

CHAPTER

Improving Housing Affordability

by Benjamin J. Keys and Vincent Reina

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Suggested Citation: Keys, Benjamin J., and Vincent Reina. 2025. "Improving Housing Affordability." In *Advancing America's Prosperity*, edited by Melissa S. Kearney and Luke Pardue. Washington, DC: Aspen Institute. <https://doi.org/10.5281/zenodo.17429048>



Improving Housing Affordability

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ABSTRACT

US households face unprecedented challenges related to the high cost of housing. In this paper, we characterize the affordability crisis, assess the primary drivers of unaffordable housing, and offer potential policy solutions. We argue that several distinct housing-market challenges—including financing gaps, local restrictions that make it difficult and or costly to build, and a lack of an entitlement program—present distinct challenges to both an adequate and an affordable housing supply. Importantly, though, the impact of these features becomes more dramatic during economic downturns. Our current national housing challenges are a product of longstanding structural challenges that were amplified by an unprecedented lack of building after the 2008 financial crisis. As a result, the policy recommendations sit within a broader series of reforms and policy solutions that ensure that housing supply meets demand, and that affordability is not compromised, during all periods of the economic cycle.

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Acknowledgements: We thank Joshua Boyd and Sarah Curry for exceptional research assistance, as well as Joseph Gyourko, Mark Willis, Chi-Hyun Kim, and Kyle Arbuckle for sharing feedback on the draft of this paper. We thank Melissa S. Kearney, Luke Pardue, and Ella Grant for their feedback and edits, as well as all of the attendees of the 2025 Aspen Economic Strategy Group Annual Meeting. Keys thanks the research sponsors of the Zell/Lurie Real Estate Center for support. Any errors are our own.

Introduction

Housing affordability is a priority for American policymakers at every level of government. Households currently face some of the highest burdens of housing costs relative to income on record (JCHS 2024b). For the macroeconomic outlook, shelter costs continue to be a leading driver of inflation (BLS 2025).

While there are multiple dimensions of affordability challenges, in this paper, we focus on two: an insufficient housing supply, particularly of housing that is affordable and habitable; and barriers to homeownership, including high entry costs and interest rate fluctuations, that keep homeownership out of reach for younger generations and put further pressure on rental markets. Beyond the gains associated with housing access and affordability, research shows the effects of expanding access to credit in the mid-twentieth century on population growth (Dettling and Kearney 2025) and the important role housing supply plays in promoting local and macroeconomic growth (Duranton and Puga 2023; Hsieh and Moretti 2019). We discuss how evolving challenges have redefined the need to increase supply and propose ways to address them across short- and long-term horizons.

Given current supply constraints, policies that support and solely stimulate demand can exacerbate housing affordability issues, as can policies that artificially increase construction costs, such as materials tariffs (LaJeunesse 2025), restrictive immigration policies affecting labor supply (Howard et al. 2024), and excessive regulatory requirements.¹

The solution to the current shortage is to build, while ensuring that we also address current and future affordability needs. The need to build has been embraced by the growing “Yes In My Backyard” (YIMBY) movement, along with calls by politicians and the popular press to make it easier to build.² In aggressively expanding housing construction, however, much needs to be reconsidered about the mechanisms and financing tools used to mitigate that shortage—a scope that includes how, where, and what we build, and how to ensure we are building affordable units.

To that end, in this paper, we first present a set of illustrative facts regarding rising housing costs and the challenges both renters and owners face. Next, we describe some key drivers of the current affordability crisis. We then offer a series of steps that policymakers can take to address the current and structural problems that impair the ability to build, especially during economic downturns.

We conclude that the affordability crisis can only be solved through coordinated efforts at the federal, state, and local levels, including comprehensive zoning reform, expanded financing

¹ For an overview of these issues, see Baum-Snow and Duranton 2025.

² See, for instance, Klein and Thompson 2025 and Appelbaum 2025 as prominent examples.

options, and the creation of a true housing safety net. In the longer term, reducing the cyclicalities of housing construction through stable financing sources will make the housing market less susceptible to future shortfalls. Developing a richer toolkit for addressing housing needs will also make the market more dynamic and flexible in responding to shocks and changing demographics.

1. Some facts about affordability

The current housing context is unprecedented across multiple dimensions. The serious lack of adequate housing supply that has persisted for well over a decade is a product of multiple factors, including insufficient construction during periods of economic downturn despite household growth and the barriers that make building difficult even during economically favorable conditions (Dong and Hansz 2019; Knaap et al. 2007). When we combine that context with other underlying realities of our housing market, including longstanding underinvestment in some areas, an aging housing stock and aging households (Myers and Ryu 2008), and a lack of a comprehensive housing safety net, we end up with a historically and increasingly unaffordable housing market that is both financially unsustainable and economically inefficient. Some key examples of these dynamics include:

1.1 The median rent has increased dramatically since 1980, with a wholesale loss of the nation's most affordable rental units, as demand pressure incentivizes landlords to raise rents and reposition units upmarket.

When looking at affordability, it is important to look at the housing stock first and then to focus on the stock relative to income. Here we look at stock in two ways, first in aggregate and then focusing specifically on lower price points.

First, using microdata from the US census and the American Community Survey (ACS) from 1980 to 2023, we document the rising cost of rental housing in the US in real dollars (see figure 1a). In fact, Americans have seen a near-doubling of median rent in real dollars over the last 43 years, with the median rent in the US increasing (in 2023 dollars) from less than \$950 per month in 1980 to \$1,700 per month in 2023.³ Figure 1b shows that these increases have been quite consistent across age groups, with rising rents across the age distribution.

Next, it is important to narrow down on trends in units with the most affordable rents. Traditionally, cities rely on lower-cost rental units to serve as affordable-housing options. The units are often referred to as “naturally occurring” affordable housing because they are owned and operated by private actors and often lack any form of direct federal or local housing assistance. Here we focus on rents at or below \$1,000 in 1980 (in 2023 dollars), given that the

³ We deflate all nominal series to 2023 dollars using the Consumer Price Index for All Urban Consumers (CPI-U).

median rent was roughly that amount at the time, as well as roughly half the median rent in 1980 (\$500). Figure 2 shows that in 1980, over 55 percent of the nation's rental stock rented for less than \$1,000 (not surprising given the median was \$950), and over 10 percent rented for less than \$500. Today, just over 20 percent of the nation's rental stock has rents under \$1,000, and less than 5 percent have rents below \$500 (see figure 2). There has been a nearly 45 percent reduction in units renting below roughly \$1,000 since 1980, and a more than 50 percent drop in those below \$500.

Figure 1: Median rent, 1980–2023 (2023 dollars)

Figure 1a.

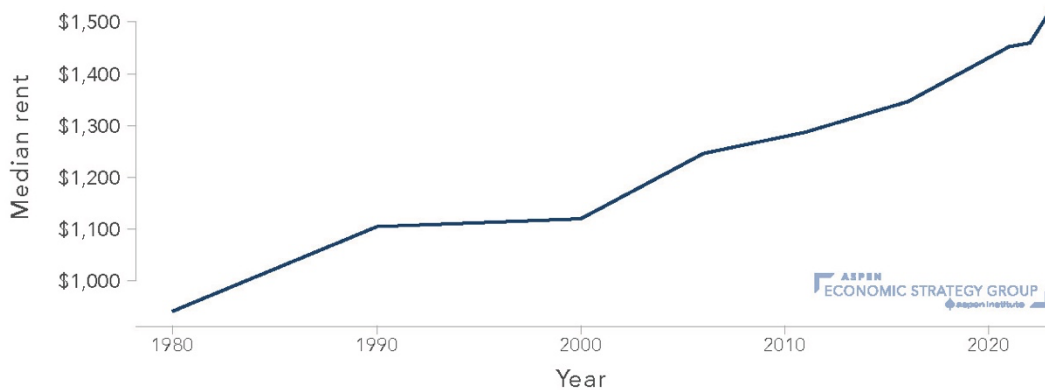
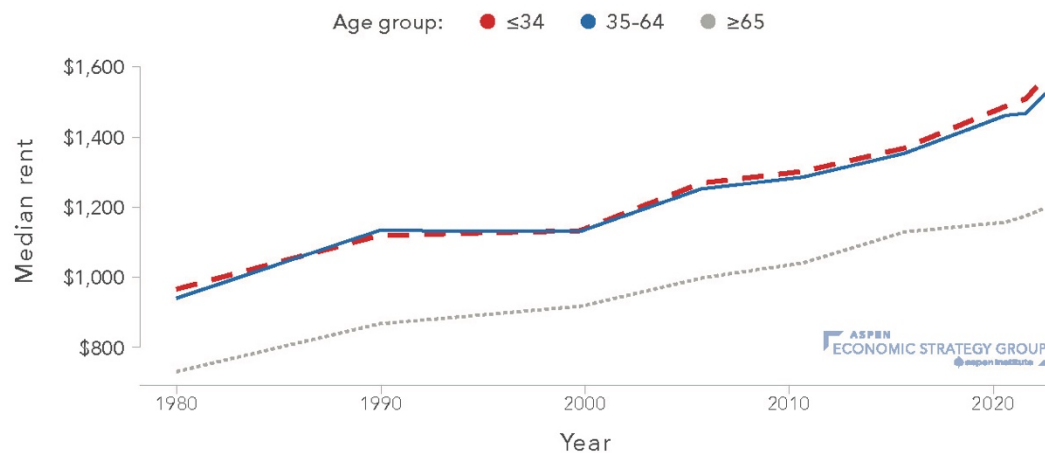
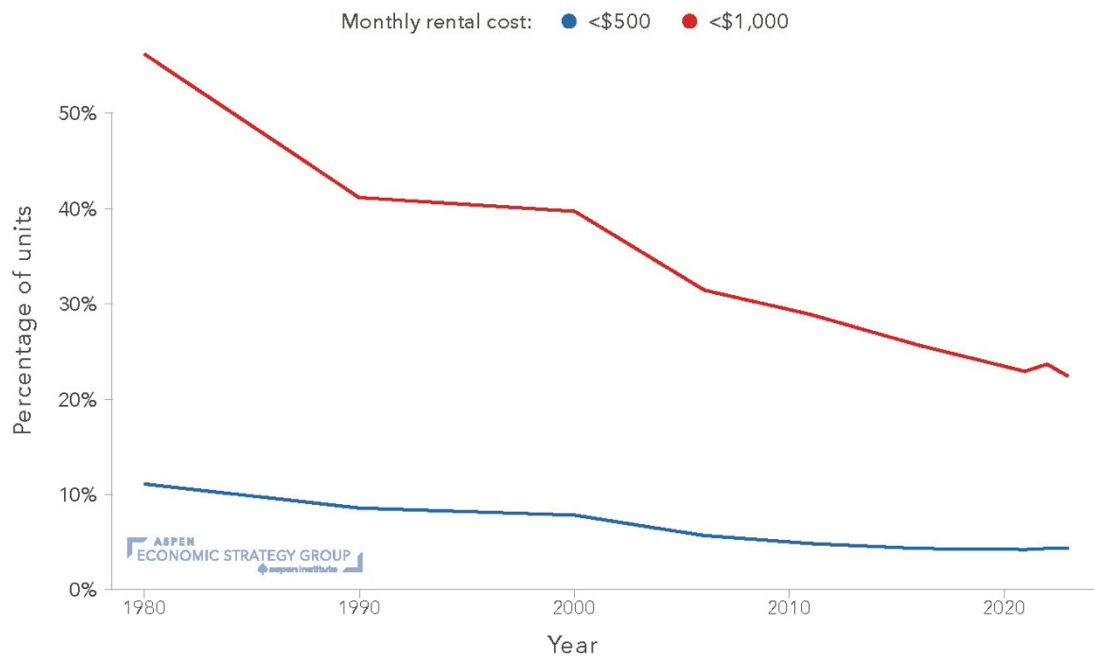


Figure 1b.



