



# HOUSING SUPPLY CHARTBOOK

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# Introduction

The housing shortage is a major challenge plaguing the nation. Estimates indicate a supply deficit of 3.8 million homes as of the fourth quarter of 2020.<sup>1</sup> Other estimates suggest the housing shortage to be 5.5 million to 6.8 million homes since 2001.<sup>2</sup> Estimates of the shortage indicate that the problem has become severe. This chartbook provides additional contours to the dearth of supply by illustrating where the lack of housing is more severe and the key barriers limiting production.

A common theme in this chartbook is the lack of affordable housing production. In the single-family construction space (slide 29), attached homes (e.g., townhomes), which are generally more affordable than detached single-family homes, remain a small share of single-family construction. When measured by square footage, completions of small single-family homes, those under 1,800 square feet, remain below the production levels that prevailed in the early 2000s. And site-built construction remains the dominant method of single-family production, as modular, panelized, or precut single-family completions accounted for only 3 percent of single-family completions in 2020.

<sup>1</sup> Sam Khater, Len Kiefer, and Venkataramana Yanamandra, “[Housing Supply: A Growing Deficit](#)” (McLean, VA: Freddie Mac, 2021).

<sup>2</sup> National Association of Realtors, “Once-in-a-Generation Response Needed to Address Housing Supply Crisis,” news release, June 16, 2021, <https://www.nar.realtor/newsroom/once-in-a-generation-response-needed-to-address-housing-supply-crisis>.

The lack of affordable housing is also prevalent on the multifamily side (slide 31). The recovery in multifamily production since the Great Recession reflects large increases in rental units. The construction of for-sale multifamily housing, typically more affordable than single-family housing, remains depressed. And the increase in multifamily units, driven by rentals, has largely occurred in large buildings, those with 10 or more units, rather than in small buildings, those with 2 to 4 or 5 to 9 units, which are typically more affordable.

In addition, the number of manufactured housing shipments (slide 35), often considered an affordable option, continues to lag. The pace of shipments remains below levels that prevailed in the years leading up to the Great Recession.

The federal government recently announced intentions to increase the affordable housing supply.<sup>3</sup> And the Build Back Better Act includes provisions for affordable housing. This chartbook makes clear that the problem is multidimensional. The availability and productivity of labor, building codes (which reduce the economic incentive to produce cost-saving factory-built single-family housing), the availability and cost of land, restrictions created through zoning policy, and the costs of materials such as lumber have all contributed to the supply shortage and helped make new homes more expensive. The federal government has an important role to play, particularly in immigration, international trade, small business, tax, and education policies, but building codes, zoning, and other land-related policies, such as impact fees, are the result of local decisions.

<sup>3</sup>The White House, “Fact Sheet: Biden-Harris Administration Announces Immediate Steps to Increase Affordable Housing Supply,” press release, September 1, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/01/fact-sheet-biden-harris-administration-announces-immediate-steps-to-increase-affordable-housing-supply/>.

Solving the supply shortage is important because housing provides security and an important wealth-building vehicle for homeowners. But this chartbook also illustrates housing's importance for the broader economy (slide 60 and 62). Housing typically accounts for one-sixth of the nation's gross domestic product (GDP) and is responsible for job creation, both directly and indirectly through ancillary economic activity, created for the new workers and new residents.<sup>4</sup> And historically, residential fixed investment leads the country out of economic downturns as lower interest rates reduce unemployment and encourage housing market activity. Knowing the benefits that housing provides, we hope the information in this chartbook will show the need for action and sharpen the policy tools used to address the problem.

<sup>4</sup> "What Building 1,000 Homes Means to the U.S. Economy," National Association of Home Builders, April 2, 2020, <https://www.nahb.org/news-and-economics/industry-news/press-releases/2020/04/What-Building-1000-Homes-Means-to-the-US-Economy>.

# Housing Stock and Inventory

# Housing Stock, by Occupancy and Tenure

	2007			2009			2019		
	Owned units	Rented units	Vacant units	Owned units	Rented units	Vacant units	Owned units	Rented units	Vacant units
<b>Single-family</b>	<b>66,032,715</b>	<b>11,668,135</b>	<b>8,533,364</b>	<b>65,584,718</b>	<b>12,918,483</b>	<b>8,998,809</b>	<b>69,562,011</b>	<b>14,489,715</b>	<b>9,726,512</b>
Detached units	61,605,279	9,560,184	7,779,276	61,188,542	10,617,607	8,199,241	64,905,662	11,750,841	8,985,332
Attached units	4,427,436	2,107,951	754,088	4,396,176	2,300,876	799,568	4,656,349	2,738,874	741,180
<b>Multifamily</b>	<b>4,258,803</b>	<b>23,392,103</b>	<b>5,286,202</b>	<b>4,163,433</b>	<b>24,020,683</b>	<b>5,668,171</b>	<b>4,306,267</b>	<b>27,646,377</b>	<b>5,346,729</b>
2 to 4 units	1,770,329	7,275,600	1,767,202	1,681,781	7,374,780	1,831,375	1,647,603	7,625,839	1,619,792
5 to 9 units	607,522	4,615,873	992,204	597,150	4,661,338	1,054,109	609,478	5,067,913	910,175
10 to 19 units	487,209	4,290,786	1,015,367	470,329	4,397,218	1,084,348	481,883	4,859,233	881,300
20 to 49 units	507,643	3,124,939	713,956	501,922	3,237,116	782,015	566,509	3,921,550	763,763
50 or more units	886,100	4,084,905	797,473	912,251	4,350,231	916,324	1,000,794	6,171,842	1,171,699
<b>Manufactured</b>	<b>5,155,077</b>	<b>1,770,619</b>	<b>1,697,887</b>	<b>5,023,996</b>	<b>1,797,961</b>	<b>1,666,751</b>	<b>4,770,928</b>	<b>1,887,230</b>	<b>1,810,116</b>
<b>Total</b>	<b>75,446,595</b>	<b>36,830,857</b>	<b>15,517,453</b>	<b>74,772,147</b>	<b>38,737,127</b>	<b>16,333,731</b>	<b>78,639,206</b>	<b>44,023,322</b>	<b>16,883,357</b>

Source: US Census Bureau.

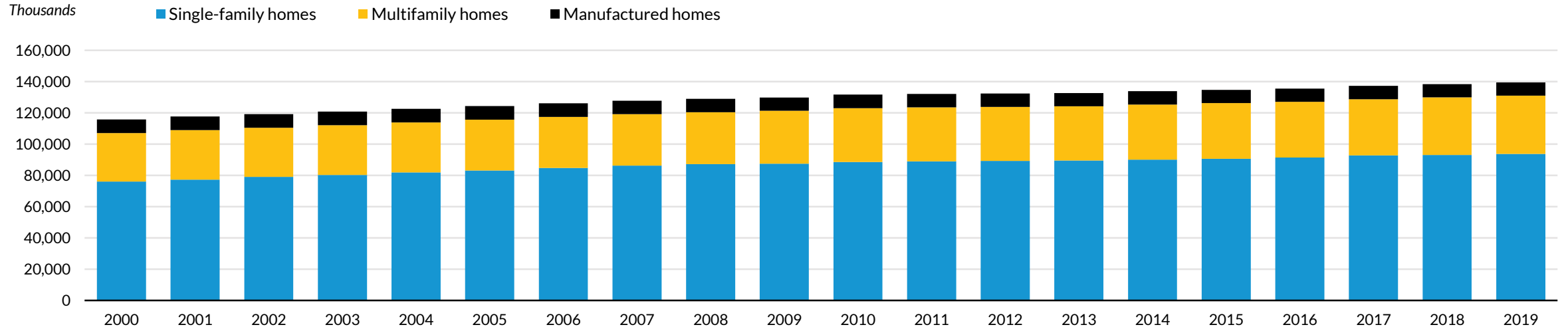
Note: Does not include recreational vehicles or boats.



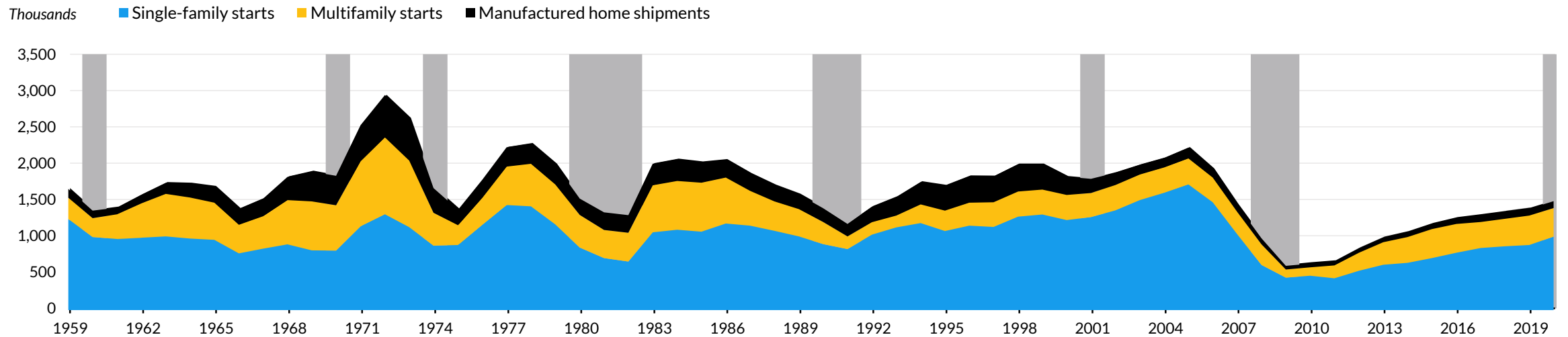
# Residential Housing Units

The stock of residential homes has steadily expanded over the past two decades, increasing from 115.8 million homes in 2000 to 139.5 million homes by 2019. This translates into a 2 percent average annual growth rate. The long-term increase in the residential housing stock reflected growth in single-family and multifamily homes, which together accounted for 94 percent of the residential housing stock in 2019. Meanwhile, the stock of mobile homes decreased 0.3 percent per year on average, falling from 8.7 million homes in 2000 to 8.5 million by 2020. But since 2009, average annual growth of multifamily units (1.0 percent) has exceeded that of single-family units (0.7 percent), and the mobile home stock remained steady. In contrast to the slow and steady increase of the residential housing stock, the flow of new construction is highly cyclical, fluctuating around macroeconomic recessions. In fact, residential construction overall leads broader business cycles, often falling heading into a recession and increasing as the country emerges from one.

## Housing Stock



## Housing Production



Source: US Census Bureau and National Bureau of Economic Research.

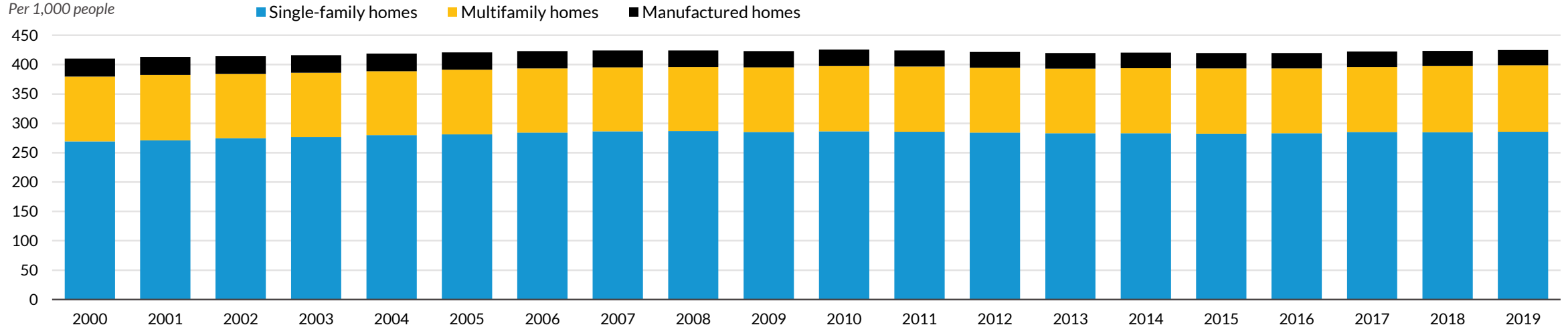
Note: Gray shading indicates a recession.

# Population-Adjusted Residential Housing Units

Growth in the residential housing stock largely reflects changes in the broader population. After adjusting for population, the housing stock remains constant over time. In 2000, there were 422 homes for every 1,000 people, and by 2019, there were 425 homes for every 1,000 people. The population-adjusted stock of single-family homes (277 homes per 1,000 people in 2000 versus 286 homes per 1,000 people in 2019), multifamily homes (114 versus 114), and mobile homes (32 versus 26) were all little changed over the past 20 years. But even after controlling residential construction for population, the dramatic cyclical nature remains, suggesting that over the long term, residential construction is more sensitive to short-term macroeconomic dynamics than to long-term demographic changes.

