing exceeding households' income growth.

Figure 2: Housing affordability in 7 metro areas.

Across all seven MSAs, the main reason for the deterioration of housing affordability appears to be the inability of incomes to keep up with house prices and costs. House prices and costs on average rose much more than incomes in each of the 7 metro areas, which can be seen from Figures 2.D to 2.F, which index house prices, costs, and incomes with 2010 as a base year. By 2025, house prices rose to around 300 (tripling) in Bend, Miami, and Detroit, and increased the least, by 60 percent, in DC and NY (Figure 2.D). Housing costs followed that trend, or increased even more, by up to 3.5 times in Bend and Miami, and more than doubled in DC and New York (Figure 2.E). Household incomes, on the other hand, increased much less across all metro areas (Figure 2.F). They rose the most in Bend, doubling, and by about 80 percent in San Francisco, Miami, and Austin, while rising by the same amount as house prices in DC and New York, but less than the housing cost increase.

Financial factors appear to play a large role in the housing cost increase. In general, the increase in the cost of housing from 2021 onwards seems related to sharply rising mortgage rates (Figure 3), as interest-sensitive principal and interest payments represent the bulk of monthly housing costs, between 70 and 85 percent in these MSAs. To illustrate further, a 50-basis-point decrease in the 30-year mortgage interest rate, from 6.6 percent (in 2025) to 6.1 percent, would improve affordability by between 1 and 2.5 percentage points across these seven MSAs, and the number of households with unaffordable housing cost burden would fall by about 185,000, consistent with calculations by Zhao.¹⁰ This also ties in with a recent US government proposal to lengthen the maturity of mortgage loans from 30 to 50 years, which would have qualitatively similar effects on affordability, reducing monthly payments, but at the same time lengthening the payback period by another 20 years.



Source: St. Louis Federal Reserve.

Figure 3: The 30-year mortgage interest rate (%).

Table 2: Affordability impact of lower interest rates.

	House Price (\$)	Cost-burdened households	Cost-income ratio	Impact the interest rate drop (-50 bps) on	
				Cost-income	HH cost burdened
New York, NY	687,917	2,400,137	56.7	54.6	-88,543
Washington, DC	567,064	551,764	34.3	33.0	-21,932
Miami, FL	476,792	856,924	49.8	48.0	-30,745
San Francisco, CA	1,102,835	506,832	59.7	57.2	-20,840
Detroit, MI	250,514	379,657	26.7	25.7	-14,174
Austin, TX	431,284	236,602	36.7	35.4	-8,490
Bend, OR	661,252	25,157	49.4	47.4	-1,050
Total 7 MSAs	567,064	4,957,072	49.4	47.4	-185,774
All 381 US MSAs	356,484	27,129,798	33.9	32.6	-1,041,249

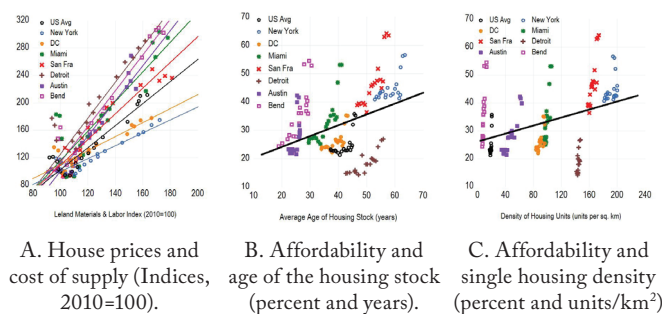
Source: Zillow Research, Census Bureau, author's computations.

Note: Table computes the impact of a 50 basis point (bps) interest rate decline from 2025 levels on the housing cost-income ratio and the associated reduction in housing cost-burdened families. HH = households.