Source: US Census Bureau, American Community Survey, 1980–2023

Figure 2: Percentage of monthly rental costs under \$500 or under \$1,000, 1980–2023 (2023 dollars)

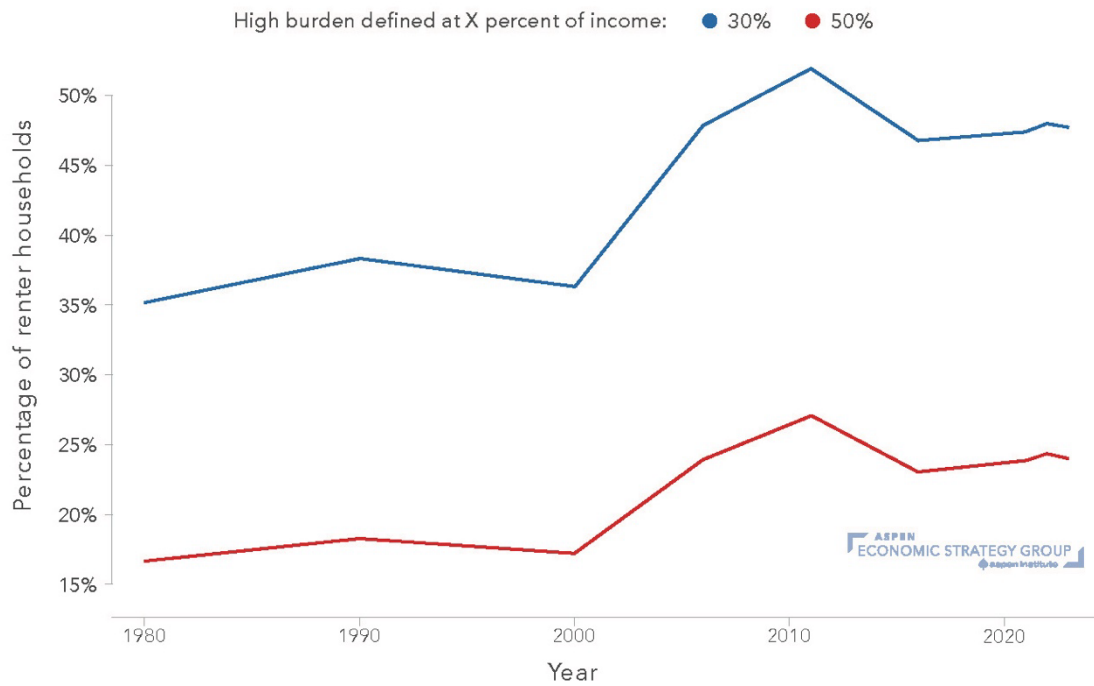


Source: US Census Bureau, American Community Survey, 1980–2023

1.2 Households are spending a higher share of their income on rent than they did in 1980.

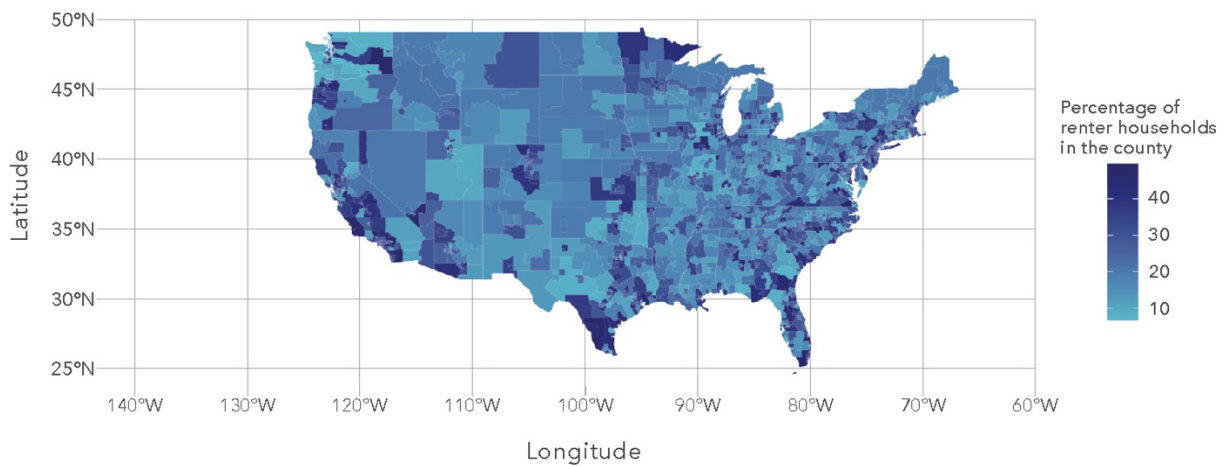
While looking at rent levels is important, we know that rent prices are a function of many factors, including income. Therefore, we must also look at rents relative to income. Figure 3 shows that by 2023, almost 50 percent of all renters were paying more than 30 percent of their income toward rent, qualifying them as “rent-burdened.” This rent-burdened share is up from 35 percent in 1980. At the same time, almost 25 percent of renters pay more than 50 percent of their income toward rent, making them “severely rent-burdened” (see figure 3). These burdens are present across the country (see figure 4). Studies show that households with the lowest incomes are consistently exposed to both rent burdens and severe rent burdens, though the share of households facing such burdens has increased across the income spectrum (e.g., JCHS 2024a).

Figure 3: Percentage of renter households with high rent burdens, 1980–2023



Source: US Census Bureau, American Community Survey, 1980–2023

**Figure 4: Geographic distribution of severely rent-burdened US households, 2023
(rent over 50% of income)**

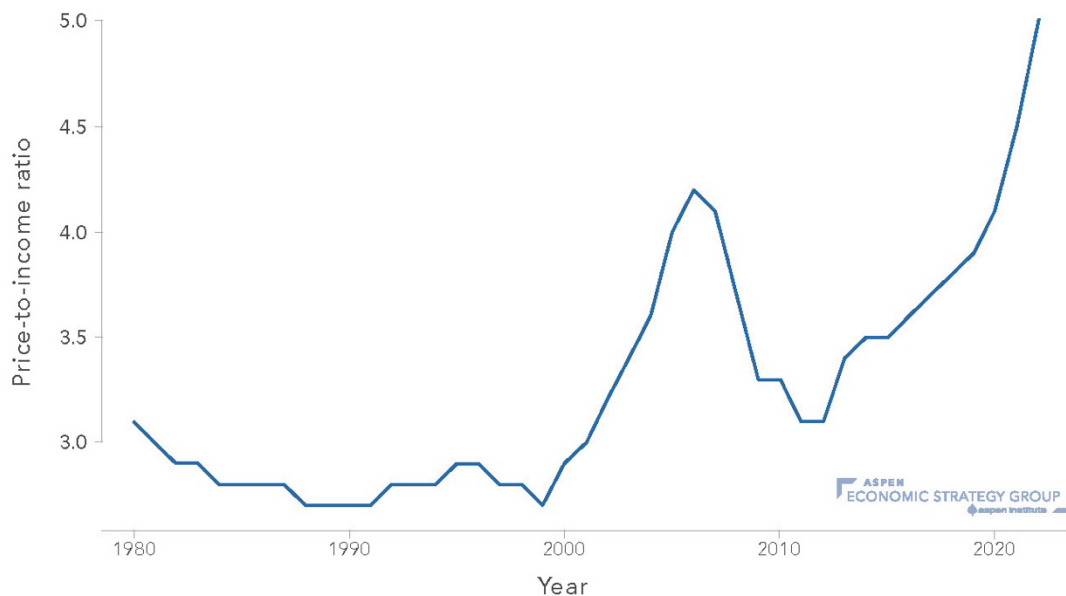


Source: US Census Bureau, American Community Survey, 2023

1.3 Homeownership is less attainable now than it was 30 years ago.

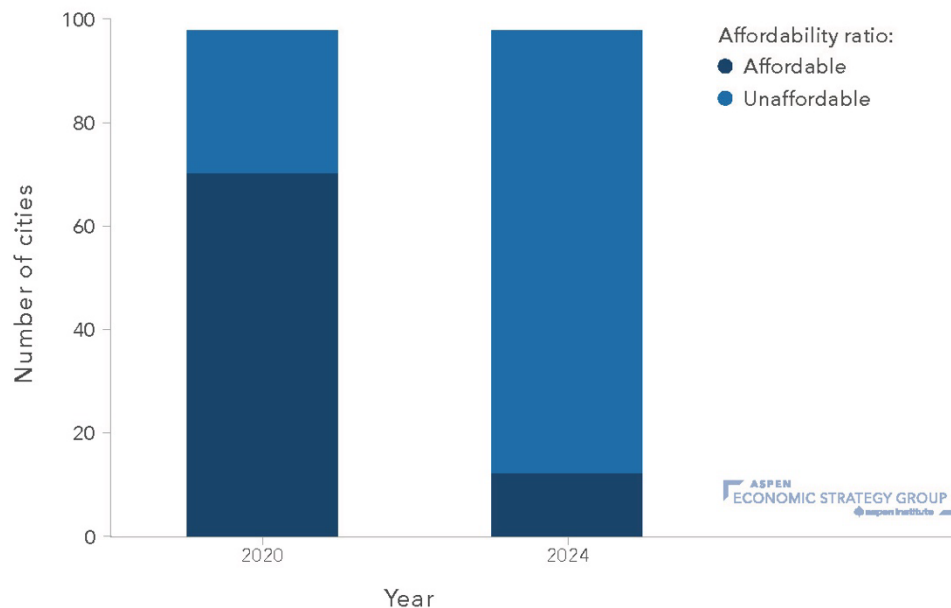
The ratio of median sales price to median income increased from 2.4 in 1990 to 5 in 2023, surpassing the prior high at the peak of the housing boom in the first decade of the 2000s (see figure 5). Attainability of homeownership depends on both home prices and financing conditions. In 2020, the median home-sales price was affordable to those at or below the median income in over two-thirds of the 98 most expensive metro areas in the country (based on calculations from Zillow comparing income to principal, interest, taxes, and insurance). By 2024, with the combination of high home prices and 30-year mortgage rates over 7 percent, that was true for just over 10 percent of those metro areas (see figure 6).

Figure 5: Ratio of median home prices to median incomes in US metro areas, 1990–2023



Source: JCHS 2024b

Figure 6: Number of cities where the median home is affordable at the median income (for the 98 largest metro areas)



Source: ResiClub Analytics, Zillow 2024

Compounding the problem was a COVID-induced boom in local housing markets. COVID-era remote-work also led to a sharp increase in demand for suburban and rural properties and pulled many home transactions forward in time as many near-retirees decided to retire and move to warmer climes. These buyers put sharp upward pressure on house prices in suburban markets and popular retiree destinations, but broader economic forces created bidding wars in many markets. Buyers were further supported by the cheapest mortgages in US history, a pause on student-loan debt payments, and other government income supports to help pandemic-affected households. The net effect of these factors was a massive demand shock, leading national average home prices to rise more than 40 percent above their 2020 levels by 2024 (calculated from the Freddie Mac House Price Index).⁴

1.4 First-time homebuyers are getting older.

The combined effect of higher house prices and higher interest rates is that homebuyers need more resources to buy their first house. One way to see this effect is through the trend in the median age of first-time homeowners. The age of first-time homebuyers has increased from 29 in 1980 to 38 in 2024 (see figure 7), with a sharp uptick since 2020. Importantly, research initially speculated that lower homeownership rates for younger households reflected their preference for

⁴ “Freddie Mac House Price Index,” Freddie Mac, accessed September 19, 2025, <https://www.freddiemac.com/research/indices/house-price-index>.

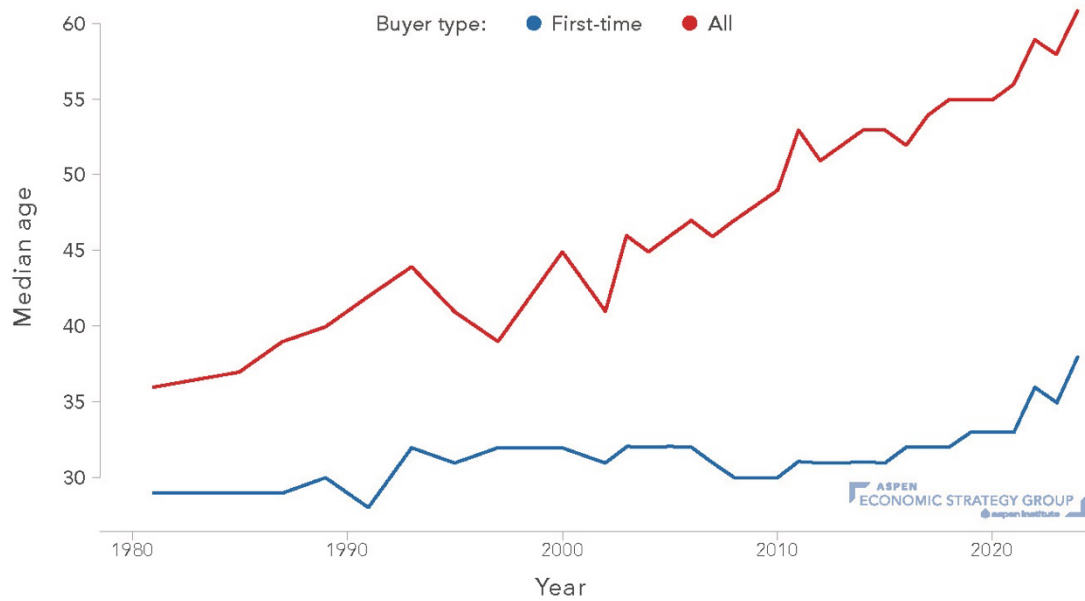
renting, while more recent scholarship has highlighted that this trend was in fact always a function of housing cost and other financial constraints (Choi et al. 2018). Calculating the prevalence of first-time home buyers as a share of housing transactions suggests a dramatic reduction in first-time buyer involvement in the market: In 2024, 24 percent of all housing purchases were made by first-time buyers, down from 50 percent in 2010 (Slok et al. 2025).

