

RESEARCH REPORT

# Place the Blame Where It Belongs

**Lack of Housing Supply Is Largely Responsible for High Home Prices and Rents**

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# Lack of Housing Supply Is Largely Responsible for High Home Prices and Rents

The housing market matches households to homes. Home prices and rents are determined in large part by whether and by how much the market has too few houses (i.e., a sellers' or landlords' market) or has too many houses (i.e., a buyers' or renters' market). Changes in supply are determined by net new construction (new units added, minus units lost to obsolescence and demolition). Changes in demand are determined by net household formation (new households formed versus those that disappear). Every household demands one housing unit whether they own it or rent it (in effect, this is how a household is defined). Overall housing demand is the same whether a household owns a home or rents one from a landlord.<sup>1</sup>

The key point is that home prices and rents are primarily determined by the supply and demand for housing units and by changes to that supply and demand.<sup>2</sup> This seemingly obvious point has enormous implications for how we deal with high home prices and rents.

This simple supply-and-demand principle has the power to cut through much of the finger pointing we see in the popular press, which often clouds housing policy debates. We discuss the following scapegoats that distract from the underlying cause of high home prices and rents. Our simple point has a simple solution: a massive supply shortage is causing high home prices and rents, and the way to fix it is to build more housing (and rehabilitate existing housing where economical). Any factor that does not influence the housing supply or the demand for household creation is of second-order importance.

- The first common scapegoat is the federal government. Some people believe that the government's targeted programs to make mortgages somewhat more affordable and easing eligibility standards (while keeping these mortgages sustainable) drive up home prices. A more accurate framing would be to say that at the margin, expanding mortgage availability will convert some renters to homeowners, but overall demand for units will be largely unchanged. There will be marginally more homeownership demand and correspondingly marginally less rental demand.
- A second common scapegoat is developers who build high-cost homes and apartments that drive up home prices and rents. A more accurate framing would be to say that more housing

supply is always better than less (including multifamily buildings with more units; higher-density duplexes, triplexes, and fourplexes; and more accessory dwelling units). High-end supply will eventually trickle down through filtering, but more affordable homes reach the segments in need faster, so policymakers should try to make newly built housing affordable where possible.

- A third common scapegoat is institutional investors, who buy single-family homes and drive up home prices and rents. A more accurate framing would be to say that institutional investors do not change housing supply or demand. Investors buy houses only because there is a renter household willing to live in the home. Periods of rapid rent increases correlate with periods of greater household formation coupled with supply shortages, which attract, but are generally not caused by, institutional investor buyers.
- A final common scapegoat is that a lack of local political will to change zoning is solely to blame for high home prices and rents. A more accurate framing would be to say that local regulations do play a role in restricting supply and, hence, driving up housing costs. But the federal government needs to have a housing supply policy, which should try to expand the most cost-effective ways to increase supply (including offering carrots and sticks to local governments to ease zoning restrictions).

The focus of our report is home prices and rents. Accounting for the supply shortage of millions of units, policy interventions to make housing more affordable for all households must simultaneously (1) make more supply available (what we advocate for in this report) and (2) provide adequate subsidies such that lower-income households can afford a place to live and more renting households can afford to become homebuyers (mostly outside the scope of this report).<sup>3</sup> This logic is not new. It is the exact argument made in the 1940s regarding substandard living conditions and slums. In retrospect, this is also the recipe that worked for that issue: we had an unprecedented amount of construction in the decades after World War II (albeit, steadily decreasing on a per capita level), and incomes and transfers increased substantially as well (again, with the rate of increase falling in the past couple of decades for lower-income households).

Simply providing massive subsidies that could increase household formation (e.g., a massive expansion of housing choice vouchers) without resolving the housing supply shortage is self-defeating (Susin 2002). As long as the supply shortage persists, subsidies that broadly increase the number of households (e.g., various government transfers during the pandemic), as opposed to shifting the renter-homeowner composition (e.g., marginal targeted changes in mortgage eligibility and mortgage rates),

will drive up home prices and rents even further and will ultimately be a subsidy to homeowners (both consumers and investors).

In the rest of the report, we go through each potential scapegoat in detail.

## Scapegoat 1. Targeted Federal Programs

Some people believe that targeted federal programs to make mortgages somewhat more affordable and that ease eligibility standards (while keeping these mortgages sustainable) cause high home prices and rents. A more accurate framing would be to say that at the margin, expanding mortgage availability will convert some renters to homeowners, but overall demand for units will be largely unchanged. There will be marginally more homeownership demand and correspondingly marginally less rental demand.

There has been a concern that mortgage insurance cost decreases will simply increase home prices. The same logic applies to other mortgage availability interventions, such as marginally changing eligibility standards or offering down payment relief for some borrowers (e.g., first-generation homebuyers).<sup>4</sup>

But overall housing demand is the same whether a household owns a home or rents one from a landlord. A modest change in mortgage eligibility standards or mortgage pricing does not create new demand for houses. Instead, it simply makes it possible for some renter households to get a mortgage and for some of the newly eligible households to choose owning instead of renting. It does not make sense that a mortgage price cut would considerably increase the number of households, especially as most households start off as renters.