In most of these metro areas, house prices have become high relative to production costs. This confirms the results by Glaeser and Gyourko that these housing markets are generally not delivering appropriately priced housing units.¹⁷ This can be seen from the correlation between our composite measure for the cost of housing, proxied by the Leland-Saylor labor/materials cost index, and house prices, in each of the MSAs (Figure 4A). Following Lynch, we assumed that the cost of labor and materials represented 50 percent of the house price in 2006, indexed the Leland-Saylor cost series to that level in each metro area, and let it grow over time by the BEA's regional price parity series for goods, which measures differences in goods price levels across metro areas for a given year.³² For the US as a whole (black dots and line), the cost of supply increased by 63 percent, but house prices more than doubled between 2010 and 2025. For DC (in yellow) and New York (in blue), on the other hand, housing costs track prices relatively well over this period, each increasing by around 70-80 percent. In all other metro areas, the increase in house prices is much stronger than can be justified by the increase in the cost curve, as evidenced by the steeper slopes in Figure 4A.

Strict housing market regulations may explain why construction costs generally pass through imperfectly to house prices. Glaeser and Gyourko explain the generally loose link between costs and prices by the (in)elasticity of the housing supply: in metro areas where housing supply cannot bring on new supply, due to strict regulation of housing construction, the price of housing can be considerably above the minimum profitable production cost, and the shift in demand for housing affects

prices more than quantities.¹² This hypothesis is also supported by survey data on the strictness of land use regulations. Gyourko, Hartley, and Krimmel show that a stricter regulatory regime is associated with higher house values, and the most highly regulated markets in the US are situated along either the northeast coast from Boston down through Washington, DC, or the west coast of the country, from Seattle to Portland, San Francisco, and Los Angeles.¹⁹ A relation between regulatory strictness and affordability can be inferred, indirectly, from indicators of the housing stock, which tell how much new supply becomes available over time. Figure 4B shows that metro areas such as Austin, which has a relatively young housing stock and kept its average age constant, appears to have better affordability for most of the time, compared to San Francisco or New York, which have an old and aging housing stock, which suggests that not enough new supply is added to their existing housing stock or restrictive policies, in line with views expressed by real estate reporters.^{33,34} Similarly, in Miami, only 4 percent of the metro's housing units have been built since 2010, and housing regulations, especially to increase affordable housing options, seem restrictive and have only recently become responsive to the Miami affordability crisis.^{35,36} DC has seen relatively little change in average age of housing, reflecting several large housing developments that have taken place to expand the supply, including downtown and through office-to-residential conversions, which has gained in popularity across the US.³⁷⁻³⁹ Detroit, on the other hand, which also has an old housing stock, does not fit this pattern, as it suffered from a foreclosure crisis between 2005 and 2015 which severely limited new construction.⁴⁰



Source: Author's computations, based on data described in Table 1. The line represents linear regression for the cross-sectional data in each figure. The Leland Materials & Labor Index is a proxy for construction costs, and the average age of the housing stock and density of single-family housing units are taken as regulatory housing proxies. House prices are shown to rise more than the Leland housing cost index, and regulatory stringency appears positively associated with lower housing affordability across metro areas.

Figure 4: Housing affordability, construction costs, and regulatory proxies in select MSAs.

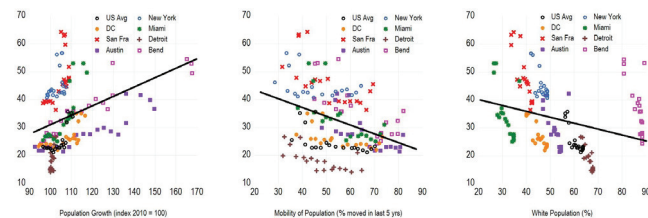
The density of single-family housing units is another proxy for housing regulatory policy, which seems related to affordability. The rationale is that metro areas with high density may be unwilling and/or unable to expand the housing stock in a significant way or may face opposition from existing homeowners when attempting to free up more space (the so-called NIMBY movement), which may put upward pressure on prices and affordability. This can be seen from the contrast in affordability between high-density MSAs such as New York and

San Francisco versus low-density MSAs such as Austin (Figure 4C). In Austin's case, density bonuses encouraged housing construction, and its affordable-housing program added to the overall supply, whereas metro areas like San Francisco had anti-density policies in place for 50 years.^{21,34} In Miami's case, where density bonuses are also available, the housing supply did not expand as local developers felt insufficiently incentivized.^{36,41} Bend seems to be an outlier in this relation, as it has a low density but a very high unaffordability, which may be linked to characteristics of mountain towns, which have less habitable space and more supply constraints by the nature of their location, among other factors.