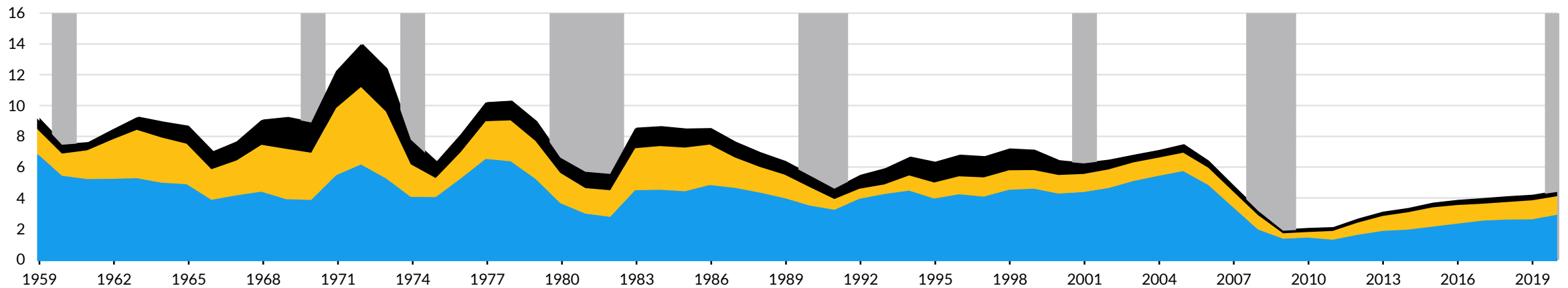
## Population-Adjusted Housing Stock

Per 1,000 people



## Population-Adjusted Housing Production

Legend: Single-family starts (blue), Multifamily starts (yellow), Manufactured home shipments (black)



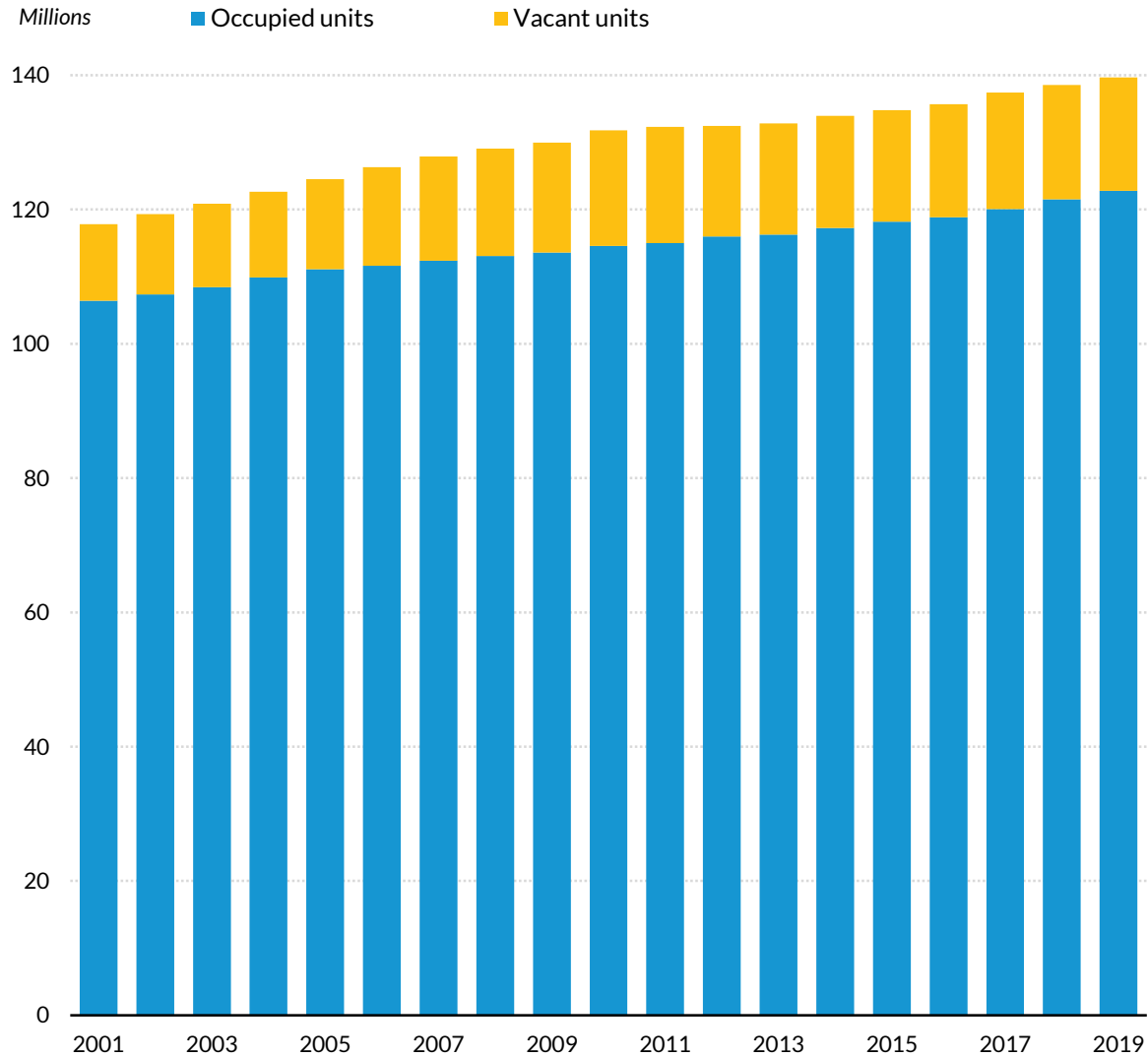
Source: US Census Bureau and National Bureau of Economic Research.

Note: Gray shading indicates a recession.

# Occupancy Status of Housing Stock

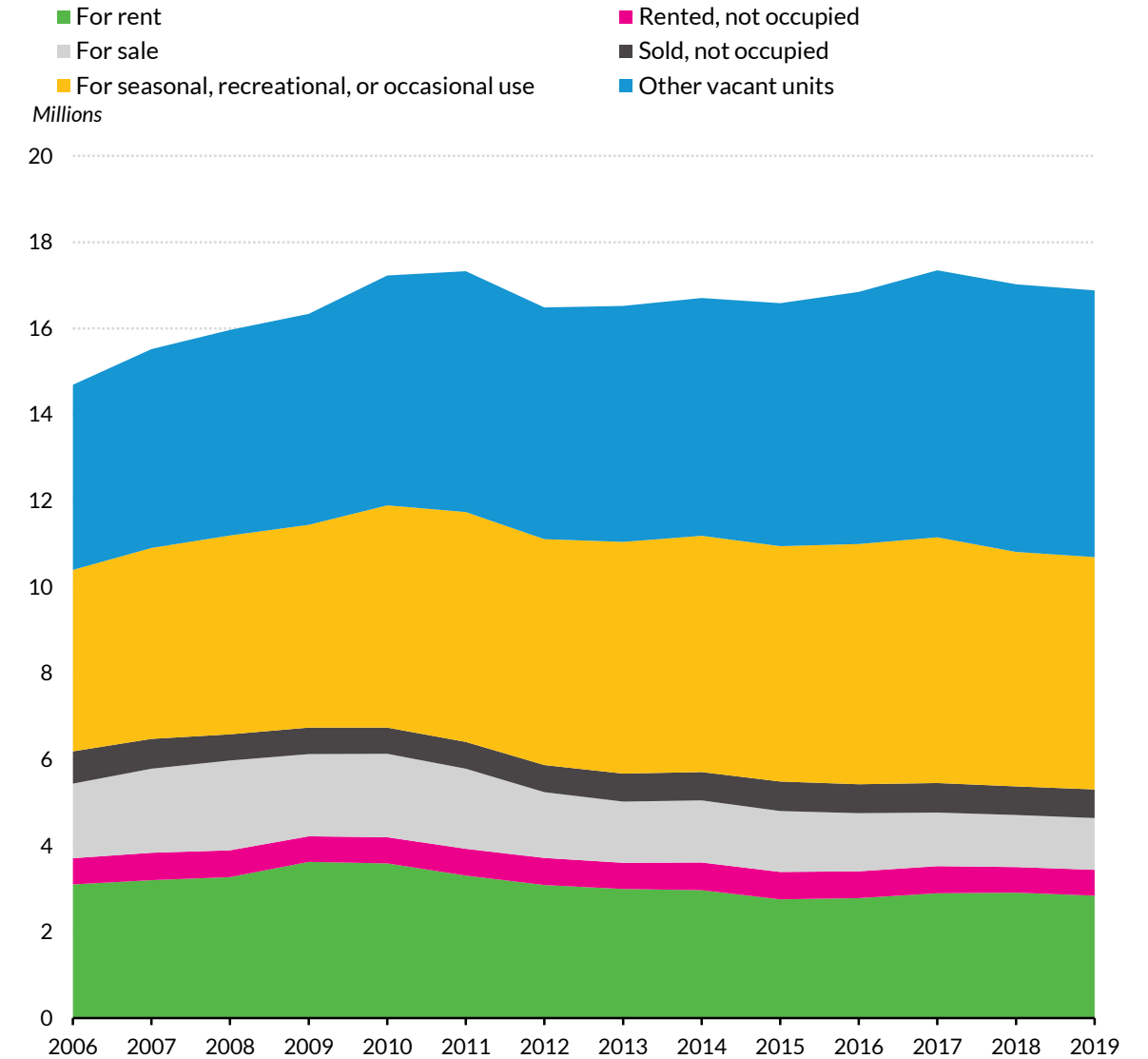
The increase in the residential housing stock reflects growth in both occupied and vacant units. But the increase in occupied homes was more moderate. Since 2001, the stock of occupied homes increased 0.8 percent per year on average, from 106.4 million homes in 2001 to 122.8 million in 2019. The stock of vacant homes rose from 11.4 million homes to 16.9 million homes (or 2.5 percent per year on average). Vacant homes are largely concentrated in seasonal, recreational, and occasional use and other vacant homes.

## All Housing Units, by Occupancy Status



Source: Census Bureau.

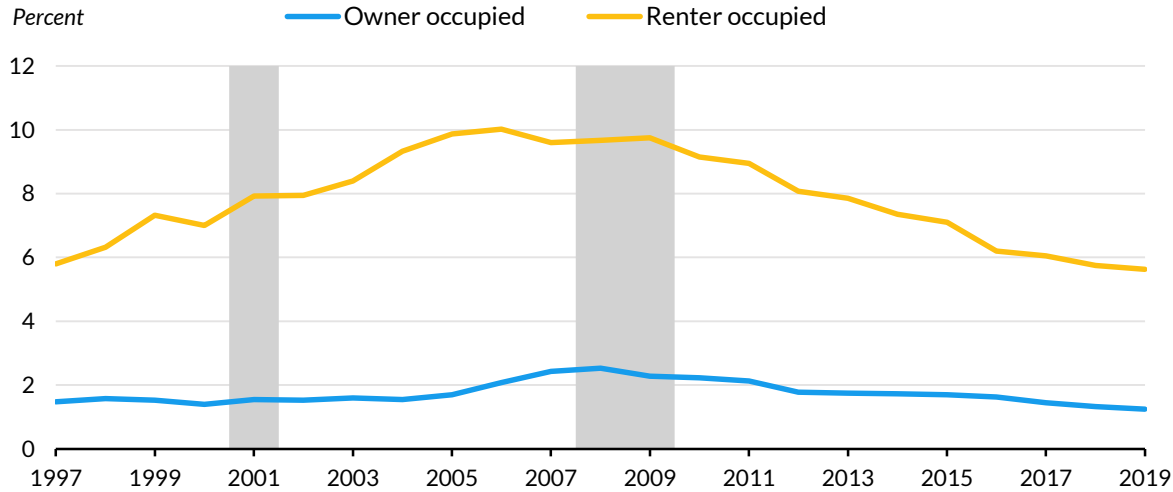
## All Vacant Units, by Vacancy Type



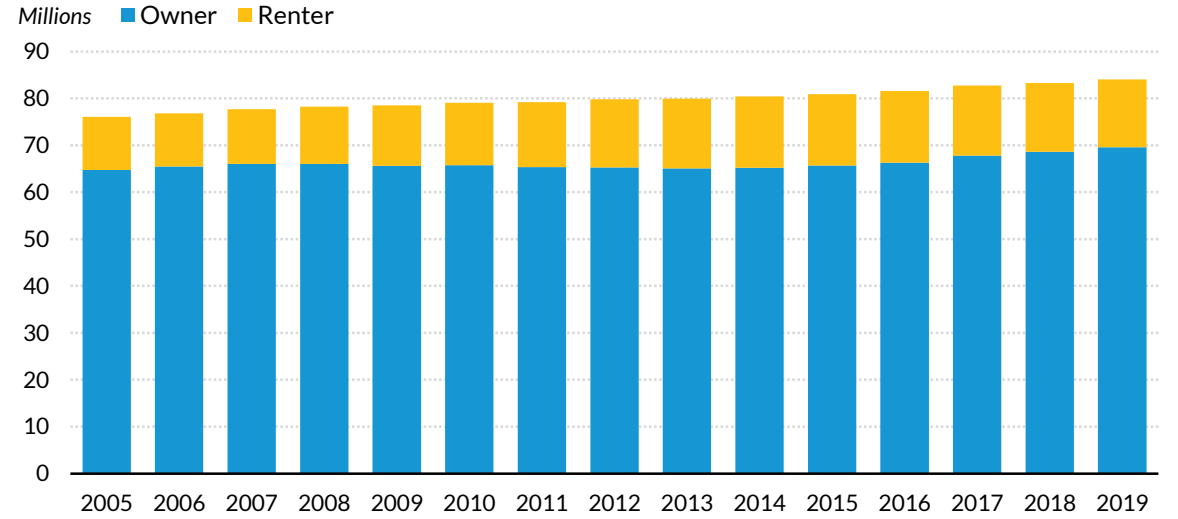
# Single-Family Housing Stock

After peaking around the Great Recession, single-family vacancy rates have fallen to historic lows. But vacancy rates of single-family rental properties (5.6 percent) are nearly four times as large as those of single-family owner-occupied housing (1.3 percent). Although owner-occupied housing represents the majority of the single-family occupied housing stock, its share declined between 2005 and 2019. The single-family owner-occupied housing stock has increased 0.5 percent per year on average, nearly one-fourth the annual average growth rate of single-family rental stock (1.9 percent). Most occupied single-family housing occupied by owners and is detached, as opposed to attached (e.g., townhomes). But most of the single-family stock is more than 40 years old, as more than half of it was built before 1980.