Households make their decisions to rent or own based on several factors, such as the relative price of houses (on a monthly basis, which factors in interest rates), tax considerations, intrinsic preference for owning, the relative convenience of renting, expectations of how long they might stay in the area, beliefs about job security and financial stability, and the size of the household and expected changes to it. Accordingly, it is not surprising that landlords (whether large investors or landlords renting out one or two properties) might not feel they are competing with their renters for houses: most renters are not looking to buy right now.<sup>5</sup>

But many households who would like to buy are constrained only by not being eligible for a mortgage.<sup>6</sup> Allowing some of these households to qualify for a mortgage drives the least efficient landlords to sell their houses to these households. In the long run, home prices do not increase—there is

no net change in demand for houses (i.e., some households own instead of rent, but it is unlikely that new households are created), and there is no net change in housing supply.

Empirical evidence is mixed on the topic when considering larger interventions. The most relevant analyses are arguably the ones analyzing the Federal Housing Administration's (FHA's) 50 basis-point cut in insurance premiums in 2015 (more than 1.5 times the 2021 cut, in an environment with considerably lower market rates). Federal Reserve Board researchers find no evidence of home price increases (Bhutta and Ringo 2021). Davis and coauthors (2018) disagree, though, and find that FHA borrowers paid 2.5 percentage points more for homes in FHA-heavy neighborhoods without an increase in housing quality, and other borrowers (including government-sponsored enterprise, or GSE, borrowers) paid more as well. The authors also find that only 17,000 additional households purchased a home because of this cut. Davis and coauthors (2018) also emphasize the impact on neighborhoods with a large FHA presence. The Davis et al. (2018) results could be conflated by the fact that during that period, less expensive homes appreciated more rapidly than more expensive homes, to the extent that this effect is not controlled for by their difference-in-differences specification. And because FHA borrowers tend to earn less than GSE borrowers, they tend to own less expensive homes than GSE borrowers.<sup>7</sup>

Our logic must hold over the long run. But there could still be a price increase in the short run because of the supply shortage before landlords could sell off some of their holdings. That is, if a pricing change occurs that increases the chances a renter will purchase a home, landlords would need to realize their demand is lower and act by selling homes. This adjustment is not instantaneous. In the meantime, we would still have too many buyers chasing after insufficient supply.<sup>8</sup>

In summary, well-targeted programs to make mortgages more affordable for lower-income, lower-wealth first-time and first-generation homebuyers could level the playing field for those households without broadly affecting overall supply or housing costs.

## Scapegoat 2. Developers

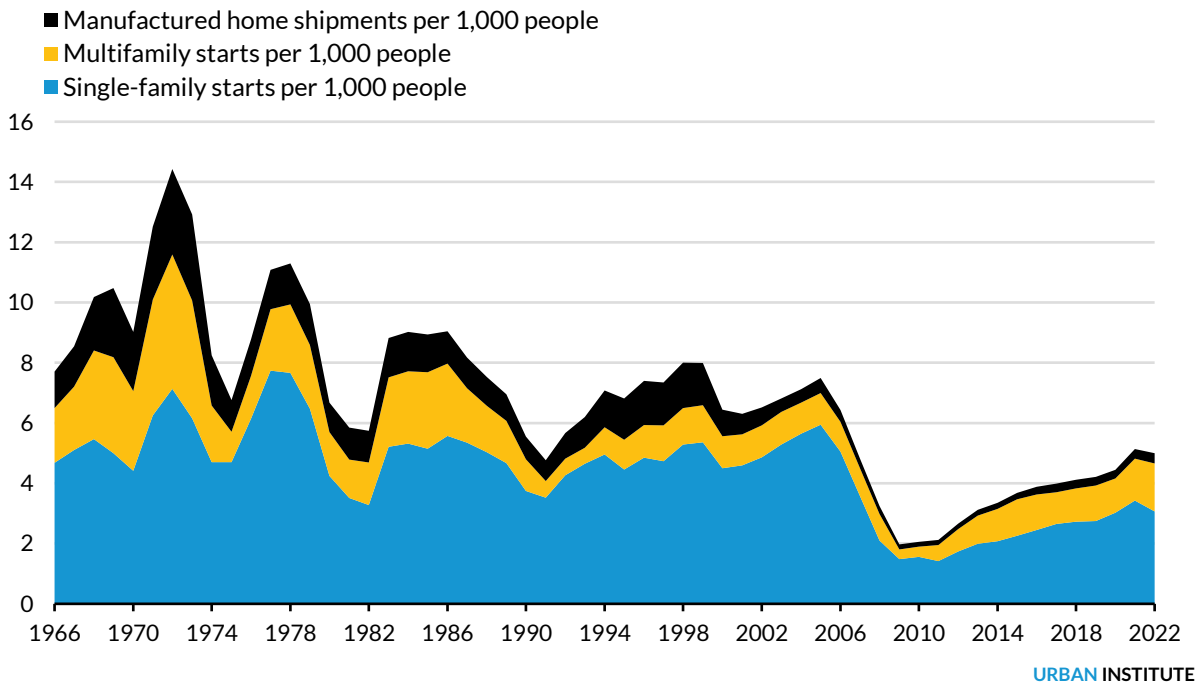
Some people believe that developers who build high-cost homes and apartments are responsible for high home prices and rents. A more accurate framing would be to say that supply is supply, regardless of the price point, so the more we build, the better. (This includes the construction of multifamily buildings with more units; higher-density duplexes, triplexes, and fourplexes; more accessory dwelling units; and more manufactured housing). More affordable homes reach the segments in need faster, so