Taking an even longer view, there has been a considerable shift in homeownership rates across age cohorts in the last 55 years (see figure 8). In 1970, households where the head was 45–54 had the highest homeownership rate, followed by those 55–64 and those 35–44. Those age cohorts remained homeowners as they aged, which means that by 2009, those 65 and over had the highest homeownership rate, and that rate remains the highest to date. Conversely, the two youngest brackets, those 25–34 and 35–44, have seen their homeownership rates drop dramatically during the same period. Stated differently, in 1970, households over 65 owned roughly 23 percent of all the single-family homes in America, and by 2025, they owned roughly 35 percent of the stock. Thus, an increasingly older population remains in homes that may not be designed or well-suited for their needs as they age.

With mortgage rates hitting historic lows in 2021, buyers and existing homeowners were able to lock in long-term debt at rates below 3 percent. With many homeowners locked into their extremely cheap mortgage credit as current rates hover around 7 percent, homeowners are not moving up the property ladder but are instead staying put. Over half of all outstanding mortgages are locked below 4 percent, and 70 percent have rates below 5 percent, well below today's prevailing rates (FHFA National Mortgage Database 2025). This disconnect between current rates and locked-in rates has led to a substantial deficit in homes for sale, with the spring selling season 2025 offering 20 percent fewer listings than the 2017–2019 average, a substantial improvement from the last few years but still well below pre-pandemic levels (see ICE Mortgage Monitor 2025). This deficit affects the available stock of purchasable housing both for households looking to buy a home and for those looking to trade up in housing.

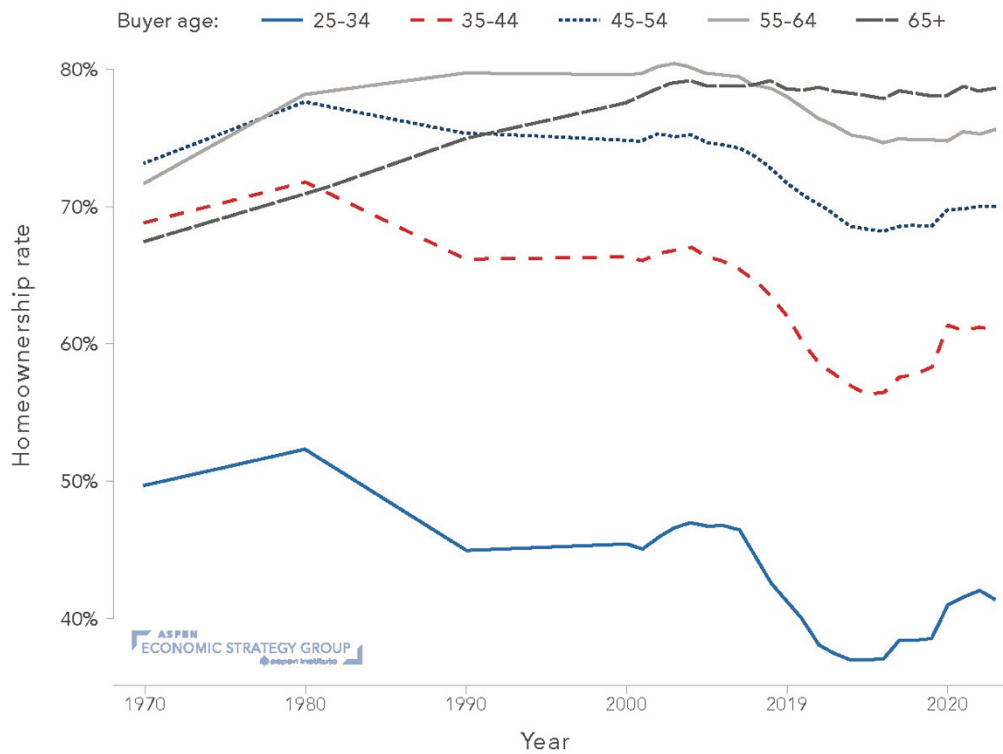
In sum, these pandemic impacts have amplified an underlying housing supply shortage that was over a decade in the making. In the end, the root of this problem is a lack of housing production that has fueled dramatic increases in rents and made homeownership unattainable for many. Therefore, solutions to the affordability crisis need to focus on supply, though in a much more nuanced way than in the past, first by understanding the critical drivers of undersupply.

Figure 7: Median age of first-time and all buyers, 1981–2024



Source: National Association of Realtors 2024

Figure 8: Homeownership rate by age group, 1970–2023



Source: US Census Bureau, American Community Survey, 1970–2023

2. Drivers of affordability challenges

In this section, we provide a brief overview of some key drivers of current housing-affordability challenges identified in existing literature, and thoughts on other areas where scholarship is needed.⁵ In general, much of the literature has focused on the challenges developers face with building, largely through land-use and zoning restrictions; demographic and other factors affecting access to homeownership; and the ways in which the US housing safety net is incomplete. Much less research has focused on the challenges both owners and developers face in accessing financing for the development and rehabilitation of housing, particularly for older housing and areas experiencing longstanding lack of investment.

2.1 A lack of housing supply

Multiple studies document and estimate the current housing-supply gap, using a variety of approaches (Matlack and Vigdor 2008). The most basic method for estimating the gap is to compare the actual number of housing units in the US to a counterfactual based on demographics, historical rates of household formation, and “natural” rates of housing vacancy.

Regardless of their specific assumptions, all studies concur that a supply gap exists, though the size of the gap varies based on the specifics of the estimation approach. For example, one estimate suggests that there are as many as 7.1 million housing units needed in the market (see Patel et al. 2024), another study reaches a shortage of 3 million (see First American Data and Analytics 2025), and the median assessment from eight recent estimates is 4.2 million (authors’ calculation). Importantly, though, these estimates are often less specific about what kind of housing needs to be built (rental or ownership), how many bedrooms per unit are needed, and at what price points (Tyvimaa and Kamruzzaman 2019). A good example is increasing demand for housing, and specifically affordable housing, for the elderly, which comes with its own set of design and location needs (JCHS 2023; Reina and Aiken 2022). While directionally there is a clear signal to build, these estimates should not be construed as a call to simply build millions of units of anything anywhere. Instead, they should motivate a deeper analysis of what is and isn’t working in the housing market, and an eye to meeting housing affordability needs.

2.2 Challenges to building

A broad set of literature focuses on the negative relationship between land use and zoning laws and housing supply and affordability (Glaeser and Gyourko 2003; Glaeser and Ward 2009; Green et al. 2005; Landis and Reina 2021; Mayer and Somerville 2000; Pollakowski and Wachter 1990; Gyourko et al. 2021; Gyourko et al. 2013; Bartik et al. 2025; D’Amico et al. 2014; Baum-Snow and Duranton 2025). This literature first documents the prevalence of local land-use and zoning laws that restrict the amount and types of housing that can be built, and the

⁵ For a full review of key drivers of housing affordability, please see Lee et al. 2022.

negative impact such restrictions tend to have on the elasticity of housing supply in response to housing demand (Saiz 2010; Baum-Snow and Han 2024; Gorback and Keys 2020; Duranton and Puga 2023; Bertaud and Brueckner 2005). Further recent research finds that even areas that historically produced a large amount of new housing, such as Sun Belt cities like Atlanta, Dallas, and Phoenix, have sharply decreased construction (Glaeser and Gyourko 2025). And while land-use and zoning laws artificially restrict buildable land, many cities have existing structures on most lots, with some vacant lots poorly configured or in need of remediation. These conditions further limit, or increase the cost of, buildable land that is accessible to jobs and other amenities like public transit.

Research has also shown that the process around approvals and permitting for the construction and completion of housing units creates uncertainty and causes delays in the development process—both increasing the overall cost of development and sometimes making development financially unviable (Brysch and Czischke 2021). Greater fixed costs of construction encourage development of high-end projects, which may lead to further supply constraints in the low end (Handbury et al. 2025). The net effect of these land-use and zoning laws has been a decrease in the rate of new housing construction, an increase in housing costs, and a decrease in housing affordability.

2.3 Barriers to homeownership

One key barrier to homeownership is access to credit. First-time homeowners rely heavily on high-LTV, fixed-rate, 30-year mortgages, regardless of whether there is a housing supply constraint or not, and lending standards to obtain these mortgages have increased since the global financial crisis. For instance, Loewenstein and Meyer (2024) report that average FICO scores for newly originated purchase mortgages have increased from 705 in 2006 to 740 in 2022. Lenders also require more income and asset documentation. In addition, mortgage credit is largely provided by Fannie Mae, Freddie Mac, and the Federal Housing Administration, and these entities have not been open to the kind of innovation in contract types that might create more opportunities for affordable credit access, for instance through shared-appreciation mortgages (e.g., Mian and Sufi 2014) or automatically indexed mortgages (Piskorski and Seru 2018).

Households face well-documented challenges in accessing credit, including the aforementioned tighter credit standards; student-loan debt levels affecting younger households' ability to borrow; racial bias in property appraisals affecting the level of home equity that Black and Brown households can leverage; and disproportionate mortgage-denial rates for minority households affecting credit access at all, amongst others. These realities have only been made worse by a perfect storm of other factors.

Notably, housing demand has increased as a large cohort of millennials has entered the housing market, while at the same time, household sizes have decreased. For example, household sizes

fell from 3.33 in 1960 to 2.55 in 2020 (Myers et al. 2025). Combined, these factors increased the number of actors looking for housing. Moreover, people are living longer, and older households have become more likely to remain in their existing homes, which means that fewer existing homeownership units are entering the sales market.

As previously discussed, because many existing owners were able to access some of the cheapest interest rates, and because the cost of homes that are on the market is so high, a lock-in effect is making it more financially rational for owners to remain in their existing unit rather than selling (Fonseca and Liu 2024). As a result of these demand drivers and limited listings, housing prices are rising in the absence of sufficient production of new housing units.

That said, other important factors also affect homeownership opportunities. Research has pointed to the mortgage lock-in effect described above as limiting the number of homes for sale (Fonseca et al. 2025). Increasing research has focused on the impact that investors' purchasing single-family homes and converting them to rental properties has had on homeownership opportunities and housing stability (e.g., Coven 2025; Hanson 2024; Gorback et al. 2025; Raymond et al. 2016).

While investors are by no means a monolith, some housing markets or submarkets are asymmetrical such that firms with easy access to financing or sufficient cash on hand can outbid households looking to purchase homes, forcing those households to then rent the same or equivalent units rather than purchase them. This imbalance can be further exacerbated by an aging housing stock, necessitating property repair needs that only people with access to credit can afford to make.