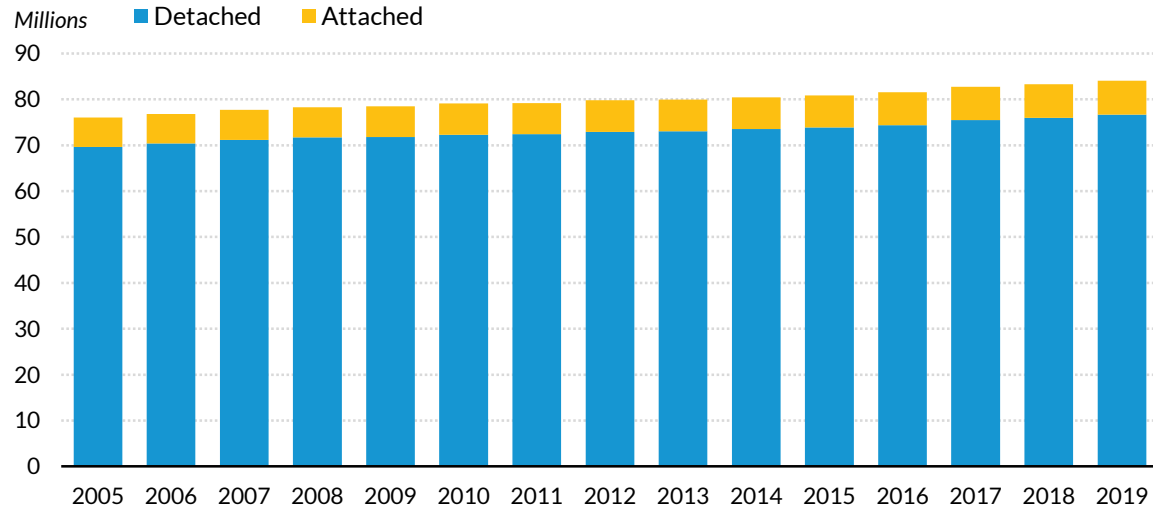
## Single-Family Vacancy Rates



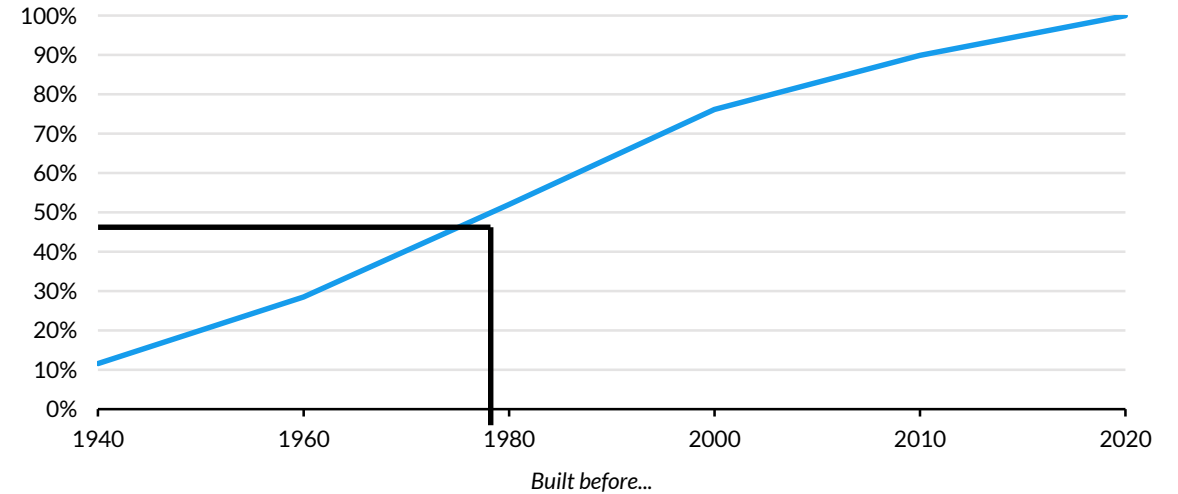
## Occupied Single-Family Units, by Tenure



## Detached versus Attached Occupied Single-Family Units



## Single-Family Housing Stock



Source: US Department of Housing and Urban Development, Census Bureau and National Bureau of Economic Research.

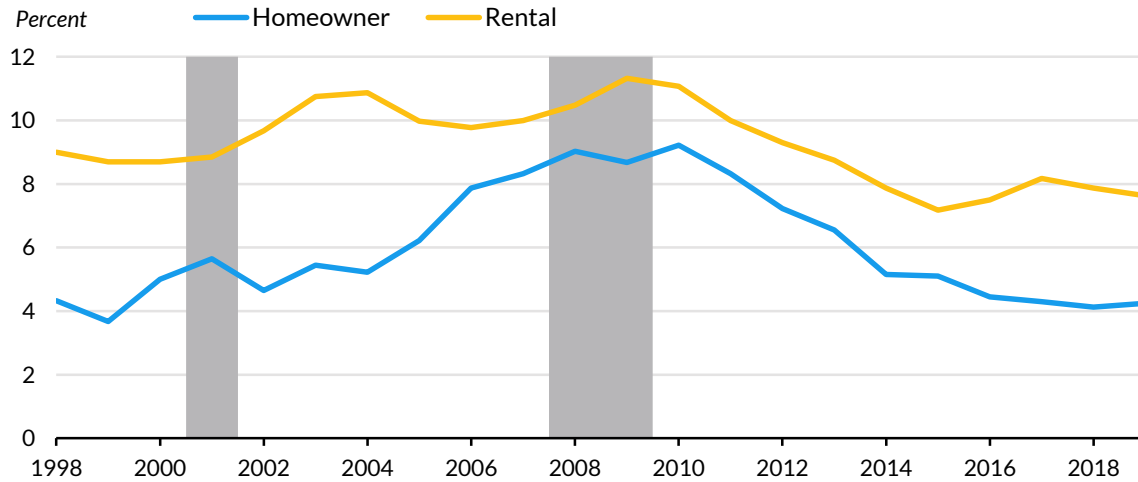
Note: Gray shading indicates a recession.



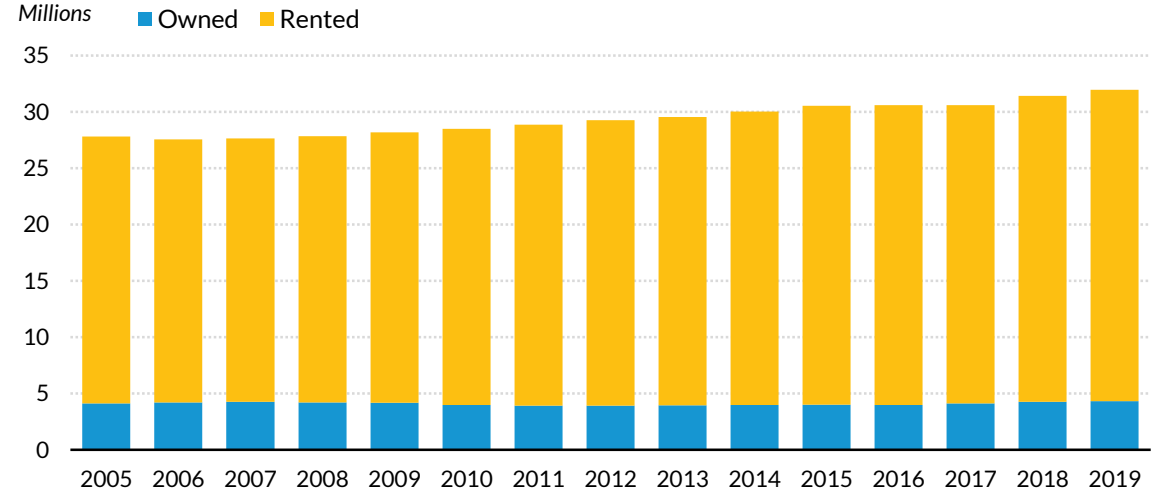
# Multifamily Housing Stock

Like single-family vacancy rates, both owner- and renter-occupied vacancy rates across multifamily units also broadly declined to historic lows after the Great Recession. But multifamily vacancy rates exceed single-family vacancy rates. The increase in the number of vacant units overall likely reflects the greater share of multifamily construction since the Great Recession. Unlike the single-family housing stock, most multifamily units are renter-occupied units, and the renter-occupied share modestly increased from 85 percent in 2005 to 87 percent in 2019. But the multifamily housing stock varies by the size of the building. Most multifamily units built before the 1950s are in 2-to-4-unit buildings, most units built between 1970 and 1990 are in buildings with 5 to 19 units, and most units built since 1990 are in buildings with 20 or more units. And the concentration of multifamily units in buildings with 20 or more units accounts for the same share of both owner- and renter-occupied housing stock, but units in buildings with 5 to 19 units account for a larger share of the renter-occupied multifamily stock while units buildings with only 2 to 4 units account for a larger share of owner-occupied multifamily units.

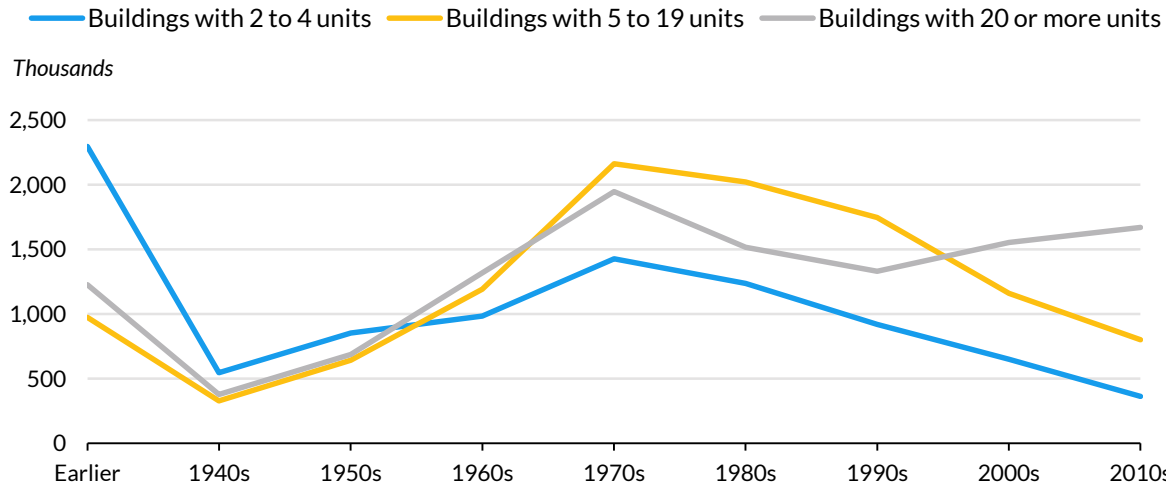
## Multifamily Vacancy Rates



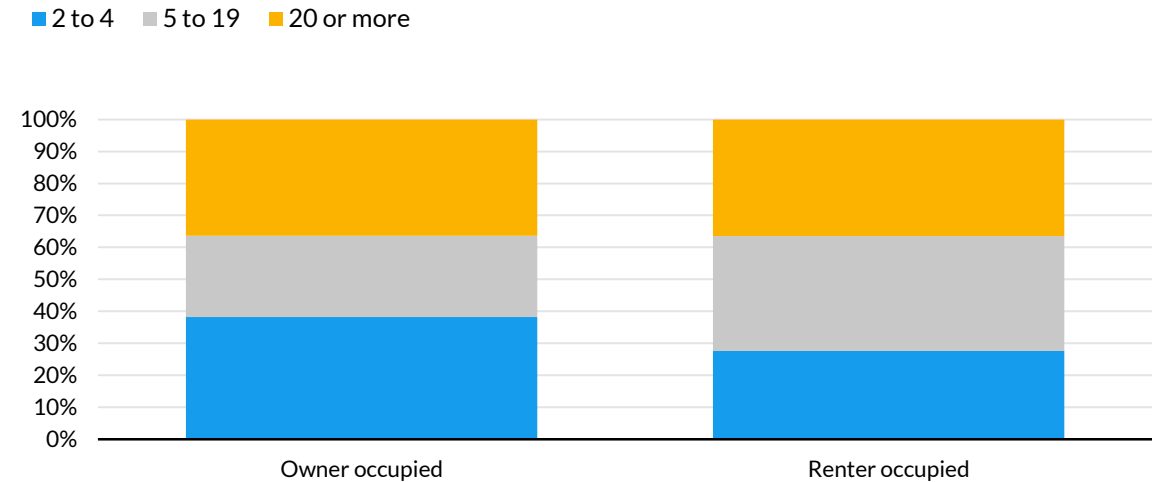
## Occupied Multifamily Units, by Tenure



## Occupied Units, by Decade Built and Number of Units



## Tenure, by Units in Structure



Source: U.S. Department of Housing and Urban Development, Census Bureau and National Bureau of Economic Research.

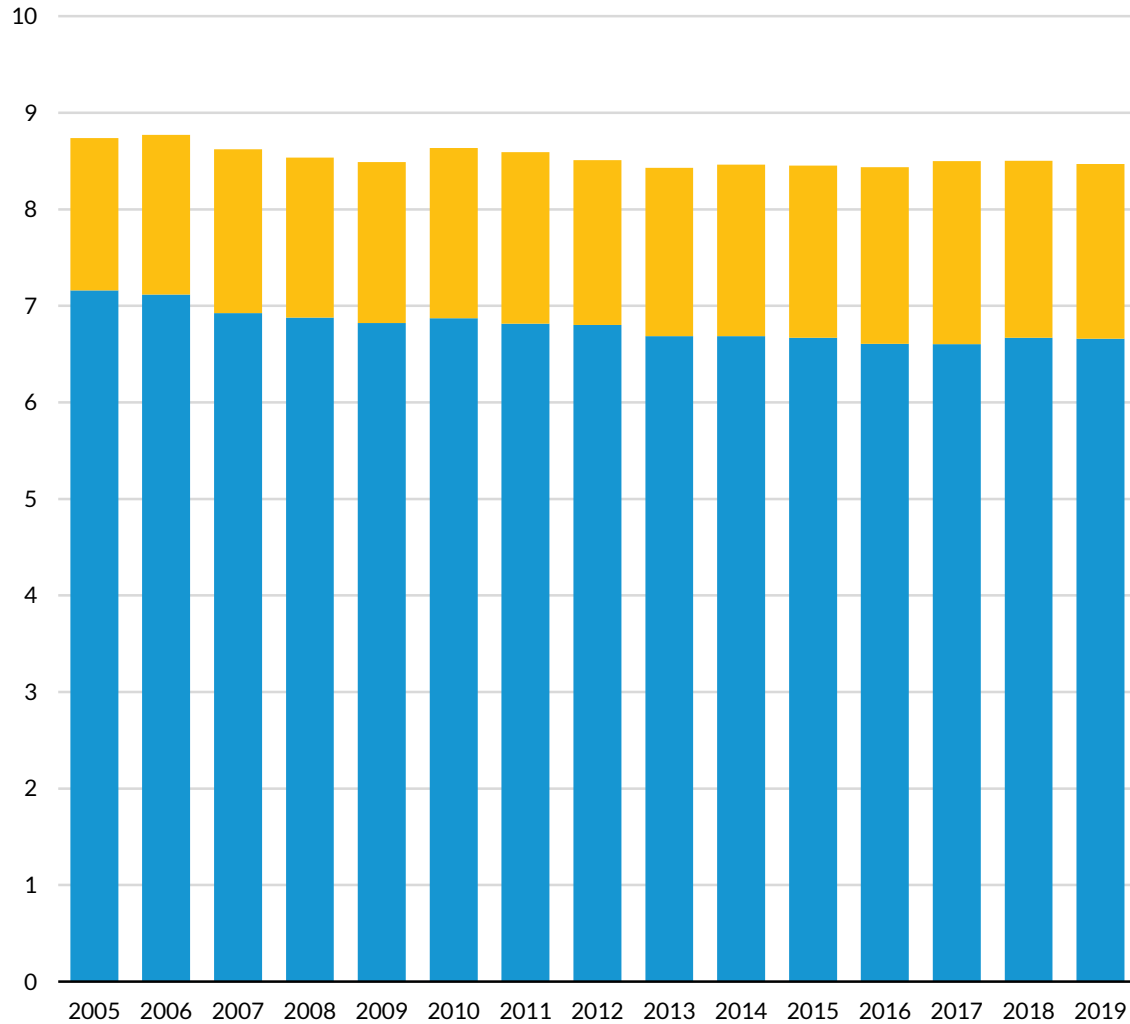
Note: Gray shading indicates a recession.