policymakers should try to make housing affordable where possible, but more housing is always better than less housing.

There is no question the US has an acute housing supply shortage, though there is some disagreement on the numbers.<sup>9</sup> That shortfall becomes evident simply by looking at trends in the number of housing units started for every 1,000 people (figure 1).<sup>10</sup> That number of housing units stood at 5.0 at the end of 2022, the result of 1.67 million units started for a national population of 333 million. Although that pace is up from the very low levels just after the financial crisis, it still stands well below the average of 7.8 units built per 1,000 people for the 48 years from 1959 to 2006. The numbers also show that single-family units have recovered slowly and still run well below levels from the 1990s and early 2000s. And starts for multifamily units, though much lower than in the 1960s, 1970s, and early 1980s, have accelerated to their highest pace since the passage of the 1986 Tax Act, which eliminated some of the favorable tax breaks for investment properties (showing how developers respond to financial incentives, particularly the ones provided by the tax code).

**FIGURE 1**  
**Population-Adjusted Housing Starts**  
*Population-adjusted housing production falls below historic averages*



**Source:** Urban Institute calculations using data from the Current Population Survey, the American Community Survey, the Decennial Census, and the Survey of Construction.

**Note:** Population-adjusted construction is single-family units (housing one to four households) plus multifamily units plus manufactured housing built per 1,000 people.

Other estimates of the size of the housing shortfall also paint a consistent and striking picture, even if the exact numbers are debatable. Khater, Kiefer, and Yanamadra (2021) argue that the underbuilding of single-family and multifamily homes by the end of 2021 left a shortage of 3.8 million units. Rosen and coauthors (2021) use the long-run annual rate of construction from 1968 to 2000 to argue that the cumulative building from 2001 to 2020 still fell short by 5.5 million units. Parrott and Zandi (2021) estimate that supply is about 1.5 million units short of demand. Other estimates also indicate a shortage of millions of units.<sup>11</sup> Even survey-based evidence shows a catastrophic lack of supply: in a nationally representative survey of mayors in 2017, the mayors said that, on average, they need 16 percent more housing units, with an emphasis on multifamily developments (Einstein, Glick, and Palmer 2019, 7).

Building more homes (including high-end homes) increases the overall housing supply. This is connected to the notion of filtering: as new higher-priced homes enter the market, some households move up, leaving vacant older properties, which causes prices and rents on these properties to fall. Rosenthal (2014) provided the first direct evidence of filtering. He estimated repeat income models based on new occupants of the same house for both owner-occupied housing and rental housing. Using data from 1985 from 2011, he shows that filtering is robust in most locations.

A qualifier applies: a unit is a unit, but units have different qualities and characteristics, and the further apart these qualities and characteristics are, the longer filtering might take and the less substitutable and fungible these units are. In other words, building more affordable housing right now would not take much time to filter down, whereas building only luxury units might take a long time to filter down to the more affordable segment of the housing market.

Filtering does not imply that the developers should build only mansions and luxury condominiums, even when driven by pure profit motivations. There is only so much demand for housing that costs millions of dollars per unit, and even now, there are early signs that developers might be starting to supply more units that would be more affordable for middle-income buyers.<sup>12</sup>

Several papers since Rosenthal's confirm the result of filtering (Been, Ellen, and O'Regan 2023). Mast (2019) looks at 52,000 residents of new multifamily buildings in large cities. Using those residents' previous addresses, the previous addresses of the current residents of the vacated properties, and so on, he constructs a sequence of migratory connections. He estimates 100 new market-rate units leads 45 to 70 residents out of below-median-income tracts and leads 17 to 39 residents out of bottom-quintile-income tracts, with almost all the effect occurring within five years.