Demographic factors also appear to play a key role in housing affordability in all seven metro areas. Population growth is positively correlated with affordability (Figure 5A). This is consistent with Harvard's Joint Center for Housing Studies 2025 report, noting various demographic headwinds to housing demand, including a slowdown in household formation due to a drop in immigration and less household formation by younger adults, a fall in household mobility, and projected increases in older households due to population aging.¹⁵ Austin and Bend experienced some of the highest population growth and also saw affordability worsen the most, as their median incomes rose less than house prices or costs (Figures 2D-2F). Over time, the share of households that moved between houses has fallen considerably across all metro areas, freezing up the housing inventory-for-sale and thus reducing the supply, which contributes to rising house prices and affordability concerns (Figure 5B). Frey notes that long-distance moves have picked up since 2022, while local moves reached a historic low.⁴² The decline in mobility may also partly be attributed to mortgage lock-in, as existing homeowners are unwilling to give up low-rate mortgages at a time when interest rates increased considerably, leading to a spatial lock-in.^{6,43} Equally, record-high house prices may keep people from buying their first homes. In turn, when housing is limited, an unwillingness to move out on the part of current residents will hinder outsiders from moving in.⁴⁴ There also seems to be some cross-sectional relationship between the racial makeup of these metro areas and housing affordability, as the decline in the share of households identifying as white seems negatively correlated with affordability. This may reflect the large immigration and growth of Hispanic households over the past 20 years, which led to increased demand for housing in each metro area against a constrained supply, leading to higher house prices and worse affordability, in line with Gong and Yao and as projected by Masnick and Di.^{23,45} It also follows from the literature on racial disparities in homeownership and housing returns, pointing to worse housing outcomes for non-white households.⁴⁶

Agglomeration effects impact housing affordability across the seven metro areas. Earlier findings on productivity and affordability by Glaeser and Gottlieb and by Van Nieuwerburgh and Weill are confirmed by our data, showing that differences in productivity across metro areas drive differences in affordability (Figure 6A).^{25,47} San Francisco and New York stand out for their high GDP per worker. In turn, this allows paying higher wages, which attracts more workers to these places, but

also results in more competitive housing demand against an inelastic supply, and thus leads to worse housing affordability. Productivity is also rising in the other metro areas and coincides with decreased housing affordability.

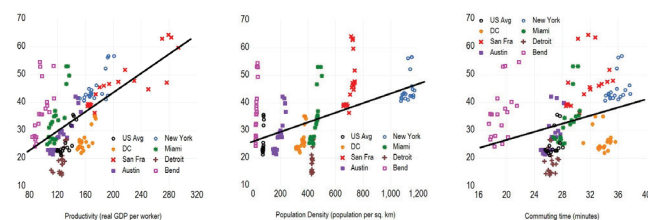


A. Population growth (2010=100) B. Population mobility (%). C. Racial makeup: White (%).

Source: Author's computations, based on data described in Table 1. The line represents linear regression for the cross-sectional data in each figure. Higher population growth is associated with less affordable housing, while mobility and racial makeup (share of white population) appear positively associated with affordability.

Figure 5: Demographics and housing affordability in select MSAs.