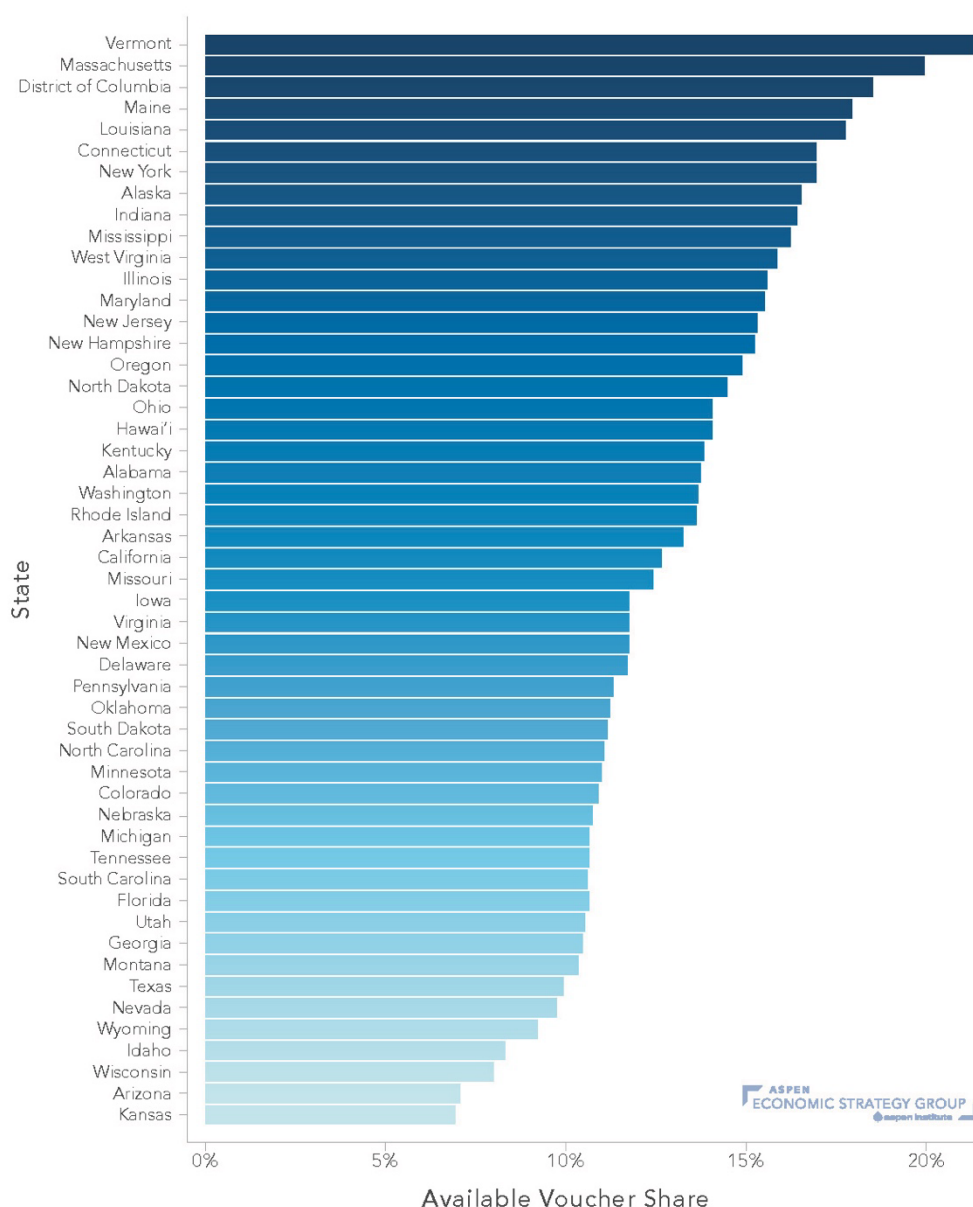
2.4 A lack of a housing entitlement program

The United States has never had a housing safety net for renters or owners. A primary example of this point is that for every one household that receives a housing choice voucher, which is the largest federal rental-assistance program that subsidizes rent payments for low-income households, as many as four other households are eligible (Reina et al. 2021). Figure 8 presents the gap between the number of renter households with very low incomes (defined as <50 percent of area median income) and the number of available housing-choice vouchers (HCVs). This gap is consistently large across the whole country, though highest in places like Arizona and Kansas (see figure 9). Beyond this gap, research shows the abundance of administrative barriers associated with using existing rental assistance programs (Reina et al. 2024; Aiken et al. 2023; Ellen et al. 2021).

During the pandemic, the federal government took unprecedented steps to stabilize renters through a host of programs, including the creation of a \$46 billion emergency rental-assistance program (see Aiken et al. 2022) aimed at helping households who owe back rent to avoid

eviction, but such programs have not existed at scale outside of that setting. This lack of assistance means there is no consistent source of funding to support low-income renters facing housing affordability challenges, nor are there programs aimed at ensuring that a systemic or idiosyncratic housing shock does not force renters into homelessness. Research shows that rental assistance reduces evictions and exposure to homelessness and can increase housing stability and the overall economic well-being of households (Reina and Fowle et al, 2025; Pollakowski et al. 2022; Lundberg et al. 2021; Mills et al. 2006).

Figure 9. Share of available housing-choice vouchers relative to the total households with incomes below 50 percent of state median income who are potentially eligible 2020



Source: Reina et al. 2021

Note: Anchorage MSA data used to represent Alaska data.

Relatedly, few federal tools are aimed at increasing the overall supply of affordable rental housing. Public housing is often the most well-known form of government-financed affordable housing, though this portfolio makes up less than 2 percent of the rental housing units in the country.⁶ Currently, the Low Income Housing Tax Credit (LIHTC) program is the largest federal financing tool aimed at increasing the supply of affordable housing, but even this program only produces about 110,000 units per year on average.⁷ Also, LIHTC units often have rents affordable to households making 50 or 60 percent of the area median income, which means that, on its own, LIHTC is not well structured to assist households below 30 percent of the area median income. In addition, neither the number of available subsidized housing units nor the number of housing choice vouchers issued varies with the business cycle or the level of need, unlike unemployment insurance or SNAP benefits, which adjust based on need. This lack of cyclicity further exacerbates housing-related distress during economic downturns (Collinson et al. 2022).

Similarly, during the pandemic, the federal government developed a series of forbearance policies aimed at keeping owners in their homes. These programs helped minimize foreclosures and avoid the disruptions to the housing market experienced during the financial crisis (Goodman and Zhu 2024). While there were programs to support homeowners during the 2008 financial crisis, they were not timely or generous enough to avoid roughly four million foreclosures nationwide. Beyond these emergency measures that provided much-needed stability, homeowners generally do not have a safety net that can keep them in their homes when households face income shocks. Instead, they are dependent on their servicer's willingness to privately extend forbearance or other workout options. Thus, both owners and renters face the risk of housing insecurity during periods of macroeconomic strength, and the magnitude and nature of policy responses vary during periods of macroeconomic distress.

2.5 Financing construction and repairs

Much less research exists on barriers that developers and owners face when trying to finance development, which affects the supply of new units being built, and on rehabilitation, affecting the ability of units to stay in the housing stock. While much research has focused on access to credit for purchasing a home, much less has focused on credit constraints and equity gaps that developers face for the acquisition, construction, and ongoing operations of properties. Moreover, there is limited research on the constraints that landlords of smaller properties and homeowners face when trying to access credit to repair existing properties. Despite historically

⁶ According to HUD's publicly available data, nearly nine hundred thousand public-housing units are available. Data can be found at "Assisted Housing: National and Local," HUD Office of Policy Development and Research, accessed September 20, 2025, <https://www.huduser.gov/portal/datasets/assthsg.html>.

⁷ "Low-Income Housing Tax Credits and Long-Term Affordability," Bipartisan Policy Center online event, May 19, 2023, <https://bipartisanpolicy.org/event/low-income-housing-tax-credits/>.

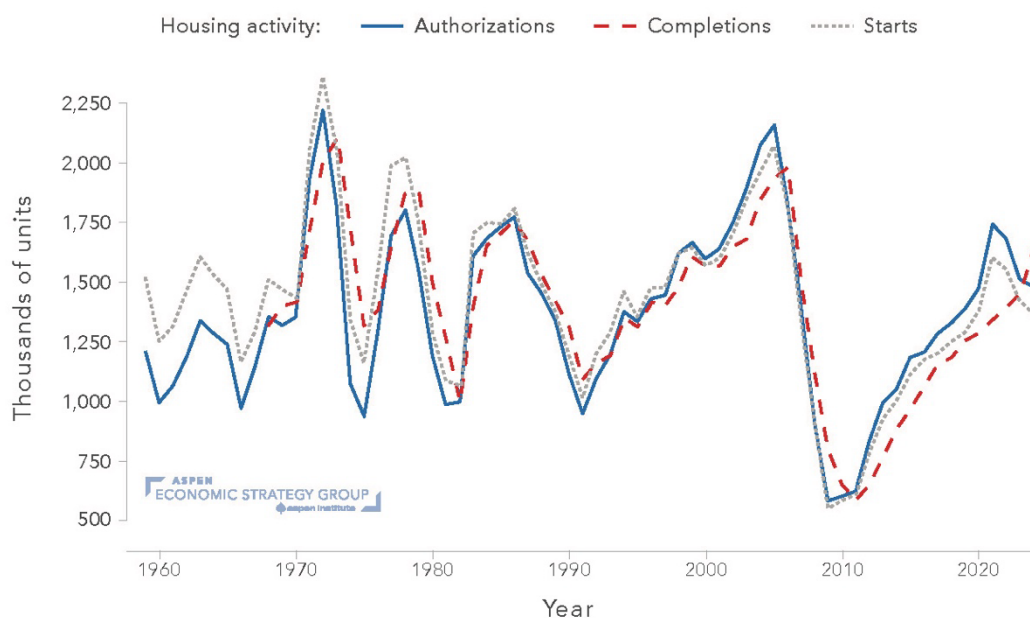
low foreclosure rates for both single- and multifamily housing, financial institutions have pointed to tighter credit standards since 2015 (Board of Governors of the Federal Reserve System 2025c). That credit standards have been tightening since 2015 raises the concern that lending standards have been too tight for the last ten years, making it difficult to finance new development and the rehabilitation of existing units, and for people to access credit to purchase or repair a home.

3. Other important market dynamics

Despite how much we know about housing, little research has focused on key trends around housing production cycles, though here are few important ones for understanding current housing needs.

We have a production cycle problem. Historically, housing production has been highly cyclical, but the depth and duration of the downcycle following the foreclosure crisis exceeded those of any prior cycle (as shown in figure 10), dramatically exacerbating any existing housing shortfall. Demographic trends such as the aging of millennials into their home-buying years warranted the creation of far more units during the post-foreclosure crisis downcycle than were created. The number of potential households continued to grow after the macroeconomic collapse because of underlying demographic and household formation trends, which called for a quicker, larger rebound than there actually was (Myers et al. 2025), thus highlighting a mismatch between the cyclical stability of housing demand and the highly cyclical market response.

Figure 10: Stages of residential construction, 1959–2024

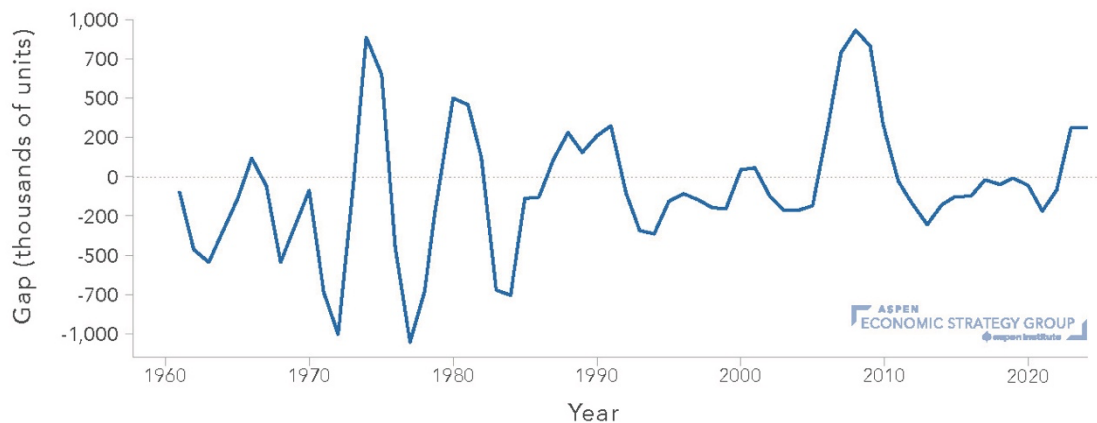


Source: US Census Bureau, *New Residential Construction 2025*

Part of the production problem is a permitting one. The most recent peak in housing permits, which are issued at the local level, was both lower than historic permitting highs and less than needed, based on the supply shortfall (see figure 10). In 2009, we saw the lowest number of annual permits since at least the 1960s (Glaeser and Ward 2009). And while permits went on to reach a peak of 1.7 million in 2021, that peak was 420,000 units fewer than the peak of 2005,⁸ and lower than the three peaks prior to that between 1970 and 2010. In sum, the dips in permitting decreased to an unprecedented level, and the peaks did not sufficiently correct for them. This pattern is even more striking when we consider that the US population essentially doubled since 1960 (179 million then, compared to roughly 340 million today), and a large millennial cohort came of age for housing consumption post-2010.

We also have a housing completion problem. Permitting is consistently higher than both construction starts and completions. In figure 11, we plot the difference between the starts and completions series from the US Census New Residential Construction data shown in figure 10, shifting starts with a two-year lag. The average gap between units permitted and completed has been over a hundred thousand since 2000, with two large spikes around the financial crisis and then recently after COVID. The gap between permits and completions points to challenges in the construction pipeline after planning, which may include issues related to financing.