# Mobile Homes

The number of mobile homes held largely steady between 2005 and 2019. But this masks a slight shift in the composition by occupancy status. The number of vacant mobile homes increased from 1.6 million in 2005 to 1.8 million by 2019. But the number of occupied manufactured homes declined from 7.2 million to 6.7 million. The decline in the manufactured home stock reflects fewer owner-occupied mobile homes and more renter-occupied mobile homes since 2005.

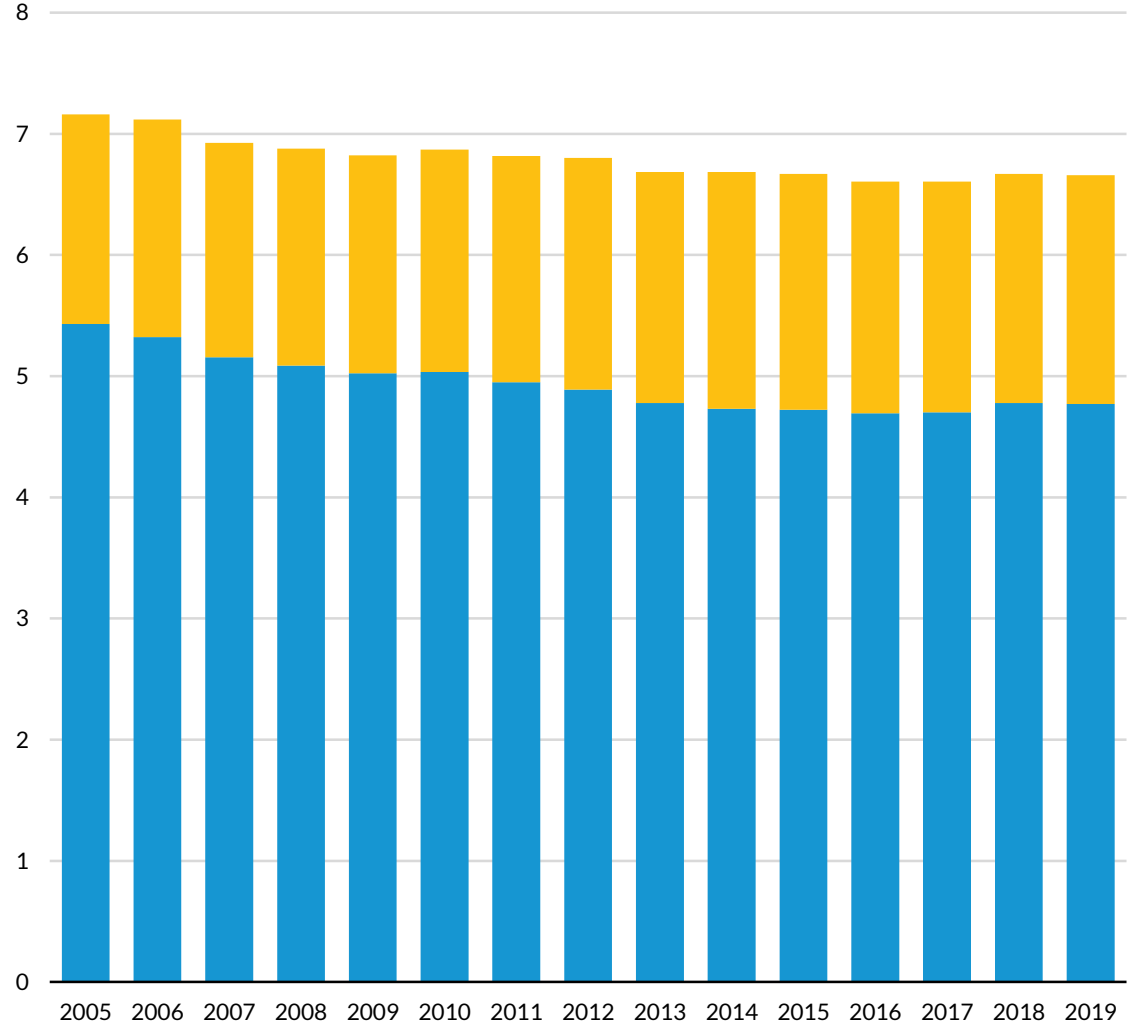
## Number of Mobile Homes

Millions Occupied Vacant



## Number of Occupied Mobile Homes, by Tenure

Millions Owner occupied Renter occupied



Source: Census Bureau.

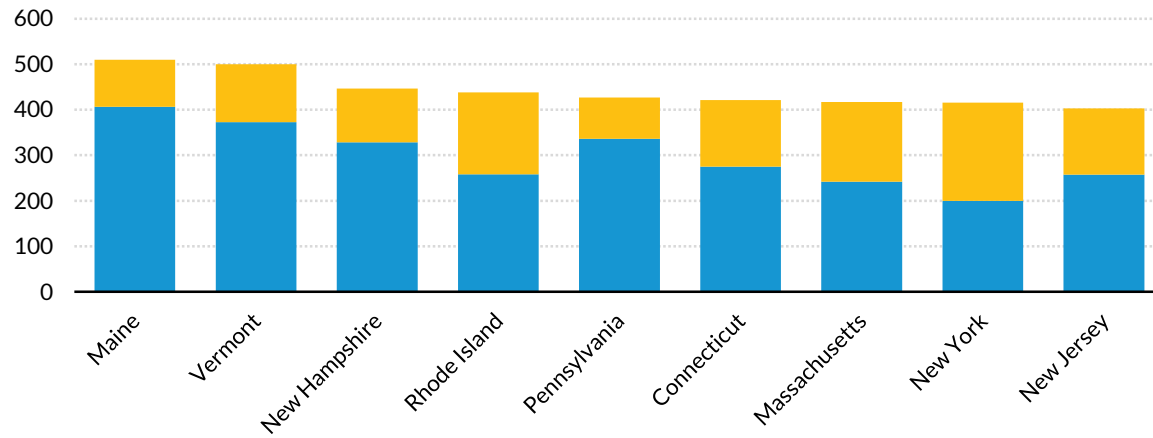
# Housing Stock, by Region, 2019

Scaling the housing stock by population is one way to compare across different regions. Nationwide, there are 400 single-family and multifamily homes per 1,000 people. All states in the Northeast and Midwest eclipsed this level. States with fewer than a population-adjusted 400 single- and multifamily homes per 1,000 people were in the South and the West. But states in the Northeast and the West were less likely to have a population-adjusted multifamily housing stock that exceeded the national average of 286 homes per 1,000 people. States in the Northeast, though, were more likely to have a population-adjusted multifamily housing stock that exceeded the national average of 114 homes per 1,000 people. And of note, Washington, DC, was the only area where the number of multifamily units exceeded the single-family housing stock.

## Northeast

Per 1,000 people

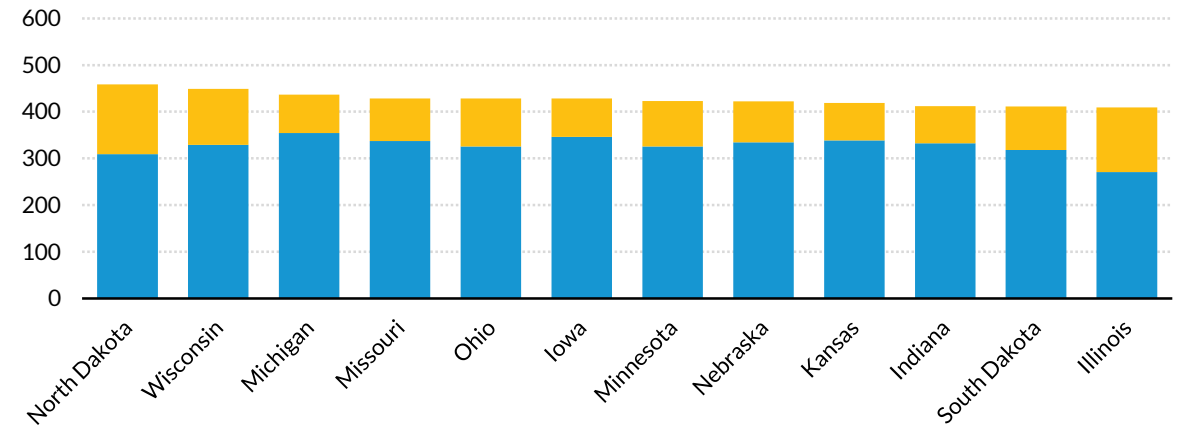
■ Single-family ■ Multifamily



## Midwest

Per 1,000 people

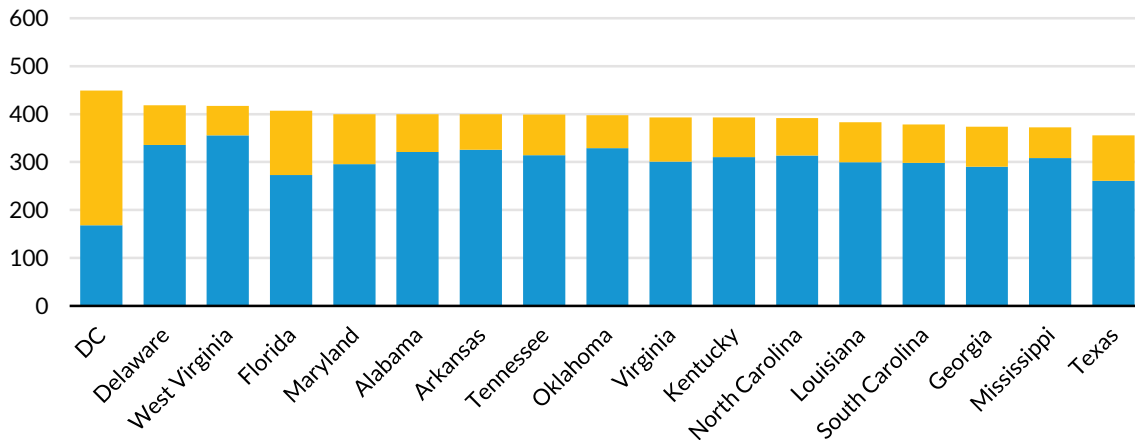
■ Single-family ■ Multifamily



## South

Per 1,000 people

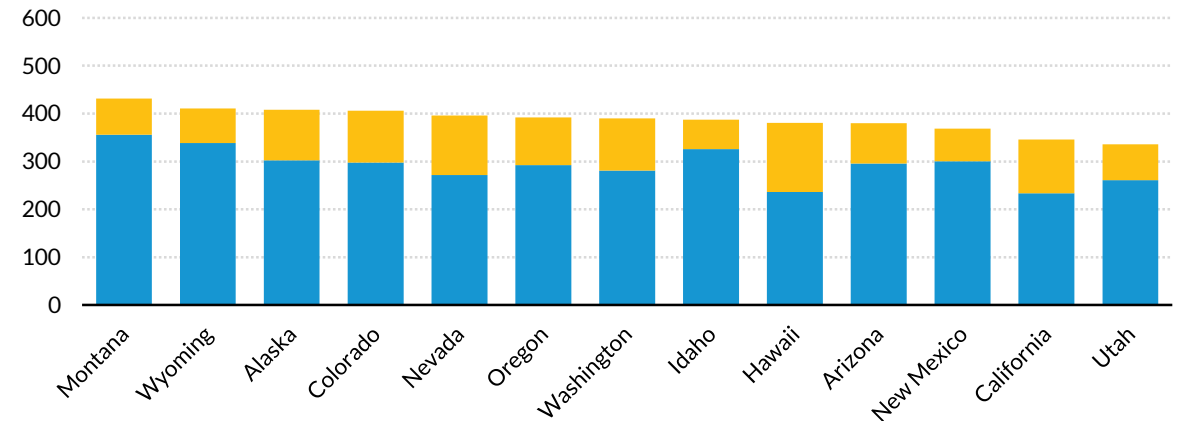
■ Single-family ■ Multifamily



## West

Per 1,000 people

■ Single-family ■ Multifamily



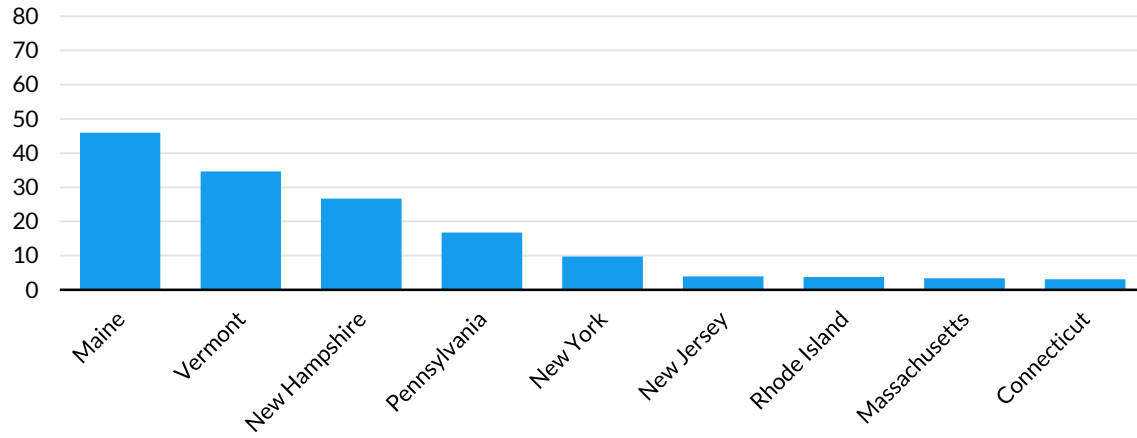
Sources: Census Bureau and US Department of Housing and Urban Development.