Economies of density, measured by population density, are another broad proxy for agglomeration effects, as it influences firms' location decisions.⁴⁸ Moving to higher-density areas correlates with worse affordability in our sample of seven metro areas, albeit more on a cross-sectional basis than within each metro area (Figure 6B). Housing affordability problems also seem correlated with longer (willingness to) commute across these metro areas, likely due to the separation of home and workplace, which adds to living costs. Long commutes appear most severe in New York, San Francisco, and DC metro areas, as workers are attracted by higher wages in these metro areas (Figure 6C). However, there has been a reset in commuting in most metro areas after the pandemic, evident from the leftward move in the last three commuting data points (2022-2024), as teleworking took off, whilst affordability concerns continued to rise—possibly due to higher-income households looking for new residences fitting their new lifestyle. The latter may be related to spatial and income inequality, discussed next.



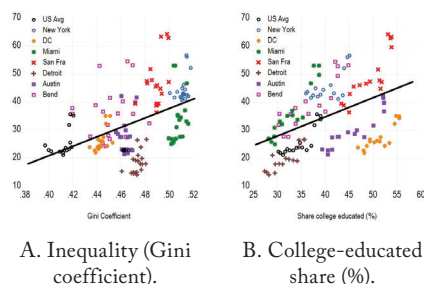
A. Productivity and affordability. B. Population density (per km²). C. Commuting time (in minutes).

Source: Author's computations, based on data described in Table 1. The line represents linear regression for the cross-sectional data in each figure. Metro areas with higher productivity, higher population density, and longer commuting times appear generally less affordable.

Figure 6: Agglomeration effects and housing affordability in select MSAs.

It is worth noting that these agglomeration effects are reflected in various surveys of livability and city performance. For example, DC is ranked number one on livability in 2025 by Rentcafe.com, based on a combination of socioeconomics, quality of life, and community metrics, far ahead of the next

of our 7 MSAs, New York at 22nd, and San Francisco at 33rd place.⁴⁹ A different report, by the Milken Institute, ranked Bend as the fourth-best performer among small cities and Austin as number 9 in the list of large cities, based on metrics from labor market trends, performance of high-tech industries, and shared access to economic opportunities.⁵⁰



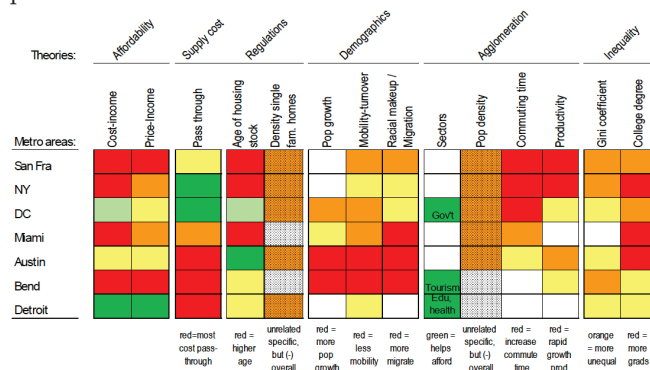
Source: Author's computations, based on data described in Table 1. The line represents linear regression for the cross-sectional data in each figure. Higher income and education inequality appear to go hand in hand with less affordable housing across metro areas.

Figure 7: Inequality and housing affordability in 7 MSAs.

Inequality seems intertwined with affordability across all seven metro areas. The cross-section shows a positive relation between Gini coefficients and affordability, although only in Bend, Austin, and San Francisco did income inequality increase noticeably as housing affordability deteriorated. For Bend, this is confirmed by city reports stating that about one-in-six households cannot afford to purchase a home at current market rates, which is attributed to rising income inequality, as the local economy is heavily influenced by service and seasonal jobs that offer low- to moderate-wage jobs that do not keep up with the rising cost of living.⁵¹ In Austin, the rising income disparity reflects an influx of out-of-state households with higher incomes, like tech workers from LA and San Francisco, and the area is disproportionately adding more low- to moderately-paying jobs.^{52,53} For San Francisco, this relation is confirmed by Verma, Rinzler, and Zuk, who found that, between 2000 and 2015, increases in house prices and affordability problems were correlated with shifts in where low-income households live.⁵⁴ Inequality is also stark in Miami, where housing affordability varies sharply across neighborhoods, with high-income households packed along the region's coastline and in some affluent inland suburbs, and low-income areas sandwiched in between.³⁵ Another proxy for inequality, the share of college-educated, seems even more strongly correlated with affordability, with marked increases in educational attainment across all seven metro areas, and high house prices crowding out lower-income and lower-skilled households as whole metro areas are auctioned off to the highest bidder.⁵⁵