Figure 11: Gap between authorized (two-year lag) and started constructions (1961–present)

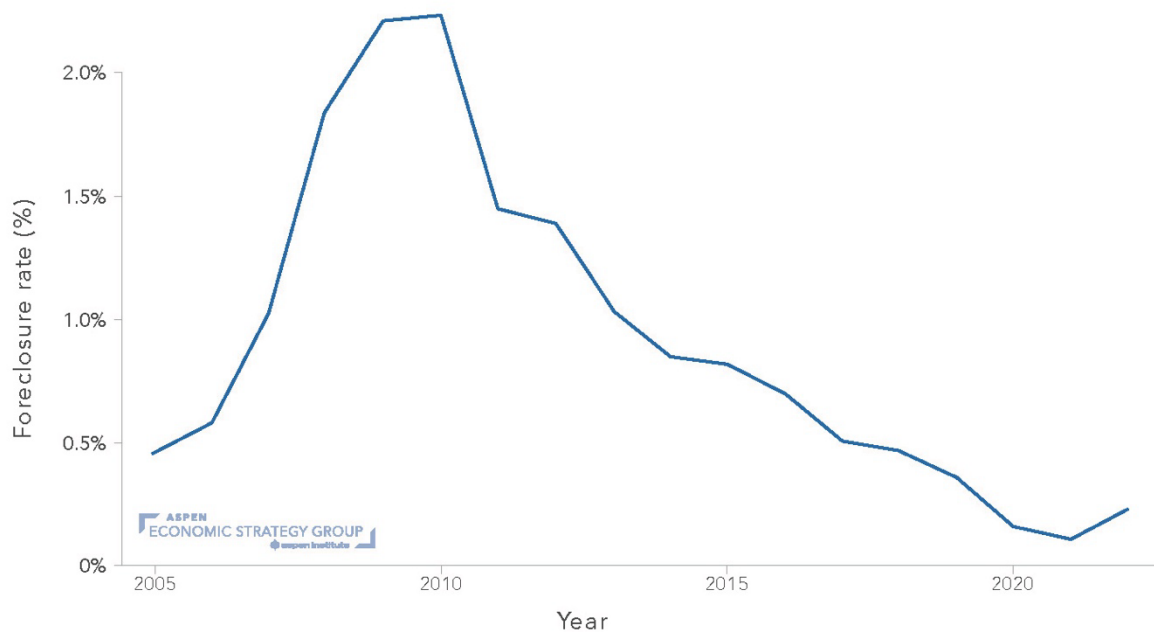


Source: US Census Bureau, New Residential Construction 2025

⁸ It is important to note that 2005 was directly before the 2008 financial crisis, and while homes may have been temporarily overbuilt at this point, the underlying housing dynamics have changed such that the optimal amount of housing to keep up with household formation is substantially more than being currently produced. We further note that the durability of housing means that a future population decline would require actively reducing or right-sizing the number of units.

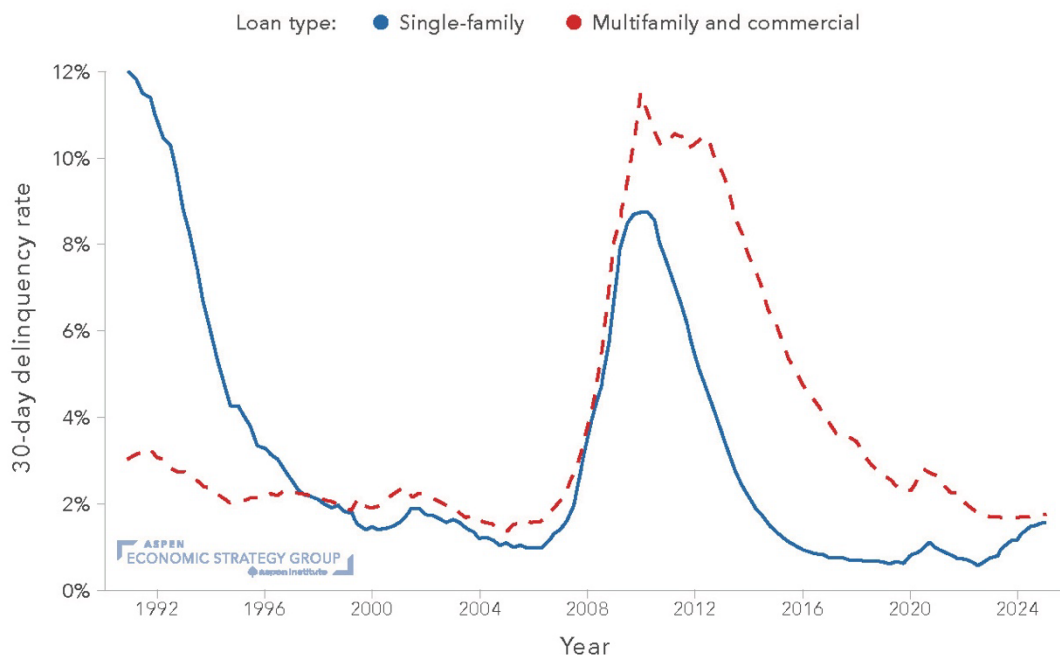
Foreclosure rates have been consistently low since the 2008 financial crisis. Overall, foreclosure rates for both single-family and multifamily housing have remained low (see figure 12). Since the early 1990s, multifamily loans have generally had low delinquency rates (MBA n.d.; see figure 13). Similarly, after the financial crisis, the foreclosure rate for single-family loans has also decreased and remained relatively low. Given that the risk of making loans varies dramatically across the lending cycles, this period of sustained house-price growth and strong loan-repayment rates reflects a missed opportunity to lend more during safe times.

Figure 12: Foreclosure rate, 2005–2022 (percentage of all housing units)



Source: ATTOM 2023

Figure 13: Delinquency rates for single-family and multifamily/commercial mortgages, 1991–2025



Source: Board of Governors of the Federal Reserve System 2025a, 2025b

The nation’s housing stock is aging. The median age of a house in the US is now 40 years old, up from around 30 years old early in the first decade of the 2000s (ACS 2023). Going forward, the need for investments in existing housing stock is increasing, particularly in segments of the housing stock that have had more challenging access to financing. In other words, our housing supply challenges are increasingly about both the development of new units and the preservation of existing ones that run the risk of exiting the housing stock. This combination of challenges is particularly acute in cities with an older housing stock, like Philadelphia, Baltimore, and Cleveland. Importantly, given that many of these older properties need investment, they are often priced lower, which means that much of the housing stock priced more affordably faces greater housing-quality challenges and is at a larger risk of exiting the housing stock.

4. Improving housing affordability

Next, we propose four key themes for policy solutions: 1) making it easier to build; 2) ensuring homeownership is attainable; 3) creating a stronger and more complete housing safety net; and 4) ensuring financing is available through the cycle.

4.1 Making it easier to build

The significant housing-supply gap across the nation has wiped out the longstanding stock of lower-cost rental units and homes for purchase. Barring a supply response that induces a crash in rents (which we should neither expect nor want to happen), there is substantial need to build many more units and particularly build more subsidized, affordable units that unsubsidized builders cannot otherwise produce.

Policymakers at every level of government can take meaningful steps to accelerate production, reduce barriers, and incentivize smart and sensible additional density in both cities and suburbs at each stage of the development process.

Development begins with land acquisition and land-use rules and regulations. Local zoning restrictions that have inhibited development should be reviewed and reformed, with some low-hanging fruit being to reduce minimum lot size and minimum parking requirements and to allow accessory dwelling units and denser building opportunities near public transit. States can take a larger role in encouraging development through carrots and sticks. Some states, like New York and California, are already pursuing such options.

Given that housing markets are regional, and there are negative financial incentives for one locality to expand its supply if others are only further constraining it, actions at higher levels of government are often important for coordinating supply expansion. That said, given these same nuanced realities, any state or federal response is substantially more complicated. It seems naïve in a world where housing and housing research are underfunded to expect governments to be able to both establish and adjust in real time, regulations that are reflective of local opportunities and constraints as well as responsive to local needs.

The federal government can create the conditions for states and localities to be knowledgeable and responsive in these ways. This goal was pursued through the “carrot” approach during the Biden-Harris administration, where incentives for land use reform were included in billions of dollars of competition funding across federal agencies. Some argue, though, that there is a need for more “sticks”—meaning mandates for such reforms—if a larger state and local response is to occur. The federal government can influence local policy by attaching restrictions on other sources of fiscal transfers—through tax policy to incentivize development and through credit policy to finance more development.

In addition, available land is at a premium. Federal and state public-land disposition should be conducted on an expedited basis, especially in metro areas with existing unmet demand. What constitutes viable and efficient land for sale, though, is critical. For example, recent proposals to sell large swathes of protected land far from urban areas do not address the need to develop

housing where there is demand. Instead, a more appropriate example would be expanding the federal pilot leveraging United States Postal Service properties. The land under thousands of centrally located postal-service properties can be repurposed for housing development either through direct sale or via a joint venture with the USPS, resulting in the redevelopment of post offices with housing above or around them or in wholesale conversion to housing. Other federal, state, or local government–owned properties could be redeveloped and densified, with housing units added on top of courthouses, schools, libraries, and other public buildings.

Once land is acquired, developers need materials and labor. Tariff policies that raise the cost of these materials and immigration policies that raise the cost of labor will undoubtedly raise the cost of housing. Instead, policymakers should incentivize innovative methods and models for development and seek new ways to drive down the cost of key inputs in the development process. Additionally, they should expand local expertise and build capacity by supporting trade schools, apprenticeships, and other training programs to broaden the pool of skilled tradespeople.

Governments have a variety of incentive-based tools through subsidized financing and the tax code to influence development decisions. A prime example is the Department of Transportation loan programs, such as those offered through the Transportation Infrastructure Finance and Innovation Act, which incentivize development through large-scale, low-cost loans. Similarly, the federal government can create new loan or financing programs, including a supply accelerator fund. The fund can offer new, federally insured loans at expedited review times.

Given the emergency nature of the growing cost burden, we further recommend learning from the examples of Operation Warp Speed and the recent rebuilding of I-95 in Philadelphia, both of which have demonstrated that building can be quick when red tape is removed. While it is unclear what form a broader red-tape removal would take, some form of legislation that temporarily streamlines the process around development seems essential.⁹

Such a streamlining could include some temporary review acceleration, or exemption from National Environmental Policy Act reviews, or other forms of regulatory relief for development projects that add affordable housing and meet other guidelines in terms of location, design, and target tenant population. One recent example is that the State of California passed a bill saying that housing built around other housing, known as urban infill development, is now exempt from California Environmental Quality Act (CEQA) review. This bill will prevent anti-development groups from leveraging environmental protection policy to stall or block infill development (Christopher 2025).

In the end, though, the ability to build also relies on the existence of a competitive pool of

⁹ See Liscow 2024 for a discussion of barriers to developing infrastructure and Shroyer 2025 for a discussion on ways to address barriers created by the National Environmental Policy Act to increase housing supply.

developers engaging in the development process. Just as land-use and zoning laws restrict what can be built, they also limit who can build (see Schmitz 2020 and Quintero 2023 on increased concentration among homebuilders). As a result, increasing the pool of developers by expanding investments that train skilled builders and help entrepreneurs get started is important. Ideally, these developers will work across sectors, including the nonprofit sector, to produce housing units across the cost spectrum.

One additional opportunity is to support recent efforts by Public Housing Authorities to expand their housing portfolios. A prime example is in Montgomery County, Maryland, where the housing authority has created new loan products and is leveraging its land to create new, affordable mixed-income housing developments. This program includes a \$100 million revolving construction-loan fund that allows the agency to leverage public-private partnerships while still retaining public ownership of developments.¹⁰ Similarly, places like Atlanta have established public urban-development corporations.¹¹ These public entities present an interesting model because they can leverage existing public resources, and they can serve as active developers during periods when the private market is less active despite demand.

Finally, it is important to acknowledge that our current housing-supply problem is not just about stock; it is also about the affordability of that stock. Thus, it is critical to ensure that the actions mentioned in this section and the prior one are coupled with strategies and subsidies ensuring that some of the housing being produced can be offered well below market prices. If land is being disposed of effectively, reviews are being conducted efficiently, and financing is available and low-cost, through means discussed here, such a goal seems feasible. Simply put, the private market does not produce truly affordable housing on its own and never has: affordable units are produced only through government support during both development (e.g., subsidized financing) and operations (e.g., rent vouchers). Given the dramatic loss of the lowest-priced units for rentals and owners across the country, and the long-term and imperfect nature of filtering, the production of housing units at market-rate prices alone will not adequately address the nation's needs.

A natural concern is that zoning reforms could go too far in the other direction and excessively limit residents' ability to alter or deter housing development projects that damage the environment, or that produce other large negative externalities on existing community residents. We recognize that some development ideas are not appropriate for certain locations and that certain historic structures and environmentally sensitive areas should be protected. There are solutions, though, that balance these concerns with the need for all Americans to have affordable shelter. Clearly, we are currently out of balance on the national scale and must focus on sensible

¹⁰ "Housing Production Fund," Housing Opportunities Commission of Montgomery County, accessed September 20, 2025, <https://www.hocmc.org/about-us/innovations/housing-production-fund/>.

¹¹ See, for example, "About Us," Atlanta Urban Development Corporation, accessed September 20, 2025, <https://www.atlurbdevco.com/about>.

reforms that pursue both affordability and those broader goals.