# Mobile Homes, by Region, 2019

Nationwide, there were 22 mobile homes for every 1,000 people. There was wide variation among the states and DC. States in the South and the West were more likely to exceed this threshold, while states in the Northeast and the Midwest were less likely to exceed the threshold.

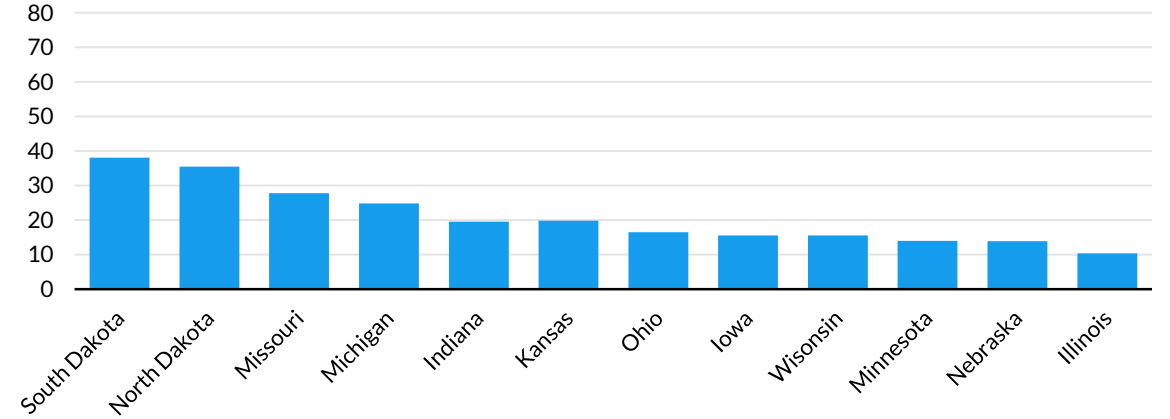
## Northeast

Per 1,000 people



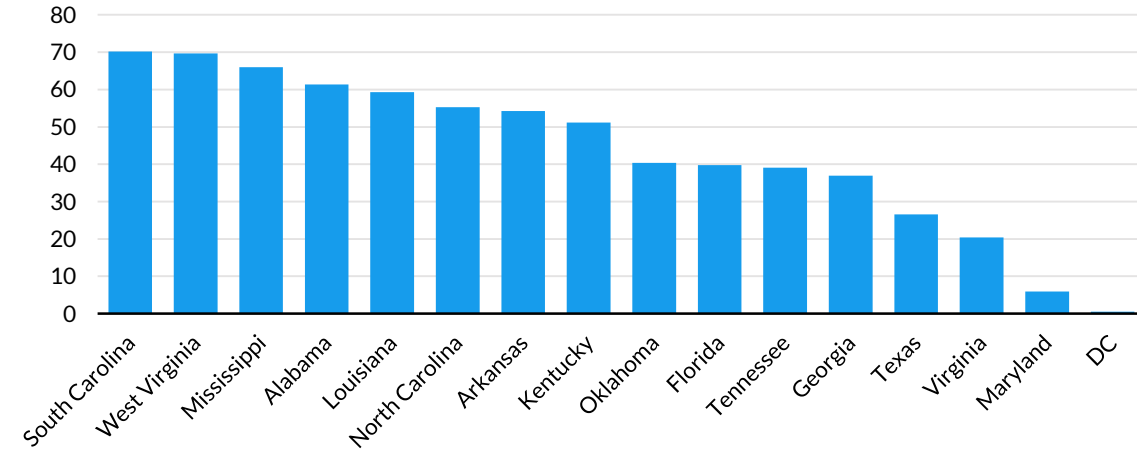
## Midwest

Per 1,000 people



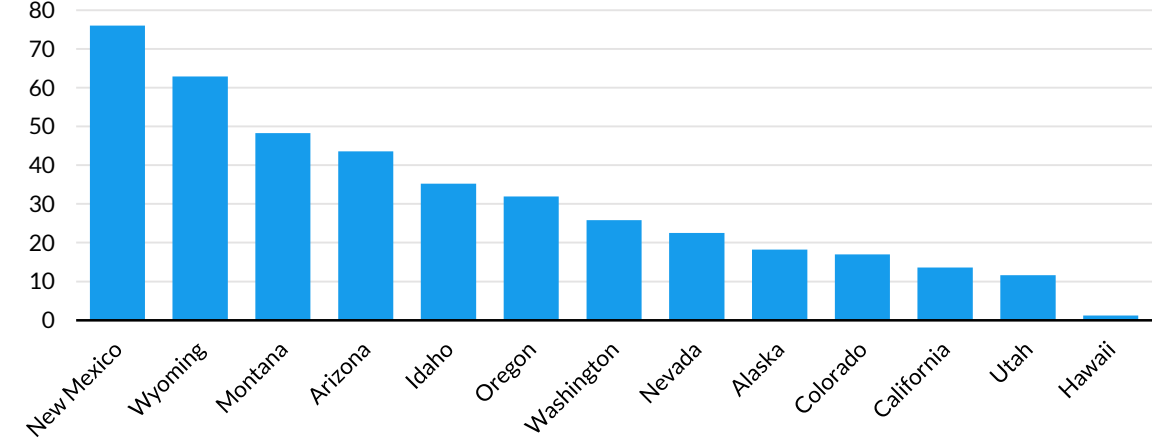
## South

Per 1,000 people



## West

Per 1,000 people



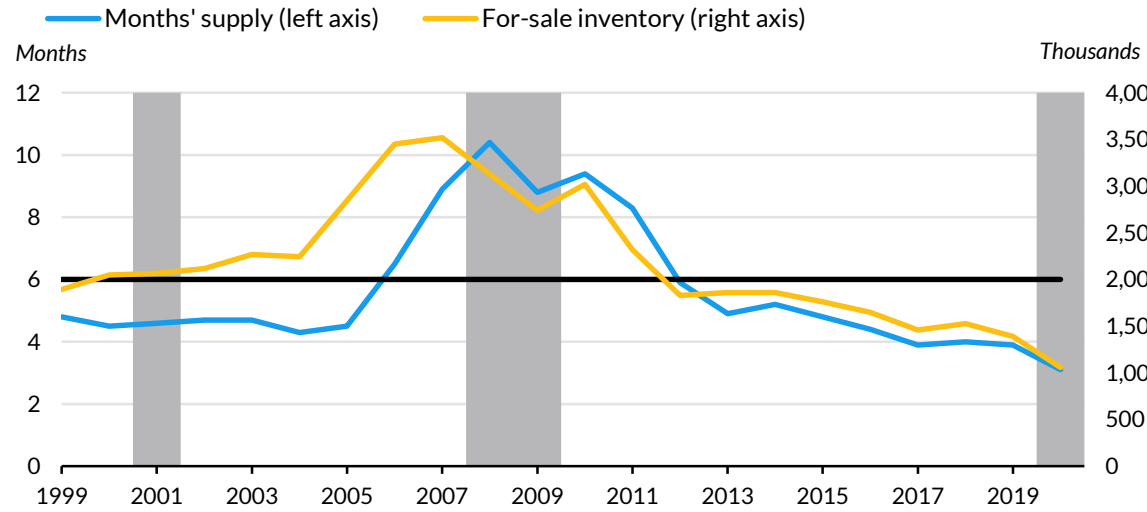
Sources: Census Bureau and US Department of Housing and Urban Development.



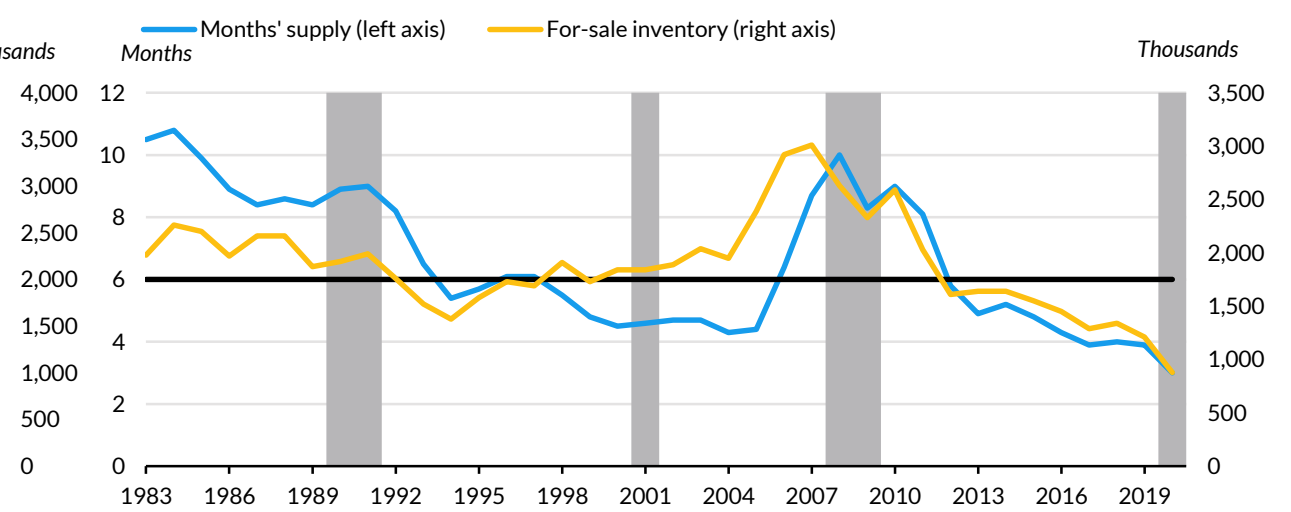
# Single- and Multifamily For-Sale Inventory

Months' supply, which scales the pace of sales with the inventory of homes for sale, suggests a shortage of for-sale housing. The months' supply of existing and new homes continues to trend below six months, the level typically associated with a balanced market. The months' supply of existing single-family homes declined in 2020, while months' supply of existing condos and co-ops, which is also low, held steady annually through 2020. Meanwhile, the months' supply of new homes has dipped below six months in recent years, despite home sales holding broadly stable. Unlike across existing homes, the pace of new home sales is playing a larger role in reducing months' supply of new homes.

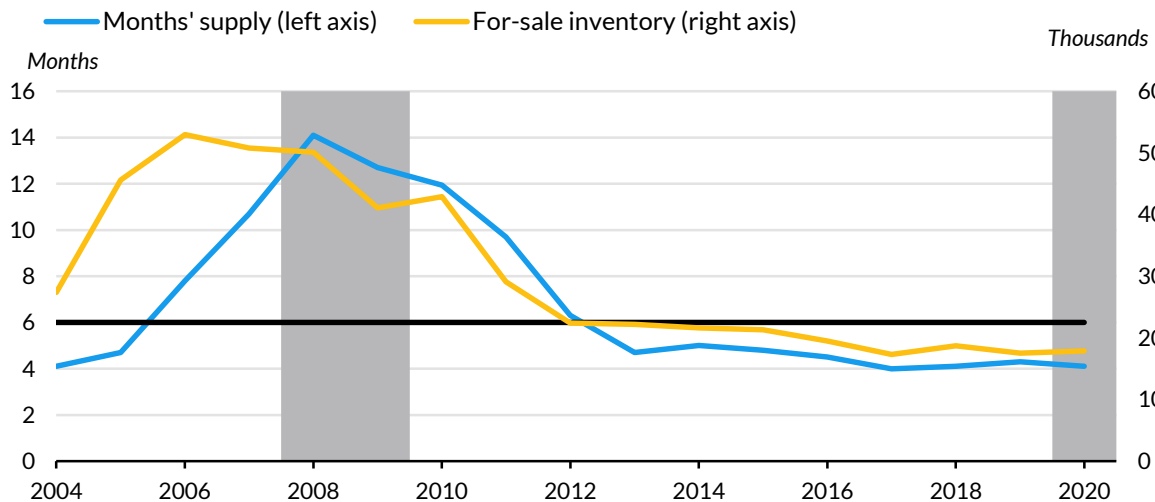
## Existing Homes



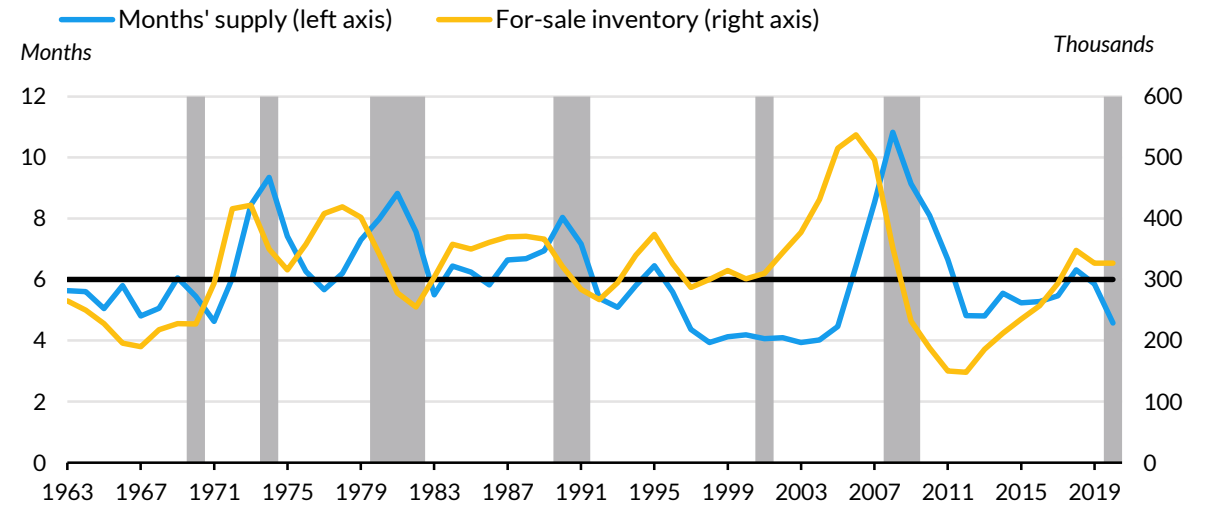
## Existing Single-Family Homes



## Existing Condos and Co-ops



## New Homes (Single-Family Only)



Sources: National Association of Realtors, the US Census Bureau, the US Department of Housing and Urban Development and the National Bureau of Economic Research.

Note: Gray shading indicates a recession.