In sum, a multi-factor explanation seems warranted to explain the housing affordability crisis across these seven metro areas. The above analysis made clear that affordability pressures are different across the various MSAs, and the importance of the various affordability theories/drivers differs across metro areas, as summarized in Figure 8. Some factors have a more severe impact in some MSAs, such as housing cost pass-through in Austin, Bend, and Detroit, demographic factors in Austin,

Bend, and Miami, and agglomeration effects in San Francisco and New York. Other factors, such as the single-family housing density regulatory proxy and population density, seem more relevant to explain differences between MSAs than within MSAs, potentially because they are slow-moving indicators, whereas affordability changes have occurred in a shorter time span.



Note: in red = negative effect, green positive, orange and yellow in between, white no effect on affordability. Dashed squares reflect mostly a cross-sectional impact.

Figure 8: Summary of metro area evidence on affordability factors and theories.

In response, each local metro area authority has undertaken efforts to combat its housing affordability crisis (Table 3). A survey of the metro areas' housing authorities reveals that many stress the underproduction of housing units in the past 10-15 years and the fear that unaffordability may drive the workforce away, pointing to negative agglomeration effects. Some financially stronger metro areas have been able to secure funding to invest in affordable homes, while others rely on public-private or philanthropic partnerships. Most metro areas also started to have inclusionary housing mandates, provide incentives for developers to include affordable housing in their projects, or encourage commercial-to-residential conversions.

Table 3: Metro area authorities' plans to make housing more affordable.

Metro area	Main measures to combat unaffordable housing
Austin	Voters approved affordable housing bonds to buy land, build housing, and help with repairs in 2018 and 2023. Austin Strategic Housing Blueprint (2017) set a 10-year goal to create 60,000 affordable housing units through land acquisition and development. Zoning code revisions to enable greater housing density.
Bend	City has a development fee to pay for affordable housing; adopted a system development charge exemption for mixed-income development projects; annexed urban reserve land to build affordable homes.
Detroit	City invests in renovation to improve habitability, has a homeowners' property tax assistance program, adopted a preservation action plan to preserve affordability of housing units, and adopted an Inclusionary Housing Ordinance to develop affordable homes. Philanthropic strategic neighborhood fund finances infrastructure and housing development.
DC	City set a target to create 38,000 new housing units in 6 years (2019-2025), with one-third for low-income earners, including through office-to-residential conversions and development finance for builders. Montgomery County increased financial investments in affordable homes.
Miami	HOMES plan (2022) to preserve/renovate housing, provide mortgage relief, increase the supply of affordable and workforce housing, etc. The Florida Live Local Act offers tax and zoning incentives.
New York	Between 2014 and 2021, NYC financed preservation and new construction of 200,000 affordable homes, passed mandatory inclusionary housing, and various rezoning efforts. New housing plan in 2024 includes significant changes to restrictive zoning rules and a \$5 billion commitment to support affordable homeownership, preservation, and infrastructure, while the 2026 housing plan includes the development of public land and 200,000 rent-stabilized units over 10 years.
San Francisco	Developed housing plan (Housing Element) in 2023 for meeting housing needs over the next 8 years (2023-2031), including simplification of permitting and approvals, funding for affordable and large-scale projects, and easing zoning restrictions. Removed barriers for office-to-residential conversions and reformed inclusionary housing and fee system to improve the feasibility of mixed-income projects.

Source: Author's research of metro area housing authority departments.