4.2 Addressing barriers to homeownership

The challenge for making homeownership more achievable is that stimulating demand alone may simply drive up housing costs. Thus, any reforms need to balance this consideration with the gains for new entrants to the housing market. For instance, an evaluation of the first-time homebuyer credit issued to new buyers during the Great Recession found that while house prices rose by 1 percent, home-buying was accelerated for those saving for a down payment by three years on average. This tradeoff is the key policy parameter, and stimulating housing demand in different market conditions will lead to different outcomes—this program was notably enacted in response to the financial crisis, so the market response would be quite different in a booming housing market (Berger et al. 2020).

One crucial area to focus on to make homeownership more achievable is the tax code. Federal income taxes provide benefits to homeownership first in the form of the mortgage interest deduction, which is highly regressive and poorly structured to incentivize homeownership (Glaeser and Shapiro 2003; Sommer and Sullivan 2018). Reforming the mortgage interest deduction into a targeted first-time buyer credit would better align incentives to purchase housing.

A more ambitious tax reform would examine a tax on imputed rent to encourage empty nesters to downsize their large homes for smaller ones that fit their current needs. Instead, many states are enacting exemptions on property tax increases for longtime homeowners, in the style of California’s Proposition 13, which creates a wedge between the tax burdens of current owners and new prospective buyers. These tax incentives make it more difficult for new buyers to enter the market. Given the tax benefits accruing to some longtime homeowners and the powerful effects of mortgage lock-in, it may be desirable to offer tax relief to some home *sellers* in addition to first-time homebuyers to increase the inventory of starter homes for sale.

Another approach to addressing lock-in would be to create new financing options that make existing mortgages assumable or portable, thereby allowing locked-in homeowners to either sell their cheap mortgage along with the house or take it with them. These features would unlock homeowners who are attached to their homes through their mortgages. On the other hand, changing the portability of mortgage credit would have ripple effects through mortgage durations and the pricing of associated mortgage-backed securities, which would need to be addressed in any type of reform along these lines.

Investors in the housing market also have numerous tax advantages relative to homeowners. Investors in income-producing real estate can deduct operating expenses, take depreciation on

the structure and capital improvements, and adjust their portfolios using tax-free exchanges (e.g., 1031) in ways that homeowners cannot.¹² If policymakers aim to encourage more homeownership and to transition single-family rental properties back to homeowners, the tax code could be altered along these margins to make it more generous to individual owner-occupiers instead of institutional and other real estate investors. Local governments have taken steps to limit the number of investor-owned properties for rent in various areas, thereby preserving homeownership. Investors may be more efficient owners of certain types of properties due to the lower cost of capital and economies of scale in maintenance, negotiating insurance coverage, and so forth—so tradeoffs in the policy goal of shifting more investor-owned properties to owner-occupied properties deserve further empirical and theoretical exploration.

New tax-credit programs, such as the Neighborhood Homes Tax Credit, have been proposed and are worth pursuing. Such programs would subsidize the development of new for-sale housing opportunities, particularly for first-time homebuyers. This credit could stimulate the development and redevelopment of properties, increasing ownership options. It would also likely have a much larger supply impact than other credit programs like Opportunity Zones, which research has found are often poorly targeted (Green and Shi 2022) and provide tax benefits to investments that would have largely happened anyway (Corinth and Fieldman 2024). If these programs were then tied to sensible policies that increase access to credit, like counting timely rental payments as a part of a person’s credit score, we could see a meaningful increase in access to homeownership.

We acknowledge the concern that in some markets, investors can play a crucial role in acquiring and rehabbing properties during the housing bust, bringing communities back faster than if they were blocked from doing so. However, we reiterate that it is a policy choice what the mix of investor-owned and owner-occupied units is in a community and across the country more generally. Therefore, policymakers must acknowledge and address policy decisions that directly, or inadvertently, crowd out first-time homebuyers or homeowners more generally from the market and even lock them into paying higher rents for a unit they would have otherwise owned.

4.3 Ensuring we have a stronger and more complete housing safety net

Our final area of policy solutions is to provide a housing safety net that is comparable to the safety net in place for unemployment insurance or nutrition assistance. Currently, housing support is rationed despite need, with far fewer rental subsidies available than households eligible for them. This shortage means that households cannot access housing support when they

¹² Homeowners benefit from the mortgage interest deduction, which has become less relevant since the 2017 Tax Cuts and Jobs Act effectively doubled the standard deduction, and from receiving the first \$250k (single)/\$500k (married) of capital gains on the primary residence tax-free. The capital gains considerations may be relevant for longtime owners who have benefited from substantial appreciation but are unlikely to impact new first-time buyers. Note that investors also deduct their mortgage interest.

need it, further hurting their housing and economic outcomes. Further, if someone is fortunate enough to receive assistance, they risk never getting it again if they leave the program.

All low-income households should be eligible to receive housing assistance in the form of a voucher or voucher-equivalent rent benefit. This gap in the safety net is straightforward to fix but requires spending more on helping low-income families afford housing. If operationalized, this rental assistance can be leveraged to increase housing supply. Separately, if owners know they can access that rent payment security, they can both develop housing serving low-income households and invest in existing properties, the latter generating an important supply response as well.

Importantly, much space exists to broaden the spectrum of the forms of rental assistance, including providing direct rental assistance and creating tools that increase housing stability, such as national emergency rental assistance.¹³ Research has shown that emergency rental assistance (ERA), which is short-term assistance offered to households who are facing a housing or economic shock, reduces homelessness (Phillips and Sullivan 2025). During the pandemic, the federal government funded ERA nationally, though that assistance was for a longer period and for a much larger sum of money than a traditional ERA program (Reina et al. 2024).

While evidence shows some positive impact of the pandemic federal ERA programs on reducing rent debt (Collinson et al. 2024; Reina and Lee 2024) and homelessness (Nelson et al. 2024), it was an imperfect housing solution, partially because ERA is most effective when serving households facing idiosyncratic shocks. Localities like Philadelphia are testing direct rental-assistance models, where instead of requiring a tenant to find an owner who will accept government rental assistance, the tenant is given the assistance directly (Reina et al. 2024). These models aim to address the administrative burden embedded in rental assistance programs, affecting tenants, owners, and government agencies and reducing overall access and the potential positive outcomes associated with the benefit (Aiken et al. 2023; Barnes 2021). Preliminary findings show that this program reduced forced moves and homelessness and increased access to higher-quality housing (Reina, Fowle et al. 2025). As a result, we are at a moment where we can acknowledge that funding longstanding rental-assistance models is still important, but that these models should not be the only available means of assistance.

4.4 Ensuring financing is available through the cycle

To address the extreme cyclicity of housing shortfalls and the gap between permits and completions, the federal government can play a pivotal role in providing steadier financing for the development of housing. The specific design may vary based on institutional capabilities and

¹³ For a full discussion of such potential policies, see Reina, O'Regan et al. 2025. See also Kearney and Sullivan 2025 for a discussion of financial assistance and poverty alleviation.

existing efforts, but more aggressively and countercyclically subsidizing the financing of housing at both the construction phase and the stabilized permanent phase would smooth out the volatile series of completions shown above. While these challenges in financing development through the cycle are present for both single-family and multifamily construction, we focus on multifamily financing needs given the goal of increasing density to address affordability. It is important to note here that multifamily housing includes more than just rental properties. The ideas and principles here should be applied to multifamily ownership opportunities, such as condos and co-ops, as well.

One promising approach, described in the Biden White House Housing Supply Action Plan (White House 2022), is to expand multifamily financing in a loan system that approximates the system in place for single-family lending. Fannie Mae and Freddie Mac could be empowered to insure multifamily construction loans as well as stabilized properties, providing much-needed countercyclical liquidity to construction financing markets. Furthermore, Fannie and Freddie should create innovative new financing tools such as mezzanine debt or preferred-equity arrangements to fill the “equity gap” when first liens are insufficient to cover the high costs of building affordable housing.¹⁴

These tools should be applied countercyclically to keep the flow of multifamily financing stable through the business cycle, ideally with automatic stabilizers that increase financing incentives when construction falls below a certain threshold or when other macroeconomic triggers are reached. By addressing the cyclicity of financing, multifamily developers and operators would be able to plan ahead, maintain continuous employment to smooth out the cyclicity of construction labor, and reduce the overall cyclical risk in the system, keeping it in line with the single-family market.

One pragmatic concern is when such a stabilizer would kick in. There are points where the private market can, in fact, overbuild, and this overbuilding could be national or specific to submarkets. In addition, demographic responses to housing and other costs could have immediate and lagged effects, meaning that if recent housing-affordability challenges reduce birth rates, and national policy limits immigration, the US may experience an aggregate population decline in the coming decades. Given that population trends are dynamic and responsive, and housing is durable, the discussion of a stabilizer should consider both current and future housing demand so as not to promote excessive overbuilding.

More generally, the commercial-mortgage financing toolkit can be applied ambitiously to affordable-housing construction, renovation, and unit retention. Federal, state, and local entities should explore the use of equity sharing arrangements, land leases, convertible mortgages, and other financing structures that share risk between lenders and borrowers in different ways and in

¹⁴ See Williams 2024 for one thoughtful proposal on this topic.

different states of the world to achieve lower cost of capital and greater entry into development. These products can fill an important gap in removing some of the perceived or actual risk of development. For example, the federal-financing risk share program—which was reinstituted and extended indefinitely under the Biden-Harris administration—provides mortgage insurance to state housing-finance agencies, providing financing for the development of multifamily housing, with states taking on 50 percent of the project risk.¹⁵ Multifamily builders and investors would give up some of the upside in equity appreciation in exchange for lower up-front interest costs—costs that often dictate whether a project is feasible.

In a world with enormous housing shortfalls and loan delinquency rates below 1 percent, one can argue that insufficient risk is being taken in the lending market. Some lenders have pointed to increasingly complex regulation through Dodd-Frank and Basel III that especially targets high-volatility commercial real-estate loans (see NMHC 2016). Regional banks have historically been large players in this market but have faced challenges in the wake of the collapse of Silicon Valley Bank and the broader swing in interest rates. Debt funds and other less conventional options may have sufficient capital on hand but expect high returns.

If the private market is seeking too high a return on its investment, then the public sector should expand its risk-return appetite and experiment with more-generous financing options. Interest rates and terms should still be reflective of risk; at the same time, bringing the same type of subsidized credit environment from the single-family market to the multifamily market, with the same standardization in contracts and bundling for the secondary market, will generate efficiencies.

The government's multifamily lending market is often an afterthought, with lending caps imposed year-over-year with no relation to need, and the primary-secondary market infrastructure treated as temporary, as though the private market will soon return to take back market share. If anything, the lesson from the last ten years is that affordable-housing development is increasingly challenging, with greater fixed development costs, and therefore needs even more consistent public support.

Thus, existing programs that finance both construction and permanent operations of affordable multifamily housing should be expanded and strengthened, with faster and more generous financing available, while still delivering an appropriate risk-adjusted return in line with single-family lending programs. By improving underwriting speed, increasing leverage and generosity during credit crunches, and innovating on financing design by learning from the private sector, governments can ensure that multifamily financing is available for construction, purchase, and refinancing through volatile market conditions.

¹⁵ See the National Council of State Housing Agencies for more details: <https://www.ncsha.org/advocacy-issues/fha-hfa-risk-share-program/>.

Two natural concerns are whether more government involvement in multifamily construction and operations would crowd out private investment, and whether it would potentially set off a credit bubble that would lead to price appreciation and a boom-bust cycle. Regarding crowd-out, the presence of a housing shortage suggests that private-sector lending is currently not happening in sufficient volume, especially when it comes to developing affordable units. Naturally, the generosity of financing can be reassessed if the private market develops more appetite for extending credit. Regarding price appreciation and the threat of a price cycle, the extreme cyclical nature of construction suggests the need for countercyclical financing support, which would not amplify construction during booms when private credit is widely available.

Another key area of opportunity is financing for property and home repair. Owners of small multifamily properties often face difficulty accessing financing to make repairs, potentially affecting both the quality and affordability of those units. Local programs like the Rental Improvement Fund in Philadelphia have provided loan guarantees or subsidies that reduce the cost of lending to owners of small multifamily properties to make needed repairs. Such programs have the potential to be scaled at a federal level through existing multifamily loan insurance programs, such as the 221d3 program at the US Department of Housing and Urban Development. Further, these programs can be paired with affordability restrictions that ensure long-term affordability.