# Housing Production

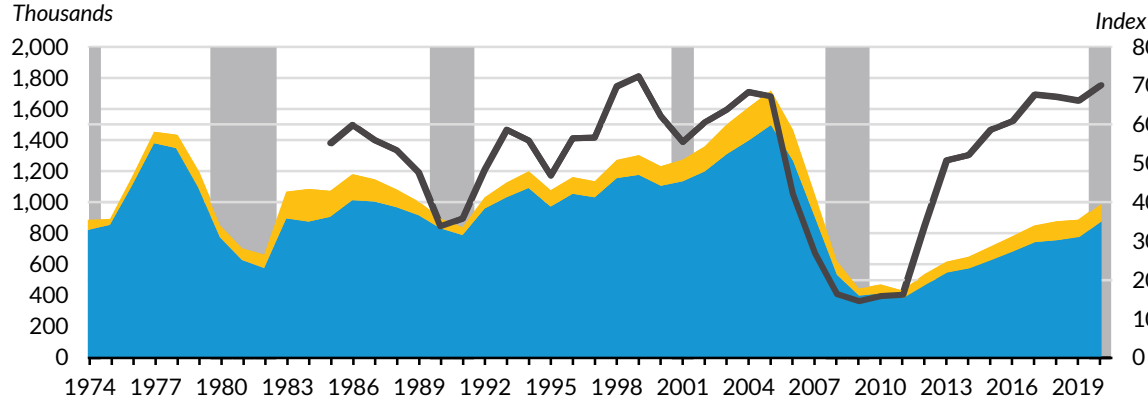
# Single-Family Production

Consistent with builder sentiment as measured by the National Association of Home Builders' Housing Market Index, single-family starts have risen in the Great Recession's aftermath. But while the HMI has returned to housing boom levels, the pace of construction continues to lag pre-Great Recession production. Although the detached single-family share fell slightly after 2011, implying that growth in detached single-family homes lagged that of attached single-family homes from 2011 to 2019, it still accounted for 88 percent of all single-family starts in 2020. And despite the Great Recession's impact on the single-family rental stock, the share of single-family homes started for rent declined from 35 percent in 2010 to 23 percent in 2020, suggesting that growth in the single-family rental stock reflected changes in existing homes as opposed to significant growth in new construction. After declining between 2009 and 2016, the average square footage of a home declined between 2016 and 2020, reflecting stronger growth in the construction of starter homes, those below 1,800 square feet. But the gains to market affordability by smaller homes were more than offset by faster growth in the price per square foot. Despite stronger growth in the price per square foot of a new single-family home sold, which may partly reflect more expensive construction input costs, the share of modular, panelized, and precut single-family homes remains less than 5 percent of the single-family construction market.

## Single-Family Starts, by Design

■ Detached ■ Attached — NAHB Housing Market Index

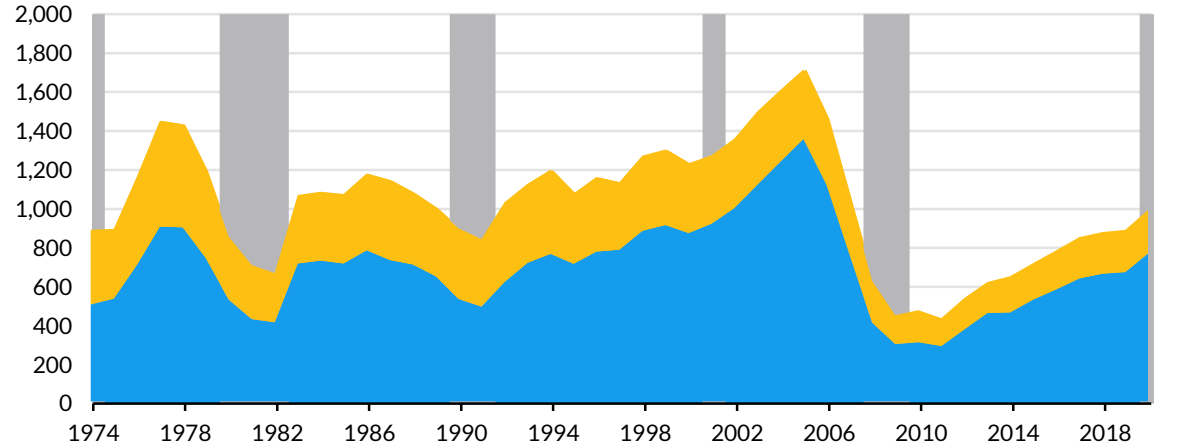
	2005	2011	2020
Detached	87%	89%	88%
Attached	13%	11%	12%



## Single-Family Starts, by Purpose of Construction

Thousands ■ For sale ■ For rent

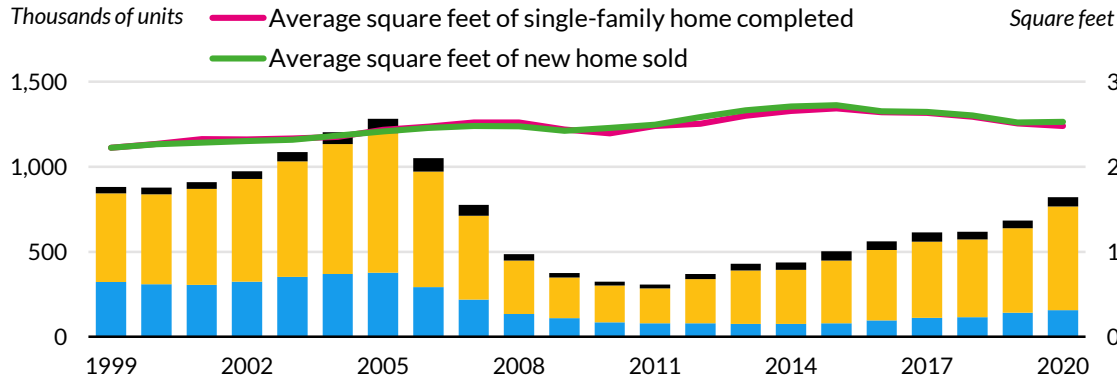
	2005	2010	2020
For sale	79%	65%	77%
For rent	21%	35%	23%



## Single-Family Homes, by Square Footage

■ 4,000 or more square feet  
 ■ 1,800 to 3,999 square feet  
 ■ 0 to 1,799 square feet

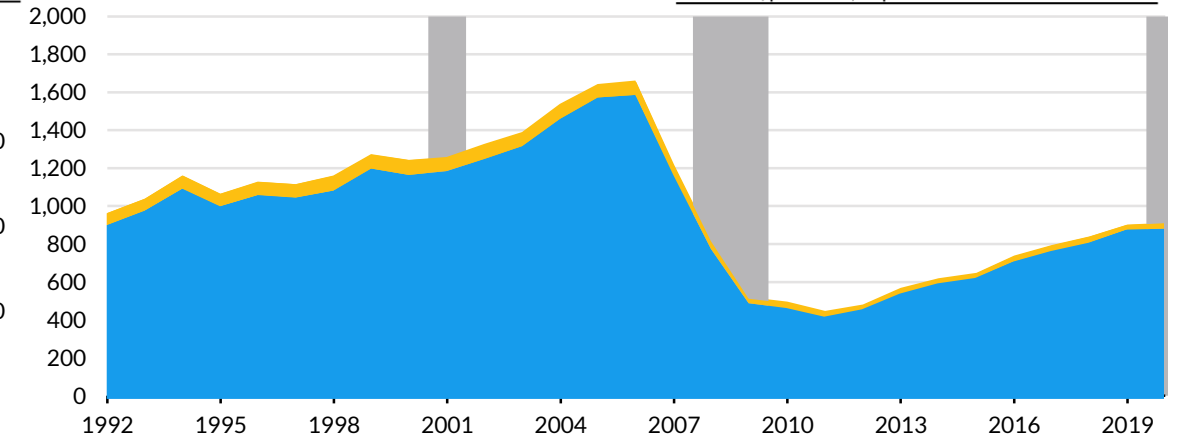
	2009	2016	2020
Average floor area for new home sold	2,422	2,560	2,527
Price per square foot of new home sold	\$83.89	\$105.06	\$122.12



## Single-Family Completions, by Construction Method

■ Site built ■ Modular, panelized, or precut

	2006	2011	2020
Site built	95%	96%	97%
Modular, panelized, or precut	5%	4%	3%



Sources: National Association of Home Builders (NAHB), US Census Bureau, the US Department of Housing and Urban Development, and the National Bureau of Economic Research.

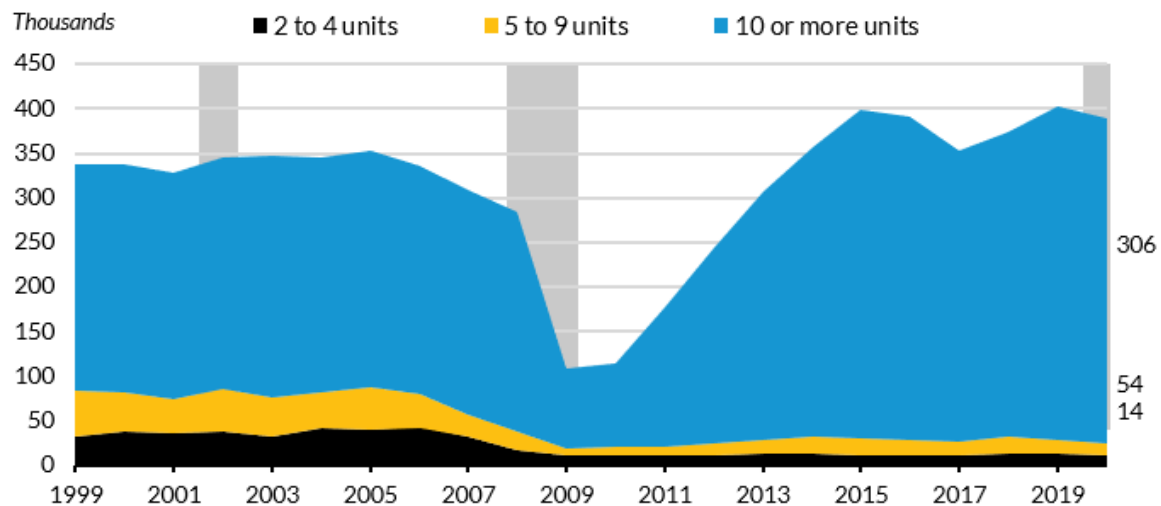
Note: Gray shading indicates a recession.

# Multifamily Production

Overall, multifamily starts remain generally steady near 400,000 per year. But the aggregate number of starts masks two diverging trends. Starts of units in buildings with 10 or more units have recovered since the Great Recession, while the construction of units in 2-to-9-unit buildings remains below housing boom levels, a key reason the multifamily stock in buildings of these sizes and built in the 2010s has fallen. In addition, the recovery from the Great Recession has been strongest among apartments, while production of for-sale multifamily units remains depressed. As a result, the average size of multifamily units, which has held steady near 1,200 square feet, largely reflects the size of apartments as opposed to larger condos. Since the Great Recession began, the share of multifamily buildings that are modular or panelized has decreased to virtually 0 percent of construction.

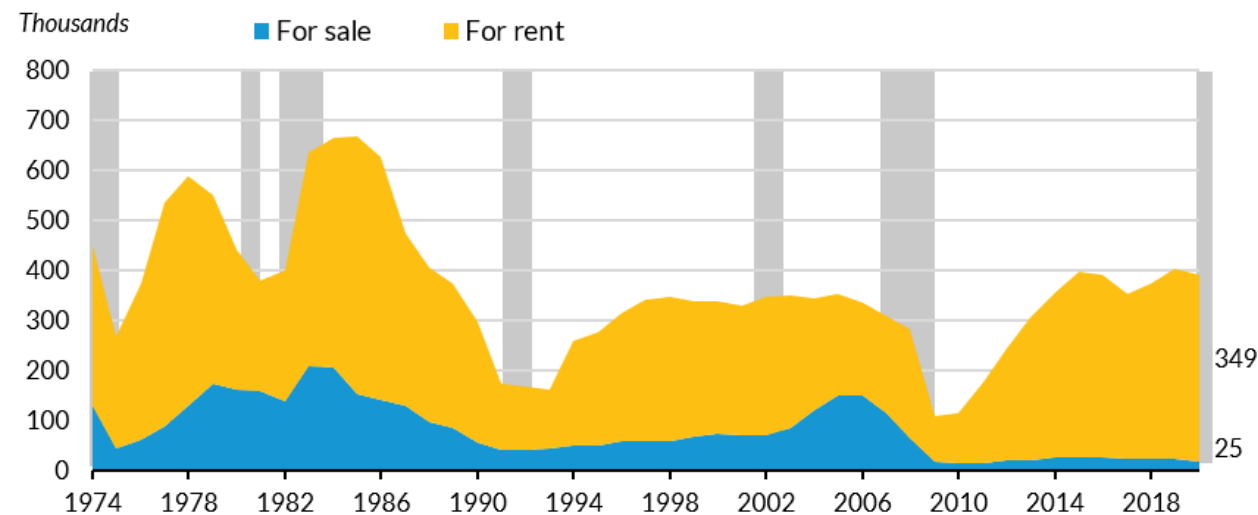
	2005	2009	2020
2 to 4	12%	11%	3%
5 to 9	13%	7%	3%
10 or more	75%	82%	94%