Quantitative analysis:

This section uses panel regressions to examine housing affordability for all 381 metro areas. This statistical technique finds the common factors driving a specific variable, in this case

affordability, over time and across a set (a panel) of metro areas. A panel regression can be written in general as:

$$Y_{it} = \alpha + X_{it} \beta + \delta_i + \gamma_t + \varepsilon_{it}$$

where Y_{it} is the dependent variable, and X_{it} is a k -vector of regressors (which may include a lagged dependent variable to reflect path dependence), and ε_{it} are the error terms for cross-sectional units observed for $i = 1, 2, \dots, M$, cross-sectional units observed for dated periods $t = 1, 2, \dots, T$. The α parameter represents the overall constant in the model, while the δ_i and γ_t represent cross-section and period-specific effects. The β coefficients are assumed to be common across all metro areas and time periods. Least-squares regression is used to estimate these coefficients. To account for the correlation between the residuals and obtain robust estimators, we correct for heteroskedasticity using White two-way clustering of errors.⁵⁶ We follow Hendry's general-to-specific estimation approach, starting with an equation that includes all possible regressors, and eliminating one by one those that are insignificant, as judged by t -statistics and other information criteria.⁵⁷

The results show that housing affordability cannot be reduced to a single explanation or single theory. In fact, elements of all five theories of affordability are reflected in the estimated cost-income and HPI panel regression models (Table 4). All variables come with the expected sign, but the LDV in models B and D takes away the explanatory power of some of the variables in models A and C, as expected. The goodness-of-fit, measured by the adjusted R^2 , is very high, around 90 percent or more, and the unexplained part of the model is rather small, as measured by the size of the average residual relative to the mean affordability ratio (between 5 and 11 percent). Two variables that measure agglomeration effects are present in all models. Most notably, across all specifications, a higher share of tourism and recreation appears to significantly correlate with unaffordability, likely reflecting the attractiveness of coastal, mountain, and other tourist-rich MSAs for out-of-town buyers.^{13,30} In model A, a one-percent increase in the share of tourism in local GDP is associated with a half a percentage point higher housing cost-income ratio. Another agglomeration factor, higher productivity, is also positively correlated with unaffordability in all four models, in line with Baum-Snow and Duranton's model of housing supply.²⁰ A \$10 increase in productivity is associated with a 0.4 percentage point increase in the cost-income ratio in model A.

Greater inequality, measured by the Gini coefficient, is also positively correlated with unaffordability: a 4-percentage-point increase in the Gini coefficient is associated with a half percentage point worsening of affordability. This is in line with Adabre, Chan, and Darko, who associate rising inequality with greater residential segregation arising from big income gaps between high-income earners and middle- and low-income earners, through gentrification or the development of gated communities.⁵⁸ Among the demographic factors, higher population growth appears to correlate with less affordable housing across all models, as it leads to increasing demand for housing against a relatively fixed supply, in line with the framework of Galster and Lee.²⁹ The coefficient size suggests that a 10-point increase in the population index is associated with a 0.4 per-

centage point increase in the housing cost-income ratio. The cost of supply (Leland-Saylor index) and regulatory proxies (age of housing stock) are statistically significant in three of the four models as well, and their inclusion in the LDV-enhanced models B and D suggests they are equally important to understand housing affordability across US metro areas, in line with Glaeser and Gyourko and Snow-Baum and Duranton.^{12,20} A 10-point increase in the supply cost index is associated with the cost-income ratio rising by more than 1 percent, and an increase in the average age of the housing stock by one year would raise the cost-income ratio by about a quarter of a percent.

Table 4: Panel estimation of housing affordability for 381 US metro areas, 2006–2025.