Further, localities have initiated a broad set of home repair programs for low-income homeowners, with one notable example being the Whole Homes Repair program in Pennsylvania. These programs are similar and provide direct or subsidized loans to owners, and sometimes additional grants to make home repairs. Creating a similar federal program could encourage investments that allow homeowners to remain in their homes, while ensuring that existing ownerships are not simply converted to rental properties by investors benefiting from credit asymmetry. Supporting repairs would enable further filtering to occur as properties depreciate over time (see, e.g., Rosenthal 2014; Spader 2024; Mense 2025).

Conclusion

What is creating the housing affordability crisis? In short, an imbalance between supply and demand. While the clear answer is that we need more housing, we emphasize the need to also focus on affordability. Fortunately, federal and local governments can make it easier to build, increase access to homeownership, and address our nation's lack of a safety net, which, combined, would address our current housing needs. Regardless, though, the ideas here tie into a broader theme, which is to ensure that the housing market works across cycles and for everyone, and to ensure that the market creates the space for innovation.

References

- Aiken, Claudia, Ingrid Gould Ellen, Isabel Harner, Tyler Hauptert, Vincent Reina, and Rebecca Yae. 2022. “Can Emergency Rental Assistance Be Designed to Prevent Homelessness? Learning from Emergency Rental Assistance Programs.” *Housing Policy Debate* 32, no. 6: 896–914.
- Aiken, Claudia, Ingrid Gould Ellen, and Vincent Reina. 2023. “Administrative Burdens in Emergency Rental Assistance Programs.” *RSF: The Russell Sage Foundation Journal of the Social Sciences* 9, no. 5: 100–21.
- Appelbaum, Yoni. 2025. *Stuck*. Random House.
- ATTOM. 2023. “Year-End 2022 U.S. Foreclosure Market Report.” Market report published online in ATTOM. <https://www.attomdata.com/news/market-trends/foreclosures/attom-year-end-2022-u-s-foreclosure-market-report/>
- Barnes, Carolyn Y. 2021. “‘It Takes a While to Get Used to’: The Costs of Redeeming Public Benefits.” *Journal of Public Administration Research and Theory* 31, no. 2: 295–310.
- Bartik, Alexander, Arpit Gupta, and Daniel Milo. 2025. “The Costs of Housing Regulation: Evidence from Generative Regulatory Measurement.” *Social Science Research Network*, revised August 19. <https://dx.doi.org/10.2139/ssrn.4627587>.
- Baum-Snow, Nathaniel, and Gilles Duranton. 2025. “Housing Supply and Housing Affordability.” Working paper no. 33694. National Bureau of Economic Research, April. <https://www.nber.org/papers/w33694>.
- Baum-Snow, Nathaniel, and Lu Han. 2024. “The Microgeography of Housing Supply.” *Journal of Political Economy* 132, no. 6: 1897–946.
- Berger, David, Nicholas Turner, and Eric Zwick. 2020. “Stimulating Housing Markets.” *Journal of Finance* 75, no. 1 (February): 277–321. <https://doi.org/10.1111/jofi.12847>.
- Bertaud, Alain, and Jan K. Brueckner. 2005. “Analyzing Building-Height Restrictions: Predicted Impacts and Welfare Costs.” *Regional Science and Urban Economics* 35, no. 2: 109–25.
- Board of Governors of the Federal Reserve System. 2025a. Delinquency Rate on Commercial Real Estate Loans (Excluding Farmland), Booked in Domestic Offices, All Commercial Banks (DRCRELEXFACBS). Federal Reserve Economic Data (FRED). <https://fred.stlouisfed.org/series/DRCRELEXFACBS>.
- Board of Governors of the Federal Reserve System. 2025b. Delinquency Rate on Single-Family

- Residential Mortgages, Booked in Domestic Offices, All Commercial Banks (DRSFRMACBS). Federal Reserve Economic Data (FRED).
<https://fred.stlouisfed.org/series/DRSFRMACBS>.
- Board of Governors of the Federal Reserve System. 2025c. Senior Loan Officer Opinion Survey on Bank Lending Practices. Washington, DC. Federal Reserve Economic Data (FRED).
<https://www.federalreserve.gov/data/sloos.htm>.
- Brysch, Sara Lia, and Darinka Czischke. 2021. “Affordability Through Design: The Role of Building Costs in Collaborative Housing.” *Housing Studies* 37, no. 10: 1800–20.
<https://doi.org/10.1080/02673037.2021.2009778>.
- Bureau of Labor Statistics (BLS). 2025. “Consumer Price Index Summary.” News release. Bureau of Labor Statistics, September 11. <https://www.bls.gov/news.release/cpi.nr0.htm>.
- Choi, Jung Hyun, Jun Zhu, Laurie Goodman, Bhargavi Ganesh, and Sarah Storchak. 2018. *Millennial Homeownership: Trends, Barriers, and Policy Recommendations*. Urban Institute, July 11. <https://www.urban.org/research/publication/millennial-homeownership>.
- Christopher, Ben. 2025. “One of the Biggest Obstacles to Building New CA Housing Has Now Vanished.” *CalMatters*, June 30. <https://calmatters.org/housing/2025/06/ceqa-urban-development-infill-budget/>.
- Collinson, Robert, Anthony DeFusco, John Eric Humphries, Benjamin J. Keys, David Phillips, Vincent Reina, Patrick S. Turner, Winnie van Dijk. 2024. “The Effects of Emergency Rental Assistance During the Pandemic: Evidence from Four Cities.” Working paper no. 32463. National Bureau of Economic Research, May; revised March 2025.
https://www.nber.org/system/files/working_papers/w32463/w32463.pdf.
- Collinson, Robert, John Eric Humphries, Nicholas S. Mader, Davin K. Reed, Daniel I. Tannenbaum, and Winnie van Dijk. 2022. “Eviction and Poverty in American Cities.” Working paper no. 30382. National Bureau of Economic Research, August, revised July 2023. https://www.nber.org/system/files/working_papers/w30382/w30382.
- Corinth, Kevin, and Naomi Feldman. 2024. “Are Opportunity Zones an Effective Place-Based Policy?” *Journal of Economic Perspectives* 38, no. 3: 113–36.
- Coven, Joshua. 2025. “The Impact of Institutional Investors on Homeownership and Neighborhood Access.” Social Science Research Network, revised May 13.

- https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4554831.
- D’Amico, Leonardo, Edward L. Glaeser, Joseph Gyourko, William Kerr, and Giacomo A. M. Ponzetto. 2024. “Why Has Construction Productivity Stagnated? The Role of Land-Use Regulation.” Working paper no. 33188. National Bureau of Economic Research, November. <https://www.nber.org/papers/w33188>.
- Dettling, Lisa J., and Melissa Schettini Kearney. 2025. “Did the Modern Mortgage Set the Stage for the US Baby Boom?” Working paper no. 33446. National Bureau of Economic Research, February. <https://www.nber.org/papers/w33446>.
- Dong, Hongwei, and J. Andy Hansz. 2019. “Zoning, Density, and Rising Housing Prices: A Case Study in Portland, Oregon.” *Urban Studies* 56, no. 16: 3486–503. <https://doi.org/10.1177/0042098018813251>.
- Duranton, Gilles, and Diego Puga. 2023. “Urban Growth and Its Aggregate Implications.” *Econometrica* 91, no. 6: 2219–59.
- Ellen, Ingrid Gould, Katherine O’Regan, and Sarah Storchak. 2021. “Using HUD Administrative Data to Estimate Success Rates and Search Durations for New Voucher Recipients.” Washington: US Department of Housing and Urban Development. Accessed March 4 (2021): 2024.
- FHFA National Mortgage Database. 2025. <https://www.fhfa.gov/data/national-mortgage-database-aggregate-statistics>.
- First American Data and Analytics. 2025. “2025 Housing Market Outlook: Will the Freeze Finally Thaw?” *DataDriven Insights* (blog), March 6. <https://dna.firstam.com/insights-blog/2025-housing-market-outlook-will-the-freeze-finally-thaw>.
- Fonseca, Julia, and Lu Liu. 2024. “Mortgage Lock-In, Mobility, and Labor Reallocation.” *The Journal of Finance* 79, no. 6: 3729–3772.
- Fonseca, Julia, Lu Liu, and Pierre Mabilie. 2025. “Unlocking Mortgage Lock-In: Evidence from a Spatial Housing Ladder Model.” Social Science Research Network, revised April 4. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4874654.
- Glaeser, Edward L., and Joseph Gyourko. 2003. “The Impact of Building Restrictions on Housing Affordability.” *Federal Reserve Bank of New York Economic Policy Review* (June): 21–39. <https://www.newyorkfed.org/medialibrary/media/research/epr/03v09n2/0306glae.pdf>.

- Glaeser, Edward L., and Joseph Gyourko. 2025. “America's Housing Supply Problem: The Closing of the Suburban Frontier?” Working paper no. 33876. National Bureau of Economic Research, May. <https://www.nber.org/papers/w33876>.
- Glaeser, Edward L., and Jesse Shapiro. 2003. “The Benefits of the Home Mortgage Interest Deduction.” In *Tax Policy and the Economy*, vol. 17, edited by James M. Poterba, 37–82. MIT Press.
- Glaeser, Edward L., and Bryce A. Ward. 2009. “The Causes and Consequences of Land Use Regulation: Evidence from Greater Boston.” *Journal of Urban Economics* 65, no. 3 (May): 265–78. <https://doi.org/10.1016/j.jue.2008.06.003>.
- Goodman, Laurie, and Jun Zhu. 2024. *Estimated Number of Loans Saved During the COVID-19 Pandemic Attributable to Improved Loss Mitigation*. Urban Institute, July 30. https://www.urban.org/sites/default/files/2024-07/Estimated_Number_of_Loans_Saved_during_the_COVID-19_Pandemic.pdf.
- Gorback, Caitlin, and Benjamin J. Keys. 2020. “Global Capital and Local Assets: House Prices, Quantities, and Elasticities.” Working paper no. 27370. National Bureau of Economic Research, June. <https://www.nber.org/papers/w27370>.
- Gorback, Caitlin, Franklin Qian, and Zipei Zhu. 2025. “Impact of Institutional Owners on Housing Markets.” Social Science Research Network, revised April 8. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5160602.
- Green, Jamaal, and Wei Shi. 2022. “Classifying Opportunity Zones—A Model-Based Clustering Approach.” *Cityscape* 24, no. 1: 117–32.
- Green, Richard K., Stephen Malpezzi, and Stephen K. Mayo. 2005. “Metropolitan-Specific Estimates of the Price Elasticity of Supply of Housing, and Their Sources.” *American Economic Review* 95, no. 2 (May): 334–39. <https://www.jstor.org/stable/4132843>.
- Gyourko, Joseph, Jonathan S. Hartley, and Jacob Krimmel. 2021. “The Local Residential Land Use Regulatory Environment Across U.S. Housing Markets: Evidence from a New Wharton Index.” *Journal of Urban Economics* 124 (July): 103337.
- Gyourko, Joseph, Christopher Mayer, and Todd Sinai. 2013. “Superstar Cities.” *American Economic Journal: Economic Policy* 5, no. 4 (November): 167–99.
- Handbury, Jessie, Samuel Hughes, and Benjamin J. Keys. 2025. “Segmentation and Returns to Rental Housing.” University of Pennsylvania working paper.