### Multifamily Unit Starts, by Building Size

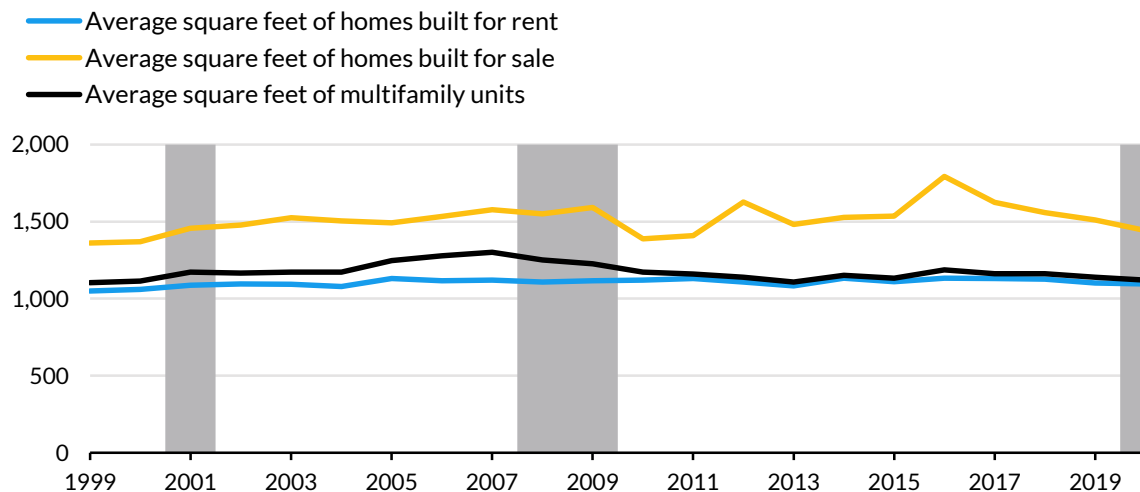


	2005	2009	2020
For sale	43%	16%	4%
For rent	57%	84%	96%

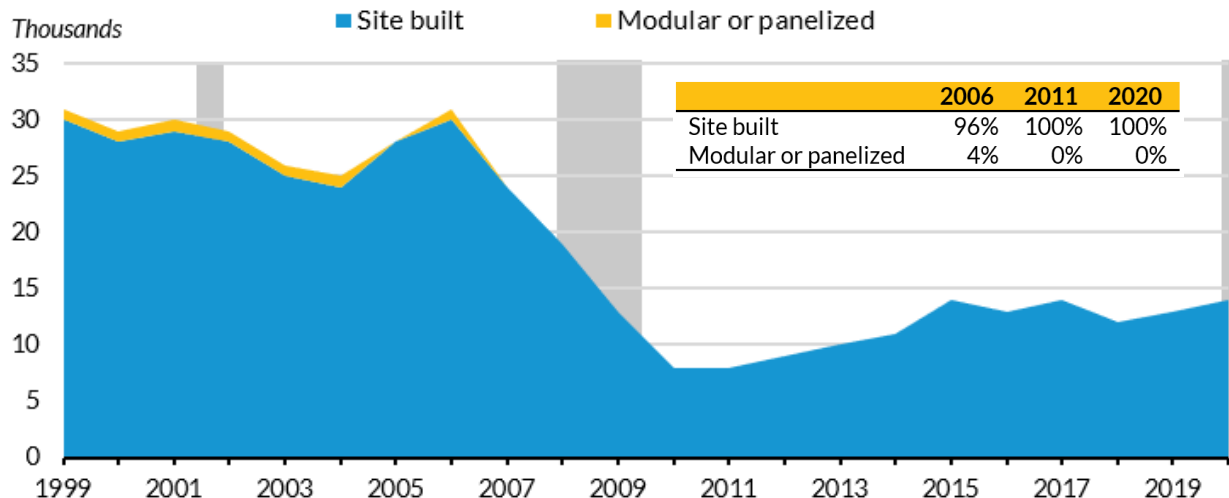
### Multifamily Unit Starts, by Purpose of Construction



### Multifamily Homes, by Square Footage



### Multifamily Buildings Completed, by Construction Method



Sources: US Census Bureau, the US Department of Housing and Urban Development, and the National Bureau of Economic Research.

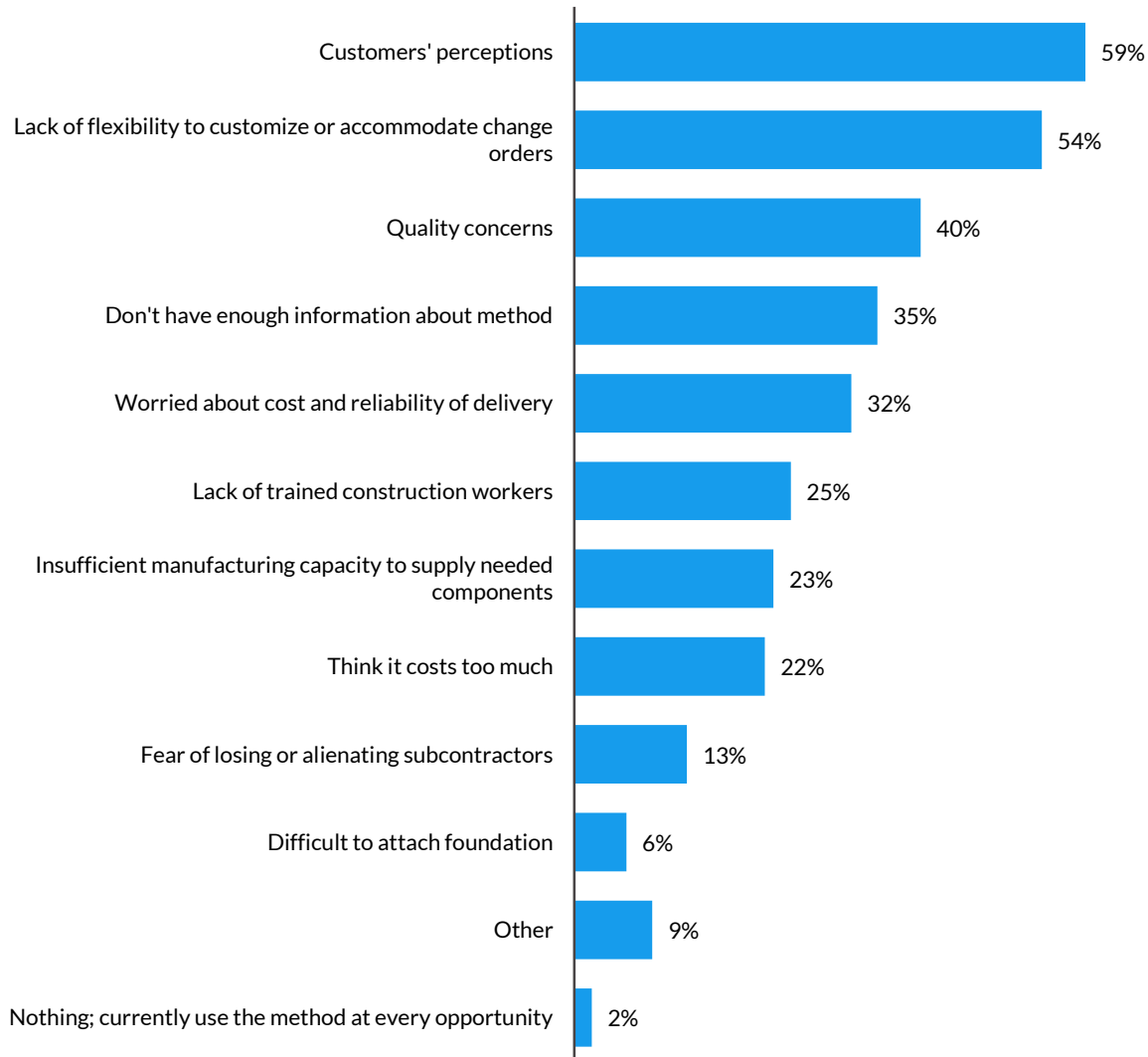
Note: Gray shading indicates a recession.

# Modular and Panelized Construction

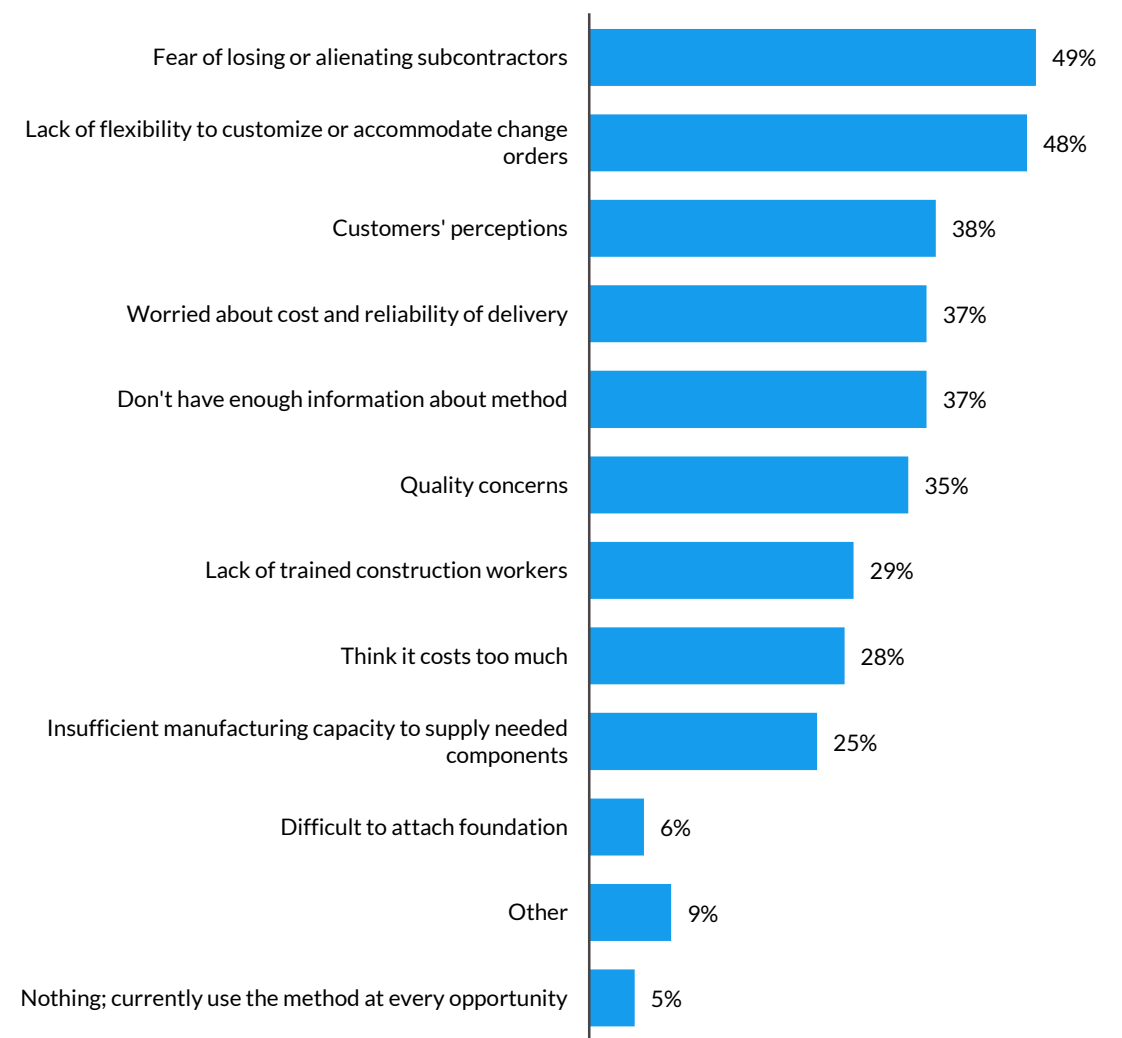
The lack of potential cost savings from producing more modular or panelized housing may reflect key market frictions. Survey information from the National Association of Home Builders indicates that customers' perceptions are a key challenge to both modular and panelized production, an experience echoed by manufactured housing. Another key barrier is the lack of flexibility to customize or change orders, which may reflect the needs of factory-built production relative to site-built construction. Rounding out the top three challenges to modular housing are quality concerns, while fear of losing or alienating subcontractors is a major hinderance that keeps predominantly stick builders from adopting panelized production methods. Only 5 percent of respondents to survey questions about panelized housing and 2 percent of respondents to survey questions about modular production agreed that they use these respective technologies at every opportunity.



## What Prevents You from Using Modular Construction More Often?



## What Prevents You from Using Panelized Construction More Often?

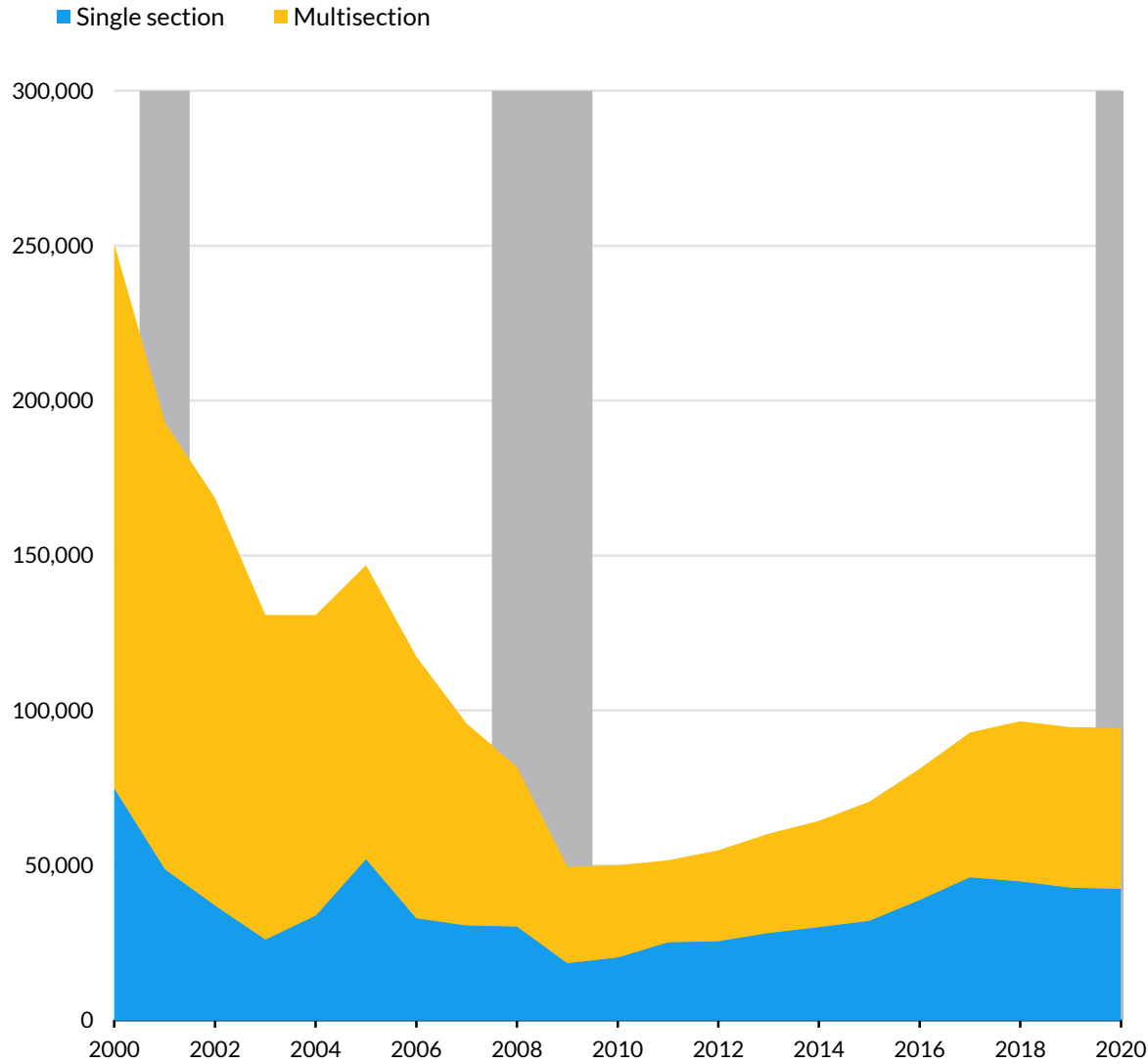


Source: National Association of Home Builders.