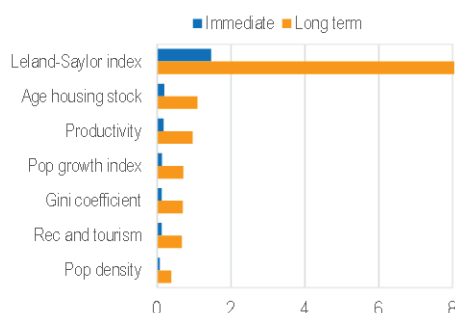
Dependent variable:	Cost-income ratio		House price-income ratio	
	(A) no LDV	(B) with LDV	(C) no LDV	(D) with LDV
Regressors:	Coef (t-stat)	Coef (t-stat)	Coef (t-stat)	Coef (t-stat)
Leland-Saylor index	0.129 (3.23)	0.063 (2.11)		0.006 (2.59)
Post-2000 housing	0.106 (2.45)			
Age housing stock	0.262 (3.57)	0.060 (2.11)		0.020 (2.92)
Population index	0.042 (1.97)	0.018 (1.91)	0.010 (2.94)	0.003 (2.29)
Mobility	-0.195 (-3.24)			
Edu, health			-0.032 (-2.0)	
Rec and tourism	0.500 (1.94)	0.260 (2.59)	0.052 (1.76)	0.036 (2.41)
Pop density	0.049 (3.33)	0.011 (1.91)		0.003 (2.38)
Commuting time	0.098 (1.87)		0.020 (1.76)	0.008 (1.68)
Productivity	0.042 (2.32)	0.018 (2.17)	0.008 (2.68)	0.003 (2.63)
Gini coefficient	0.126 (2.84)	0.099 (2.17)	0.009 (1.47)	0.013 (3.65)
Lagged dependent variable (LDV)		0.820 (17.1)		0.760 (15.3)
R^2 adj	0.891	0.961	0.911	0.974
N observations	7230	6849	7238	7238
M cross-sections	381	381	381	381
T periods	19	18	19	19
F -statistic	146.3	417.3	183.4	633.3
Average residual	2.6	1.6	0.4	0.2
Mean affordability	24.2	24.3	3.6	3.6

Panel regression estimated with least squares. Standard error and t -statistics are adjusted for clustering. White two-way cluster standard errors & covariance (degrees of freedom corrected) method is applied. Cross-section and period fixed effects are included in all models.

One concern with these estimates may be that they are affected by an endogeneity bias, i.e., the fact that no single variable may be strictly exogenous – think of population growth in a metro area being impacted by housing affordability or being jointly determined. This could be solved by using a more sophisticated econometric technique like the generalized method of moments estimator from Arellano-Bond, which estimates the model in first differences and uses lagged (pre-determined) variables as instruments.⁵⁹ Although not reported here, such estimation does not qualitatively change the results: housing affordability is still explained by a combination of factors from these different theories, although in more complex ways, with some non-linear effects.

In terms of economic significance, supply cost, agglomeration effects, and regulatory constraints appear most important. While statistical significance establishes whether coefficient estimates for variables are non-zero, economic significance tells which variables have the most important impact on affordability. This article follows Liu and Winegar to calculate economic significance by multiplying the regression coefficients by their within-group standard deviation as the scaling variable.⁶⁰ Figure 8 shows that a one standard deviation shock to the supply cost factor raises affordability concerns the most, by 1.5 percentage points immediately and by 8 percentage points in the long run. Agglomeration effects, through the combined effect of shocks to productivity, tourism, and population density, would worsen affordability by 2 percentage points in the long run (by 40 basis points immediately). Regulatory effects, through a shock to

the age of the housing stock, would worsen affordability by 1.1 percentage points in the long run (by 20 basis points immediately). Lastly, a one standard deviation shock to demographics (population growth) and inequality (Gini coefficient) would worsen affordability the least, by 0.7 percentage points in the long run (12-13 basis points immediate impact).



Source: Author's calculation based on Table 4, model B. Impact shows the coefficient $\times$ within-group (mean) standard deviation, following Liu and Winegar (2025). Long-term = immediate impact divided by (1-LDV coefficient).

Figure 9: Economic significance of model B variables on housing cost-income ratio (%).