- Hanson, Sebastian. 2024. “Institutional Investors in the Market for Single-Family Housing: Where did They Come From, Where did They Go?” Social Science Research Network, revised November 19. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4268640.
- Howard, Troup, Menqi Wang, and Dayin Zhang. 2024. “Cracking Down, Pricing Up: Housing Supply in the Wake of Mass Deportation.” *Social Science Research Network*, February 16. http://www.trouphoward.com/uploads/1/2/7/7/127764736/howard_wang_zhang_cracking_down_pricing_up_ssrn_nov_2024.pdf.
- Hsieh, Chang-Tai, and Enrico Moretti. 2019. “Housing Constraints and Spatial Misallocation.” *American Economic Journal: Macroeconomics* 11, no. 2: 1–39.
- ICE Mortgage Monitor. 2025. *Mortgage Monitor Report: July 2025*. ICE Mortgage Monitor, July. <https://mortgagetechnice.com/publicdocs/mortgage/imt-july-2025-mortgage-monitor-report-sMm33rhnrWdK.pdf>.
- Joint Center for Housing Studies of Harvard University (JCHS). 2023. *Housing America’s Older Adults*. Joint Center for Housing Studies of Harvard University. https://www.jchs.harvard.edu/sites/default/files/reports/files/Harvard_JCHS_Housing_Americas_Older_Adults_2023_Revised_040424.pdf.
- JCHS. 2024a. “Figure 22: Cost Burdens Continued to Increase Across Incomes During the Pandemic.” In *America’s Rental Housing 2024*, 37. Joint Center for Housing Studies of Harvard University. https://www.jchs.harvard.edu/sites/default/files/reports/files/Harvard_JCHS_Americas_Rental_Housing_2024.pdf.
- JCHS. 2024b. “Cost Burdens High Across the Country.” Interactive map published online in conjunction with *The State of the Nation’s Housing 2024*. Joint Center for Housing Studies of Harvard University. <https://www.jchs.harvard.edu/son-2024-cost-burdens-map>.
- Kearney, Melissa S., and James Sullivan. 2025. “Beyond the Myths: A Clearer Path to Poverty Alleviation in America.” In *Advancing America’s Prosperity*, edited by Melissa S. Kearney and Luke Pardue. Washington, DC: Aspen Institute.
- Klein, Ezra, and Derek Thompson. 2025. *Abundance*. Simon and Schuster.
- Knaap, Gerrit-Jan, Stuart Meck, Terry Moore, and Robert Parker. 2007. “Do We Know

- Regulatory Barriers When We See Them? An Exploration Using Zoning and Development Indicators.” *Housing Policy Debate* 18, no. 4: 711–49.
<https://doi.org/10.1080/10511482.2007.9521619>.
- LaJeunesse, Elizabeth. 2025. “First Take: How New Tariffs Could Raise Housing Costs.” John Burns Research and Consulting, April 10. <https://jbrec.com/insights/how-new-tariffs-could-raise-housing-costs/>.
- Landis, John, and Vincent J. Reina. 2021. “Do Restrictive Land Use Regulations Make Housing More Expensive Everywhere?” *Economic Development Quarterly* 35, no. 4: 305–24.
<https://doi.org/10.1177/08912424211043500>.
- Lee, Yeonhwa, Peter A. Kemp, and Vincent J. Reina. 2022. “Drivers of Housing (Un)Affordability in the Advanced Economies: A Review and New Evidence.” *Housing Studies* 37, no. 10: 1739–752. <https://doi.org/10.1080/02673037.2022.2123623>.
- Liscow, Zachary. 2024. “State Capacity for Building Infrastructure.” In *Strengthening America’s Economic Dynamism*, edited by Melissa S. Kearney and Luke Pardue, 96–135. Aspen Institute. <https://doi.org/10.5281/zenodo.14036826>.
- Loewenstein, Lara, and Jason Meyer. 2024. “Comparing Two House-Price Booms.” Federal Reserve Bank of Cleveland. *Economic Commentary* 2024-04 (February 27): 1–9.
<https://www.clevelandfed.org/-/media/project/clevelandfedtenant/clevelandfedsite/publications/economic-commentary/2024/ec-202404-comparing-two-house-price-booms/ec202404.pdf>.
- Lundberg, Ian, Sarah L. Gold, Louis Donnelly, Jeanne Brooks-Gunn, and Sarah S. McLanahan. 2021. “Government Assistance Protects Low-Income Families from Eviction.” *Journal of Policy Analysis and Management* 40, no. 1: 107–27.
- Matlack, Janna L., and Jacob L. Vigdor. 2008. “Do Rising Tides Lift All Prices? Income Inequality and Housing Affordability.” *Journal of Housing Economics* 17, no. 3: 212–24.
<https://doi.org/10.1016/j.jhe.2008.06.004>.
- Mayer, Christopher J., and C. Turiel Somerville. 2000. “Land Use Regulation and New Construction.” *Regional Science and Urban Economics* 30, no. 6 (December): 639–62.
[https://doi.org/10.1016/S0166-0462\(00\)00055-7](https://doi.org/10.1016/S0166-0462(00)00055-7).
- Mense, Andreas. 2025. “The Impact of New Housing Supply on the Distribution of Rents.” *Journal of Political Economy Macroeconomics* 3, no. 1: 1–42.

- <https://ideas.repec.org/a/ucp/jpemac/doi10.1086-733977.html>.
- Mian, Atif and Amir Sufi. 2014. *House of Debt: How They (and You) Caused the Great Recession, and How We can Prevent it from Happening Again*. University of Chicago Press.
- Mills, Gregory, Daniel Gubits, Larry Orr, David Long, Judie Feins, Bulbul Kaul, et al. 2006. *Effects of Housing Vouchers on Welfare Families*. US Department of Housing and Urban Development, Office of Policy Development and Research, September.
https://www.huduser.gov/publications/pdf/hsgvouchers_1_2011.pdf.
- Mortgage Bankers Association (MBA). n.d. “Quarterly Commercial/Multifamily Mortgage Delinquency Rates.” Mortgage Bankers Association. Accessed July 2, 2025.
<https://www.mba.org/news-and-research/research-and-economics/commercial-multifamily-research/commercial-multifamily-mortgage-delinquency-rates>.
- Myers, Dowell, Hyojung Lee, and JoHung Park. 2025. “Misalignment of Housing Growth and Population Trends: Cohort Size and Lagging Measurements Through Recession and Recovery.” *RSF: The Russell Sage Foundation Journal of the Social Sciences* 11, no. 1 (January): 86–109. <https://www.rsfjournal.org/content/11/1/86>.
- Myers, Dowell, and SungHo Ryu. 2008. “Aging Baby Boomers and the Generational Housing Bubble: Foresight and Mitigation of an Epic Transition.” *Journal of the American Planning Association* 74, no. 1: 17–33. <https://doi.org/10.1080/01944360701802006>.
- National Association of Realtors (NAR). 2024. “Highlights from the Profile of Home Buyers and Sellers.” Research reports of the National Association of REALTORS.
<https://www.nar.realtor/research-and-statistics/research-reports/highlights-from-the-profile-of-home-buyers-and-sellers>.
- National Multifamily Housing Council (NMHC). 2016. “Banks Tap the Brakes on Multifamily Construction Loans.” National Multifamily Housing Council, March 21.
<https://www.nmhc.org/news/nmhc-news/2000-2016/banks-tap-the-brakes-on-multifamily-construction-loans>.
- Nelson, Katherine, Chi-Hyun Kim, Rebecca Yae, and Vincent Reina. 2024. “Emergency Rental Assistance and Pandemic Protections in Los Angeles and Philadelphia: Assessing Impact on Eviction, Forced Moves and Homelessness.” Paper presented at the Association for Public Policy Analysis and Management Fall Research Conference, November 22,

- National Harbor, MD. https://www.appam.org/assets/1/6/_2024_APPAM_Program_-_Printable.pdf.
- Patel, Elena, Aastha Rajan, and Natalie Tomeh. 2024. “Make It Count: Measuring Our Housing Supply Shortage.” Brookings Institution, November 26.
<https://www.brookings.edu/articles/make-it-count-measuring-our-housing-supply-shortage/>.
- Phillips, David C., and James X. Sullivan. 2025. “Do Homelessness Prevention Programs Prevent Homelessness? Evidence from a Randomized Controlled Trial.” *Review of Economics and Statistics* (May): 1–30. http://dx.doi.org/10.1162/rest_a_01344.
- Piskorski, T. and Seru, A., 2018. “Mortgage Market Design: Lessons from the Great Recession.” *Brookings Papers on Economic Activity*, 2018(1), pp.429-513.
- Pollakowski, Henry O., and Susan M. Wachter. 1990. “The Effects of Land-Use Constraints on Housing Prices.” *Land Economics* 66, no. 3 (August): 315–24.
<https://doi.org/10.2307/3146732>.
- Pollakowski, Henry O., Daniel H. Weinberg, Fredrik Andersson, John C. Haltiwanger, Giordano Palloni, and Mark J. Kutzbach. 2022. “Childhood Housing and Adult Outcomes: A Between-Siblings Analysis of Housing Vouchers and Public Housing.” *American Economic Journal: Economic Policy* 14, no. 3: 235–72.
- Quintero, Luis. 2023. “Fewer Players, Fewer Homes: Concentration and the New Dynamics of Housing Supply.” Research paper no. 18-18. Johns Hopkins Carey Business School, last revised August 30. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3303984.
- Raymond, Elora L., Richard Duckworth, Benjamin Miller, Michael Lucas, and Shiraj Pokharel. 2016. “Corporate Landlords, Institutional Investors, and Displacement: Eviction Rates in Single Family Rentals.” Community and Economic Development Discussion Paper no. 2016-4. Federal Reserve Bank of Atlanta, December 1.
<https://ssrn.com/abstract=2893552>.
- Reina, Vincent, and Claudia Aiken. 2022. “Moving to Opportunity, or Aging in Place? The Changing Profile of Low Income and Subsidized Households and Where They Live.” *Urban Affairs Review* 58, no. 2: 454–92.
- Reina, Vincent, Claudia Aiken, and Jenna Epstein. 2021. *Exploring a Universal Housing Voucher*. Interactive report. Housing Initiative at Penn, September 21.

- <https://www.housinginitiative.org/universal-voucher.html>.
- Reina, Vincent J., Matthew Z. Fowle, Sara R. Jaffee, Rachel Mulbry, and Miranda Fortenberry. 2024. "The Future of Rental Assistance." *Cityscape* 26, no. 2: 293–308. <https://bpb-us-w2.wpmucdn.com/web.sas.upenn.edu/dist/9/1022/files/2024/10/Reina-FutureRentalAssistance-2024.pdf>.
- Reina, Vincent J., Matthew Z. Fowle, Mimi Tanski, Rachel Mulbry, Miranda Fortenberry, and Sara R. Jaffee. 2025. "Cash and Vouchers: The Impact of Different Forms of Rental Assistance on Housing Insecurity". Working paper. University of Pennsylvania Housing Initiative, August. https://www.housinginitiative.org/uploads/1/3/2/9/132946414/hip_phlh_cashandvouchers_impactonhousinginsecurity.pdf.
- Reina, Vincent J., and Yeonhwa Lee. 2023. "COVID-19 and Emergency Rental Assistance: Impact on Rent Arrears, Debt, and the Well-Being of Renters in Philadelphia." *RSF: The Russell Sage Foundation Journal of the Social Sciences* 9, no. 3: 208–29. <https://www.rsfsjournal.org/content/rsfjss/9/3/208.full.pdf>.
- Reina, Vincent J., Katherine O'Regan, Christine Jang-Trettien, and Haydar Kurban. 2025. "Expanding Access to Rental Assistance: What Do We Know and Where Do We Go from Here?" *Housing Policy Debate* 35, no. 3: 552–68.
- ResiClub, Zillow. 2024. "Zillow: Income Needed to Comfortably Afford a Home is Up 80% since 2020." Newsletter post published online in ResiClub. <https://www.resiclubanalytics.com/p/zillow-income-needed-comfortably-afford-home-80-since-2020>.
- Rosenthal, Stuart S. 2014. "Are Private Markets and Filtering a Viable Source of Low-Income Housing? Estimates from a 'Repeat Income' Model." *American Economic Review* 104, no. 2 (February): 687–706.
- Saiz, Albert. 2010. "The Geographic Determinants of Housing Supply." *Quarterly Journal of Economics* 125, no. 3 (August): 1253–96.
- Schmitz, James A. 2020. "Solving the Housing Crisis will Require Fighting Monopolies in Construction." Working paper no. 773. Federal Reserve Bank of Minneapolis, December 11. <https://www.minneapolisfed.org/research/wp/wp773.pdf>.
- Shroyer, Aaron. 2025. *Infill Nation: Reforming NEPA to Build More Housing*. Center for Public

- Enterprise, July 8. <https://publicenterprise.org/report/infill-nation/>.
- Slok, Torsten, Rajvi Shah, and Shruti Galwankar. 2025. *US Housing Outlook*. Apollo Global Management, May. https://www.apolloacademy.com/wp-content/uploads/2025/05/US-Housing-Outlook_May-2025.pdf.
- Sommer, Kamila, and Paul Sullivan. 2018. “Implications of US Tax Policy for House Prices, Rents, and Homeownership.” *American Economic Review* 108, no. 2: 241–74.
- Spader, Jonathan. 2024. “Has Housing Filtering Stalled? Heterogeneous Outcomes in the American Housing Survey, 1985–2021.” *Housing Policy Debate* 34, no. 1: 3–25.
- Tyvima, Tanja, and Md. Kamruzzaman. 2019. “The Effect of Young, Single Person Households on Apartment Prices: An Instrument Variable Approach.” *Journal of Housing and the Built Environment* 34: 91–109. <https://doi.org/10.1007/s10901-018-9618-1>.
- U.S. Census Bureau. 2025. New Residential Construction 2025. (127th edition). Washington, DC. Table 12.
- White House. 2022. “President Biden Announces New Actions to Ease the Burden of Housing Costs.” White House Briefing Room statement, May 16. <https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2022/05/16/president-biden-announces-new-actions-to-ease-the-burden-of-housing-costs/>.
- Williams, Paul E. 2024. “How the Federal Financing Bank Supports Multifamily Construction.” Center for Public Enterprise, August 13. <https://publicenterprise.org/how-the-federal-financing-bank-supports-housing-construction>.