Liu, McManus, and Yannopoulos (2021) repeated and extended the Rosenthal analysis with more granular data. They confirm the basic result, showing that filtering is an important long-term source of

lower-income housing nationally. They also show that filtering rates for owner-occupied properties vary considerably both across and within metropolitan statistical areas (MSAs). They find a strong empirical link between land-use regulation and filtering rates. Specifically, the Wharton Regulatory Index is positively correlated with filtering rates. Markets with high levels of regulatory restrictions on new construction tend to have upward filtering (households moving into existing housing have higher incomes, on average, than the households previously living there). Conversely, markets with fewer regulatory restrictions on new construction tend to have faster-than-average downward filtering rates.

The bottom line is that new construction generally allows for eventual filtering, increasing the number of homes available. Of course, there are caveats. A new development in Chicago, for example, does not increase the number of available units in Nashville. Moreover, if new construction is accompanied by large amounts of in-migration, you will not necessarily see evidence of filtering. New construction, which occurs with a lag, may be unable to keep up with in-migration, increasing both home prices and rents, at least in the short term. Again, the principle is that each household demands one housing unit. If there is heavy in-migration, construction is likely to lag, and prices will increase for all types of units.

Cities in the Southeast and Southwest have had large amounts of in-migration in recent decades (including immigration from other countries). Prices in these cities have risen more than in the nation as a whole. Initially, this was attributable to the decline in manufacturing in the US, as these jobs moved overseas, leading to out-migration from the Rust Belt. More recently, with increased flexibility in work arrangements and the high cost of living and high state income taxes, expensive MSAs in the Northeast and on the West Coast have experienced out-migration, decreasing price pressures in these areas but increasing price pressures in receiving areas. If construction catches up with in-migration, even if the construction is market-rate housing, we should eventually see prices in these fast-growing cities moderate, consistent with empirical research and the simple demand-supply lens we offer here.<sup>13</sup>

Indeed, increasing supply does help meet demand, alleviating upward price pressure in the market.

## Scapegoat 3. Institutional Investors

Some people believe that institutional investors who buy single-family homes are responsible for high home prices and rents. A more accurate framing would be to say that institutional investors do not change housing supply or demand. Investors buy houses only because there are renter households

willing to live in those houses. Periods of rapid rent increases correspond to periods of greater household formation coupled with supply shortages, not institutional investor buyers.

Investors do not constitute an independent source of demand and do not take houses off the market (in contrast to barely used *pieds-à-terre* and second homes that take supply off the market for another renter or owner household to live in).<sup>14</sup> Going back to our basic principle, the housing demand is the same regardless of whether a household rents or buys a home, and housing supply is the same regardless of whether a landlord supplies the unit or a household owns it. If a household rents, the landlord, whether institutional or mom-and-pop and whether single-family or multifamily, simply reflects that household's demand in the marketplace. Thus, it is hard to argue that institutional rental operators drive up home prices over any reasonable period. Moreover, it is possible that through economies of scale, institutional investors make renting cheaper, changing consumers' rent-versus-own calculations (Mills, Molloy, and Zarutskie 2019; Oosthuizen 2023).

Regardless of whether investors are institutional or mom-and-pop, and regardless of whether investors buy single-family or multifamily properties, the driving cause is that there is more demand than supply, and some of that demand is demand for rental property. More supply, all else equal, could make housing a less attractive investment. If there are more houses than households, investors will decrease rents to attract the few households who choose to rent. Similarly, the more households that would choose to buy (or can afford to buy because of, for example, more forgiving mortgage requirements), the fewer properties institutional investors will own. For the most part, a high share of investors is a symptom, not a cause.

If this is the case, why are home prices and rents increasing the most in precisely the areas where institutional investors are the most active (e.g., Atlanta and Phoenix)? Institutional investors are attracted to communities with rapid growth and with rising home prices and rents. When they select cities to buy in, the amount of in-migration, and the potential to benefit from rising rents, are important selection criteria. CoreLogic has shown that rent appreciation leads the investor share, but the reverse is not true.<sup>15</sup> Goodman and coauthors (2023) looked at the 20 MSAs where institutional investors were the most active. They found that in these MSAs, the population grew by 16.8 percent from 2010 to 2021, compared with 7.29 percent nationally. The number of households in these MSAs increased by 21.6 percent, compared with 11.3 percent nationally. Lack of supply is driving up prices, and institutional investors are capitalizing on this.

A similar explanation applies to the seeming proliferation of institutional investors during the pandemic. Home prices soared during the pandemic, but this price increase is in large part because of an

explosion in the number of households. American Community Survey data indicate an increase from 122.8 million households nationwide in 2019 to 127.5 million in 2021. That is, adult children moved out of their parents' homes or rented their own apartments rather than live with roommates. This likely reflected several factors, such as the pandemic payments,<sup>16</sup> more time spent at home, and the desire for more space. This new household formation, in turn, increased demand for homes, both owned and rented. This increase in demand was set against tight supply.