■ Conclusion and policy recommendations

This article documented the escalating housing affordability crisis across US metro areas over the period 2006-2025, confirming prior academic studies and recent commentaries on this topic, through in-depth qualitative analysis of seven metro areas and an econometric study of all 381 metro areas. The article focused on affordability from a homebuyer's perspective, sidestepping the issue of rental affordability, which deserves a separate analysis. The analysis showed that the magnitude of the affordability crisis varies by metro area, and in some, housing is still relatively affordable, albeit increasingly less so. In both the qualitative and quantitative analyses, the increased unaffordability appears to be caused by house prices and housing costs exceeding income growth, a substantial underproduction of new housing, and a rising housing price-cost ratio. In turn, this may be caused by strict housing regulations, as confirmed by our empirical proxies and by the case study evidence. Against insufficient supply, demand factors such as agglomeration effects, demographic factors such as population growth and race, and income inequality also appear to play a role, as metro areas that offer higher wages, afforded by higher productivity, better amenities, and higher population density grow stronger and create demand pressures between different categories of homebuyers, such as between high and low-income earners, and between residents and out-of-town buyers.

Our research has clear implications for housing policies and for future research. Based on our empirical results, the policy focus should be on expanding supply in a cost-efficient way, such as through cheaper manufactured and modular homes, more commercial-to-residential conversions, and efforts to ease regulatory constraints. Some of the demand-side factors that are found to be important, relating to agglomeration effects, point to the importance of industrial policies to create attractive living conditions for households across all metro ar-

eas, so that the incentive to move to so-called superstar cities is mitigated.⁵⁵ Finally, macroeconomic and social policies also impact housing affordability through their impact on income inequality and racial disparities in housing. Future research on housing affordability could examine how the various theories fit together in one large theoretical model, e.g., building on Favilukis, Mabile, and Van Nieuwerburgh.⁶¹ Furthermore, changes in housing affordability could be examined over the very long term by exploiting decadal housing surveys going back to 1940, although the data richness may be more limited in the earlier surveys. Finally, an in-depth study of rental affordability, which has worsened alongside homeowners' affordability, and associated policies, would be opportune to accompany the current study, which focused on homeowners' affordability.

At present, housing affordability is receiving wide attention from local authorities, the federal government, and Congress. Many local metro housing authorities have declared a housing affordability crisis and already implemented various measures, including accommodating commercial-to-residential conversions, expanding incentives for developers of affordable housing projects, enhancing mortgage relief, and tapping philanthropic support, etc., as discussed in the case study section. The federal government already supports the US housing market through many initiatives, including housing subsidies, tax relief, mortgage insurance, and housing development incentives, but more may be needed.⁶² The US government is now considering declaring a national housing emergency, and its most recent plans from January 2026 include the creation of 50-year mortgages, portable mortgages, directing Fannie Mae and Freddie Mac to buy large amounts of mortgage bonds, allowing people to borrow from their 401(k) to use for a down payment, and banning large financial investors from buying single-family homes.⁶³ The first four proposals could help lower interest rates and/or increase demand, but in the face of limited housing supply, might cause further house price increases, while the latter may expand the supply of homes-for-sale, but could have negative spillovers onto the rental market. In February 2026, Congress passed some major bills aimed at solving the US housing crisis, including by pushing cities to build more and transferring federal funding away from those that fall behind their target, streamlining federal environmental reviews, relaxing building codes to make it easier to build manufactured homes, and expanding mortgage access.⁶⁴ In any case, a solution to the US housing affordability crisis will have to involve a multi-pronged and coordinated response by all levels of government, in coordination with the private sector, banks, and builders, foremost, to tackle supply and regulatory constraints and boost housing demand.⁶⁵ The expansion of commercial-to-residential conversion programs seems like a good start to boost supply, possibly in combination with other local efforts and some of the federal proposals listed above, to support both housing supply and demand, in addition to policies that boost household incomes and encourage savings for downpayments.

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