But during the pandemic, the homeownership rate increased, and Black and Hispanic households experienced a sharper homeownership rate increase than white households.<sup>17</sup> The government payments during the pandemic and low interest rates resulted in high demand for housing for both owners and renters. And prices and rents for single-family properties increased more than they did for multifamily properties, which is not surprising, amid the demand for more living space and larger backyards in the beginning of pandemic, as a response to social distancing practices and work-from-home policies (Mondragon and Wieland 2022). But rents and home prices increased everywhere, exacerbated by the increase in the number of households. In short, the tight supply in the market, coupled with robust increases in demand, caused the price increases. In particular, the shares of purchases for large and “mega” investors stayed the same relative to the share of purchases by small and midsize investors throughout the pandemic period.<sup>18</sup>

It is possible that an institutional investor can own enough of a community to drive up rents as a monopolist. But that is far from the situation now. Even in the cities where institutional operators own the largest number of single-family rental properties, they still each own a comparatively small number.<sup>19</sup> And these institutional operators all compete with one another. No single institutional investor has a commanding market share in any city or county. The theoretical possibility of high markups attributable to a lack of competition between landlords (as opposed to tight supply in general) might become a reality in the future, and thus the share of institutional investors should be tracked across counties (or whatever the relevant market might be).

One area where institutional investors might exercise monopolistic powers in raising rents is in owning entire manufactured housing communities.<sup>20</sup> Investors can raise ground rents above market levels, as it costs \$5,000 to \$8,000 to move a single-wide or \$11,500 to move a double-wide.<sup>21</sup> Given these high moving costs for manufactured home residents, the least affluent of all homeowners, landlords have substantial leverage.

Institutional investors who buy single-family homes are not primarily responsible for high home prices and rents. They seek areas with supply-demand imbalances but do not cause them.

## Scapegoat 4. Lack of Local Political Will to Change Zoning Laws

Some people believe zoning laws are solely to blame for high home prices and rents. A more accurate framing would be to say that the federal government needs to have a housing supply policy that should try to expand the most cost-effective ways to increase supply (including offering carrots and sticks to local governments to ease zoning restrictions).

Zoning has traditionally been a state and local issue, and zoning constraints in many areas of the country are hampering housing production. One of the goals of a federal supply policy should be to put incentives and more pressure on local communities to relax zoning and permitting standards, which would allow developers and homeowners to build more housing using the same amount of land (i.e., increase density).<sup>22</sup>

Moreover, marginal increases in this production (e.g., marginally increasing funding to existing programs such as the Low-Income Housing Tax Credit program), though helpful, cannot single-handedly resolve the nation's housing supply issues.<sup>23</sup> The Biden administration's 2024 budget proposal makes housing supply a focus, which is an important first step, but the total number of units that could be created or preserved was small, a stark contrast to the millions of missing units.<sup>24</sup>

Improving on the approach of providing incremental incentives for localities to adopt more permissible zoning regulations, the administration could adopt an all-government approach, tying federal funding to increased density. All federal agencies could require local jurisdictions to have a high level of housing construction or low prices relative to construction costs (Glaeser, Gyourko, and Saks 2005) or could require localities to adopt a checklist of relaxing construction and development regulations (which could be developed by the US Department of Housing and Urban Development, or HUD) as a prerequisite for any federal spending.<sup>25</sup> That would include funding from HUD, and Fannie Mae, Freddie Mac, and the FHA could provide incentives by marginally lowering pricing in areas that satisfy the requirements. The 2022 federal budget outlay for state and local government spending was more than \$1 trillion, more than 10 times HUD's budget (White House 2023). Transportation and community and regional development funds accounted for more than \$130 billion (close to double HUD's budget). Both categories are fundamentally tied to housing. Mass transit and freeways help workers get to their jobs, and it is hard to imagine community and regional development without an adequate housing supply. Moreover, categories such as income security (\$180 billion) and health (\$648 billion) are intricately tied to housing availability. An alternative that is, anecdotally, showing positive results in Canada so far is much larger incentives than what is currently discussed in the US.<sup>26</sup>

States, counties, and other regional organizations (e.g., regional transportation boards) should be subject to the same incentives. Many recent advances in relaxing supply restrictions come from state-level interventions (Manji et al. 2023). This type of pressure would also help with Affirmatively Furthering Fair Housing. More affordable housing nationwide would both disproportionately help people with lower incomes (in turn, improving equity and fairness) and give them more housing options.

Although the lack of local political will has contributed to the housing supply shortage, a more aggressive federal housing supply policy, with stronger carrots and sticks, would help.

## Conclusion

Our broader principle is that the crucial determinant of home prices and rents is a combination of demand for housing units (largely driven by demographics, household formation, immigration, and other factors) and housing supply (e.g., zoning, permitting, financing, and construction costs). We have an acute supply crisis that is driving up prices and rents. The most important solution to solving the supply shortage is simply more supply. Other policy choices affect the distribution of housing between owner-occupants and renters, but they fundamentally do not change the demand-supply balance. The rise of the institutional single-family rental operator should have a minimal impact. Lower mortgage costs may entice the marginal renter to become a homeowner but does not change the supply-demand dynamics. Dramatically higher household formation and in-migration does increase prices, as demand increases on a constant supply. Finally, the federal government must specify a housing supply policy that prioritizes the most cost-effective ways of increasing supply. Targeted assistance might help affordability, but it must be coupled with increased supply to be effective.

People see increases in home prices and rents and attribute it to several factors—too much high-end construction, increases in credit availability, institutional investors, or low interest rates disproportionately helping investors, not homeowners. In this report, we have shown that it is important to begin with the basic fact that high home prices and rents are the result of the housing supply shortage, caused by more robust household formation relative to increases in the housing stock.

# Notes

- <sup>1</sup> Throughout the report, we refer to anything as a “house” or a “home”: single-family house, rented multifamily apartment, accessory dwelling unit, manufactured house (where the household owns both the house and land, owns the house and rents the land, or rents both the house and land), and so on, and we emphasize distinctions when needed.
- <sup>2</sup> See Shapley and Shubik (1969) and Becker (1973) on matching in general; Han and Strange (2015) on matching in housing; and Ashlagi, Kanoria, and Leshno (2017) on the effects of even small imbalances between supply and demand in matching markets in general.
- <sup>3</sup> Millions of households lack proper accommodations, and interventions such as housing choice vouchers help people avoid homelessness. See Ratliff (1949, 490).
- <sup>4</sup> Aniket Mehrotra, Jung Hyun Choi, and Janneke Ratcliffe, “First-Generation Homebuyers Face Significant Obstacles to Homeownership. To Help, Programs Can Define What ‘First-Generation’ Means,” *Urban Wire* (blog), Urban Institute, November 17, 2023, <https://www.urban.org/urban-wire/first-generation-homebuyers-face-significant-obstacles-homeownership-help-programs-can>.
- <sup>5</sup> Table 31 in Lloro et al. (2023) shows that only 32 percent of renters are trying to buy a house, while 36 percent say they prefer to rent.
- <sup>6</sup> Table 31 in Lloro et al. (2023) shows that 40 percent of renters state “Can’t qualify for home mortgage” as a reason for renting. Survey respondents could choose multiple options, and thus, it is unlikely that all 40 percent are constrained only by not being able to qualify for a mortgage (or for how many respondents the inability to qualify is only perceived).
- <sup>7</sup> Survey evidence suggests relatively insensitive demand to interest rates. Fuster and Zafar (2014) find that a hypothetical 1 percentage-point interest rate cut increases a household’s willingness to pay for a house by 2.5 percent (extrapolating, the 30 basis-point cut would increase FHA borrowers’ willingness to pay by less than 1 percent, which is close to results obtained even when extrapolating from Davis and coauthors’ work). Analyzing historical time series, Larson (2022, 2) finds larger effects, but households’ willingness to buy is still consistent when applying current interest rates: “At the median supply elasticity and level of constrained borrowers, a change in rates from 3% to 3.25% gives a cumulative –2.51% (partial) house price change over 3 years, versus a 6% to 6.25% change giving a –1.28% change over the same period.” Notably, the Federal Housing Finance Agency waived the GSEs’ loan-level pricing adjustments for many first-time homebuyers, despite this research. Using listings data, Gorea, Kryvtsov, and Kudlyak (2022) find that a 1 percentage-point increase in mortgage rates lowers list prices by approximately 3 percent. See Glaeser, Gottlieb, and Gyourko (2010) for a more theory-based treatment of user costs of ownership, suggesting the impact of interest rates is smaller than suggested by other work. Finally, there is a body of literature using the differences between jumbo and conforming mortgages (roughly 30 basis points in the 1990s and 2000s) and the bunching observed at the jumbo threshold (with many borrowers taking out exactly the highest possible conforming amount) to estimate demand elasticity to interest rates. But newer data show that this bunching persists even in the mid- and late 2010s, when jumbo loans were cheaper (Alexandrov, Conkling, and Koulayev 2022; Fisher et al. 2021), suggesting upward-sloping demand if the method is to be applied as in earlier literature.
- <sup>8</sup> How long is the long run? It could be five or six years, based on data from the financial crisis (Favara and Imbs 2014; Greenwald and Guren 2021). Greenwald and Guren (2021) attempt to empirically disentangle the extent to which rental markets are frictional, based mainly on precrisis data. If many landlords immediately sell off properties to new potential homeowners when credit expands, credit expansions should not affect home prices, as properties simply change ownership but there is no net change in either housing demand or supply. On the other hand, if the rental market has frictions, some landlords do not sell in such periods, and property prices do increase. Greenwald and Guren (2021) find that there were frictions in markets, and prices increased in



response to credit expansion. But even taking their findings for granted, their figures appear to show that price increases might not be statistically significantly different from zero after five years, suggesting that rental markets do have frictions but they adjust eventually. As a methodological aside, Greenwald and Guren (2021) use differential conforming loan limit exposure at the metropolitan statistical area level as their main instrumental variable to derive causal impact of credit expansion (e.g., San Francisco being more exposed to a conforming loan limit increase than El Paso). We acknowledge that this is a popular method in the academic literature and could be the best anyone can do to analyze data from that period, but we have some unease about the instrument's exclusion restriction. An upshot of institutional investors is that they might be able to sell quicker when prices change dramatically, potentially shortening the adjustment period seen during the crisis by making the rental market more connected to the owner-occupied market. Selling single-family properties might also be more frictionless than trying to convert multifamily apartment buildings into condominiums.

- <sup>9</sup> Joshua Zumbrun, "How Severe Is the Housing Shortage? It Depends on How You Define 'Shortage,'" *Wall Street Journal*, April 14, 2023, <https://www.wsj.com/articles/how-severe-is-the-housing-shortage-it-depends-on-how-you-define-shortage-89cdbee7>.
- <sup>10</sup> Figure 1 does not account for the fixed number of starts needed to replace housing going out of stock (via demolition and obsolescence).
- <sup>11</sup> Robert Dietz, "Top Posts: The Size of the Housing Deficit," *Eye on Housing* (blog), National Association of Home Builders, December 29, 2023, <https://eyeonhousing.org/2023/12/top-posts-the-size-of-the-housing-deficit/>.
- <sup>12</sup> Alena Botros, "The Big Squeeze: The Housing Market Is So Unaffordable That Builders Have No Choice but to Build Smaller Homes," *Fortune*, May 17, 2023, <https://fortune.com/2023/05/17/smaller-homes-as-builders-respond-to-unaffordable-housing-market/>.
- <sup>13</sup> See Been, Ellen, and O'Regan (2023) on supply skepticism and studies showing increased supply decreasing prices. See also Nall, Elmendorf, and Oklobdzija (2022); Jerusalem Demsas, "Housing Breaks People's Brains," *Atlantic*, November 23, 2022, <https://www.theatlantic.com/ideas/archive/2022/11/us-housing-supply-shortage-crisis-2022/672240/>; and Eliza Relman, "Rents in Oakland Have Fallen Faster Than Anywhere Else in the US for a Simple Reason: The City Built More Housing," *Business Insider*, October 14, 2023, <https://www.businessinsider.com/apartment-rent-decline-oakland-california-housing-shortage-crisis-solution-2023-10>.
- <sup>14</sup> See Jeffery C. Mays, "The \$238 Million Penthouse Provokes a Fierce Response: Tax It," *New York Times*, February 9, 2019, <https://www.nytimes.com/2019/02/09/nyregion/pied-a-terre-tax-ny.html>, and Gaumer (2022), discussing tens of thousands such units in New York City alone. Houses used for short-term rentals are in an intermediate category that is outside the scope of our report. They provide a valuable service by increasing options for households who cannot commit to a more permanent lease or for visitors (frequently introducing a detached housing option that hotels cannot provide). But these houses cannot be used by households looking for longer-term options, thus decreasing supply in that market.
- <sup>15</sup> Thomas Malone, "Investors Chased Rents in 2022. Is It Coming Back to Bite Them?" *Intelligence* (blog), CoreLogic, April 3, 2023, <https://www.corelogic.com/intelligence/investor-activity-chased-rents-in-2022/>.
- <sup>16</sup> Daniel McCue, "The Surge in Household Growth and What It Suggests about the Future of Housing Demand," *Housing Perspectives* (blog), Joint Center for Housing Studies of Harvard University, January 17, 2023, <https://www.jchs.harvard.edu/blog/surge-household-growth-and-what-it-suggests-about-future-housing-demand>.
- <sup>17</sup> Amalie Zinn and Jung Hyun Choi, "Why Did Black and Latino Homeownership Increase during the Pandemic?" *Urban Wire* (blog), Urban Institute, February 7, 2023, <https://www.urban.org/urban-wire/why-did-black-and-latino-homeownership-increase-during-pandemic>.

- <sup>18</sup> Thomas Malone, “The New Normal? Single-Family Investor Activity Remains Steady in Q3,” *Intelligence* (blog), CoreLogic, December 8, 2022, <https://www.corelogic.com/intelligence/the-new-normal-single-family-investor-activity-remains-steady-in-q3/>, figure 3.
- <sup>19</sup> At least nationally, institutional landlords who own 1,000 units or more appear to own only about 3 percent of single-family rental housing (Fiorilla 2022; Goodman et al. 2023; Kreps and Scheinkman 1983). But they own significantly more homes in certain areas. For example, institutional investors own 27.2 percent of all single-family rentals in Atlanta, 22.4 percent in Jacksonville, and 19.7 percent in Charlotte (Ellen and Goodman 2023). The latest pricing trends might raise a concern even without a significant market concentration if all landlords are using the same pricing software. For more, see Heather Vogell, “Rent Going Up? One Company’s Algorithm Could Be Why,” *ProPublica*, October 15, 2022, <https://www.propublica.org/article/yieldstar-rent-increase-realpage-rent>. The concern is not landlords using more sophisticated software for pricing, as that might produce more market efficiency. The concern is that the same software package might help landlords collude on rents, such as by sharing data or by jointly maximizing profits.
- <sup>20</sup> Chris Arnold, Robert Benincasa, and Mary Childs, “How the Government Helps Investors Buy Mobile Home Parks, Raise Rent and Evict People,” *NPR*, December 18, 2021, <https://www.npr.org/2021/12/18/1034784494/how-the-government-helps-investors-buy-mobile-home-parks-raise-rent-and-evict-pe>; and Shannon Pettypiece, “‘Trapped’: How Federally Backed Financing Is Making Mobile Homes Less Affordable,” *NBC News*, April 16, 2023, <https://www.nbcnews.com/politics/economics/federally-backed-financing-driving-mobile-home-rents-rcna77168>.
- <sup>21</sup> “How Much Does It Cost to Move a Mobile Home?” *HomeAdvisor*, accessed January 3, 2024, <https://www.homeadvisor.com/cost/storage-and-organization/move-mobile-home/>.
- <sup>22</sup> See Kaul, Goodman, and Neal (2021) on this and other potential supply-side interventions. See also AEI (n.d.) and “Walkable Oriented Development,” *American Enterprise Institute*, accessed January 3, 2024, <https://www.aei.org/wod/> on ADUs and walking-oriented development. See also Jenny Schuetz, “How the Federal Government Can Encourage Innovative Housing Policies That Improve Supply and Affordability,” *Brookings Institution*, September 12, 2023, <https://www.brookings.edu/articles/how-the-federal-government-can-encourage-innovative-housing-policies-that-improve-supply-and-affordability/>.
- <sup>23</sup> See Rachel M. Cohen, “The Big, Neglected Problem That Should Be Biden’s Top Priority,” *Vox*, March 1, 2023, <https://www.vox.com/policy/23595421/biden-affordable-housing-shortage-supply>, which makes many similar points.
- <sup>24</sup> White House, “Fact Sheet: President Biden’s Budget Lowers Housing Costs and Expands Access to Affordable Rent and Home Ownership,” press release, March 9, 2023, <https://www.whitehouse.gov/omb/briefing-room/2023/03/09/fact-sheet-president-bidens-budget-lowers-housing-costs-and-expands-access-to-affordable-rent-and-home-ownership/>; and US Department of Housing and Urban Development, “HUD Releases Fiscal Year 2024 Budget in Brief,” press release, March 13, 2023, [https://www.hud.gov/press/press\\_releases\\_media\\_advisories/hud\\_no\\_23\\_051](https://www.hud.gov/press/press_releases_media_advisories/hud_no_23_051).
- <sup>25</sup> Implementation of such a proposal deserves a detailed discussion. See Julia Gill, Semida Munteanu, Jenny Schuetz, and Sydney Zelinka, “Passing Pro-housing Legislation Is Only the First Step in Making Housing More Affordable,” *Brookings Institution*, September 28, 2023, <https://www.brookings.edu/articles/passing-pro-housing-legislation-is-only-the-first-step-in-making-housing-more-affordable/>. See also Greene and Ellen (2020).
- <sup>26</sup> See “Lured by Federal Dollars, Canadian Cities Rethink Zoning,” *New York Times*, October, 28, 2023, <https://www.nytimes.com/2023/10/28/world/canada/affordable-housing-zoning-fourplex.html>. Although the Canadian program is positioned as a federal fund for municipalities to apply for (getting federal money in return for faster processing of fourplexes), the amount of money at stake is an order of magnitude higher than grants in

the US and is more comparable with what we describe as a potential all-government offer. For example, the *New York Times* article notes Mississauga (a suburb of Toronto) had \$120 million at stake (close to \$200 per resident, which would translate to about \$60 billion for the US population). The grant application also includes a “cheat sheet” developed by the Canada Mortgage and Housing Corporation (Canada’s rough equivalent of the combined GSEs and FHA), describing best-in-class initiatives that municipalities should undertake. See “Resources for Housing Accelerator Fund Applicants,” Canada Mortgage and Housing Corporation, October 23, 2023, <https://www.cmhc-schl.gc.ca/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/housing-accelerator-fund/resources-housing-accelerator-fund-applicants>; and Paul Vieira, “Canada Offers Cities Money to Spur Home Building,” *Wall Street Journal*, January 7, 2024, <https://www.wsj.com/world/americas/canada-offers-cities-money-to-spur-home-building-eb4a508d>.

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