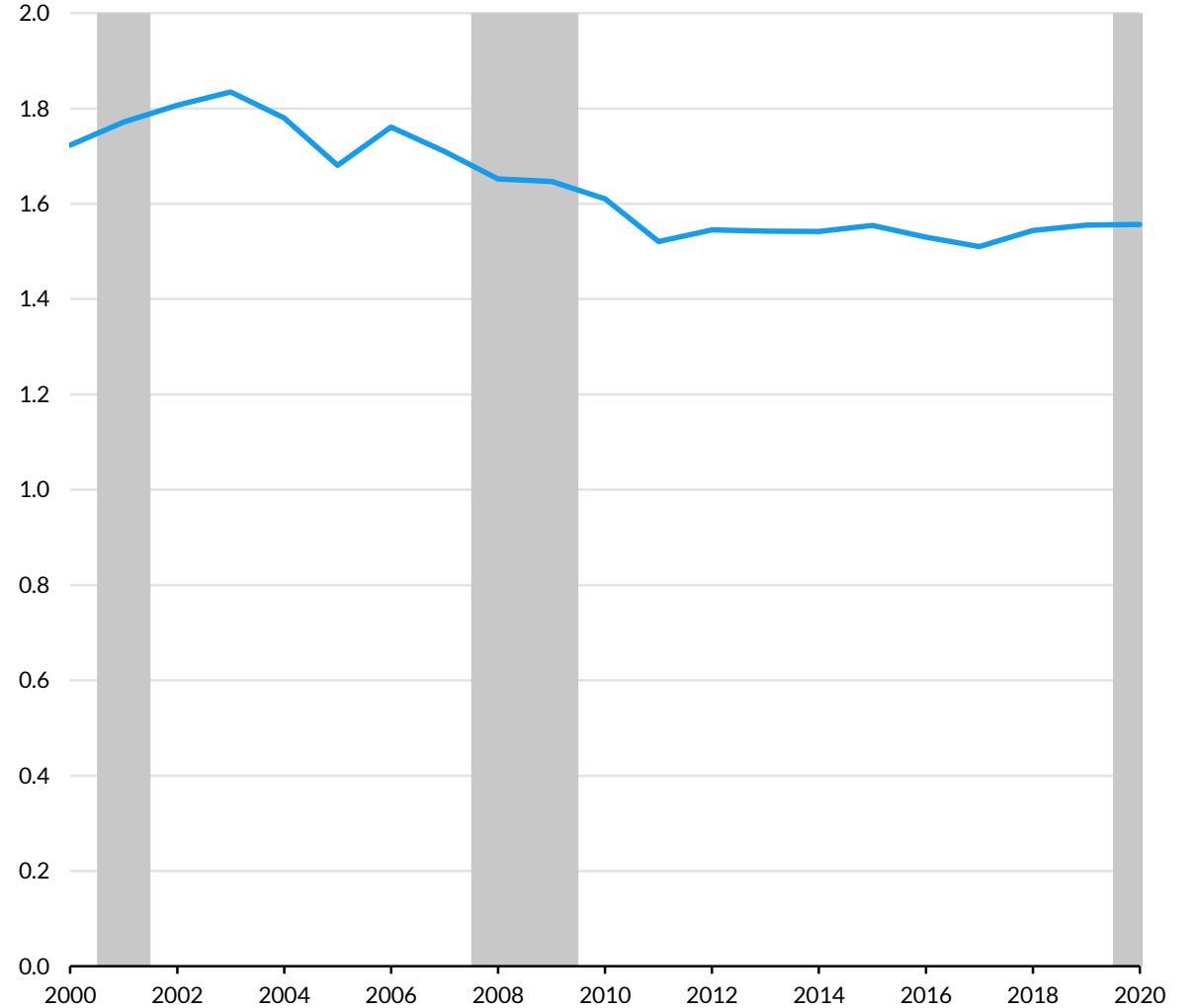
# Manufactured Housing Shipments

After rising between 2009 and 2018, the number of manufactured home shipments has held steady at a pace below 100,000 units; 2006 was the last year that total manufactured home shipments were above 100,000. There were modestly more single-section manufactured housing shipments in 2020 relative to 2006, but the number of multi-section shipments remains below its 2006 level. Similarly, the average number of floors per home shipped in 2020 is below its 2006 level, reflecting a decline between 2006 and 2011. Since at least 2000, the average number of floors per home shipped has remained largely stable below 2.

## Manufactured Home Shipments, by Size



## Average Floors per Home Shipped



Source: Census Bureau.

Note: Gray shading indicates a recession.

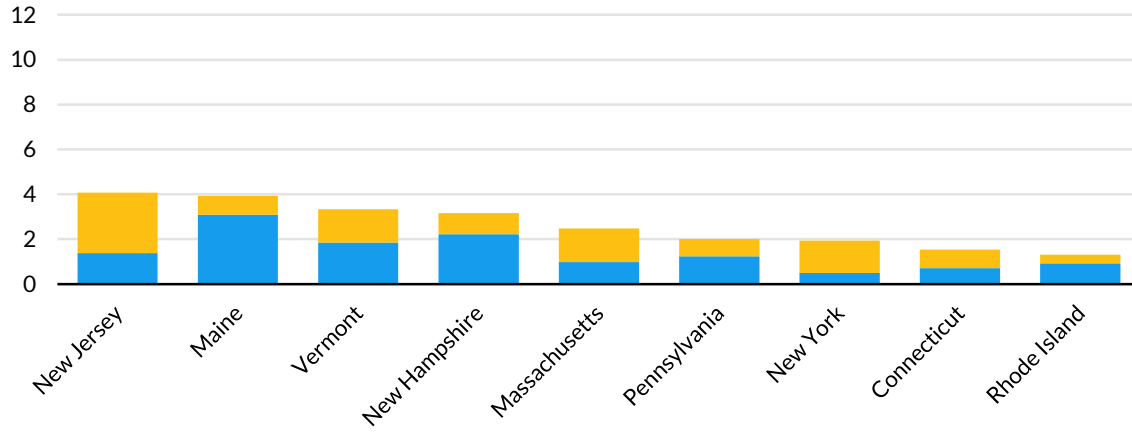
# Housing Permits, by Region, 2020

Counting permits instead of starts or completions allows for comparisons across regions. The population-adjusted pace of construction was greater in states across the South and the West. Meanwhile, in the Northeast, only New Jersey had total population-adjusted permits that exceeded 4 per 1,000 people. In the Midwest, only four states had population-adjusted construction above that threshold. Differences in production across states largely reflected single-family permits. But in DC, virtually all construction was multifamily.

## Northeast

Per 1,000 people

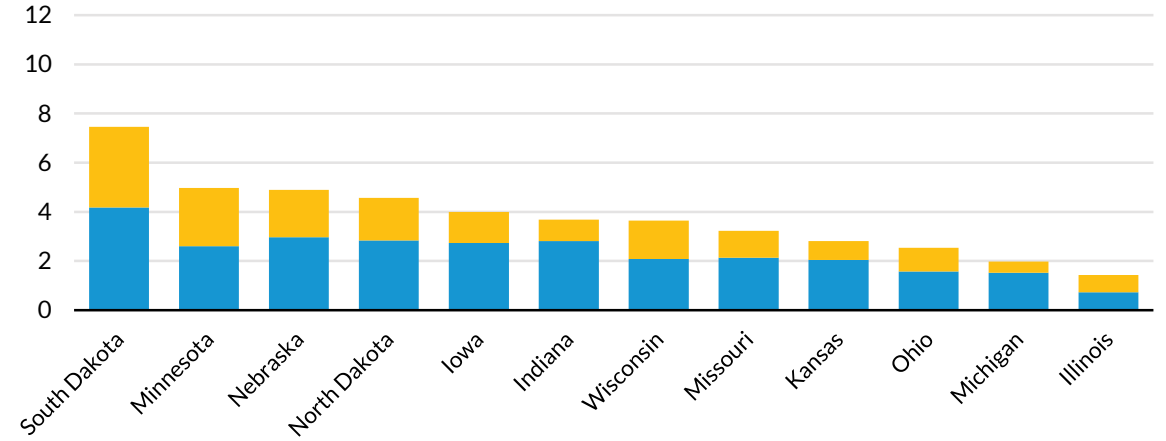
■ Single-family ■ Multifamily



## Midwest

Per 1,000 people

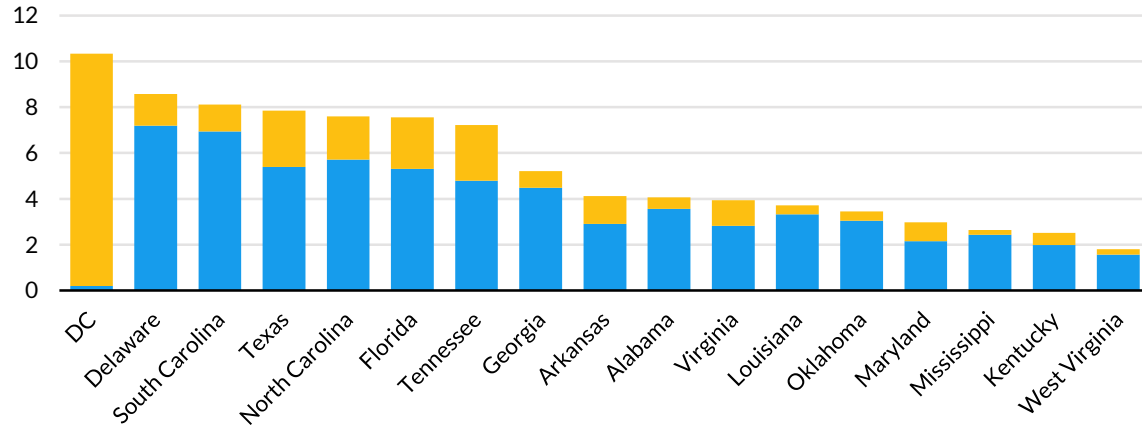
■ Single-family ■ Multifamily



## South

Per 1,000 people

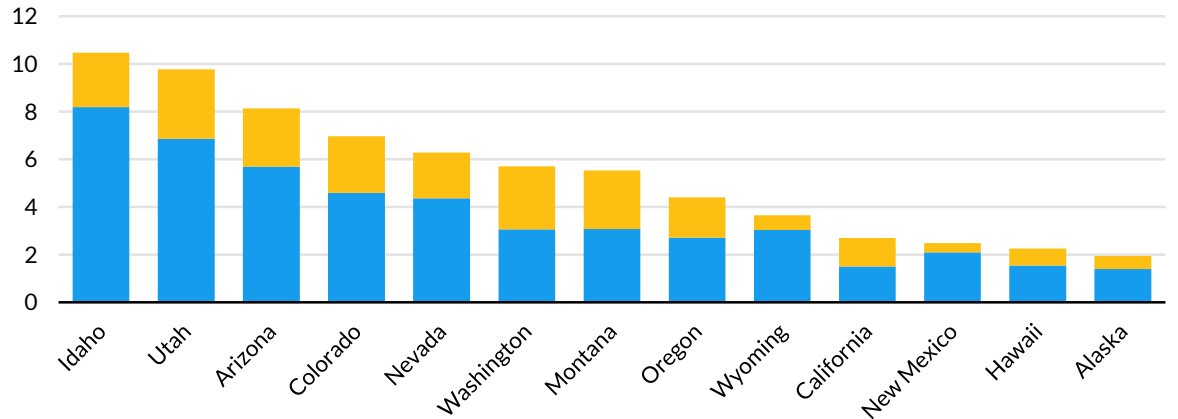
■ Single-family ■ Multifamily



## West

Per 1,000 people

■ Single-family ■ Multifamily

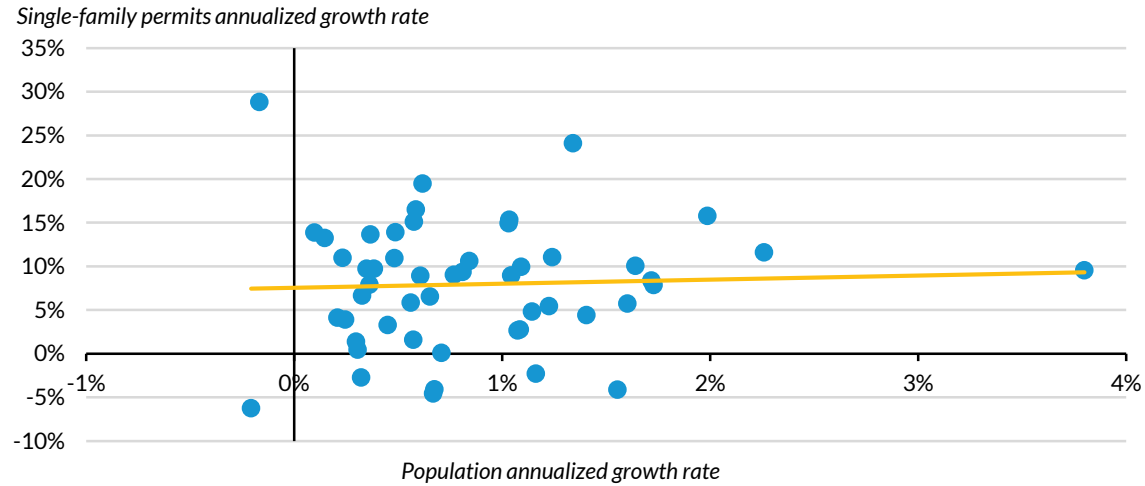


Source: Census Bureau.

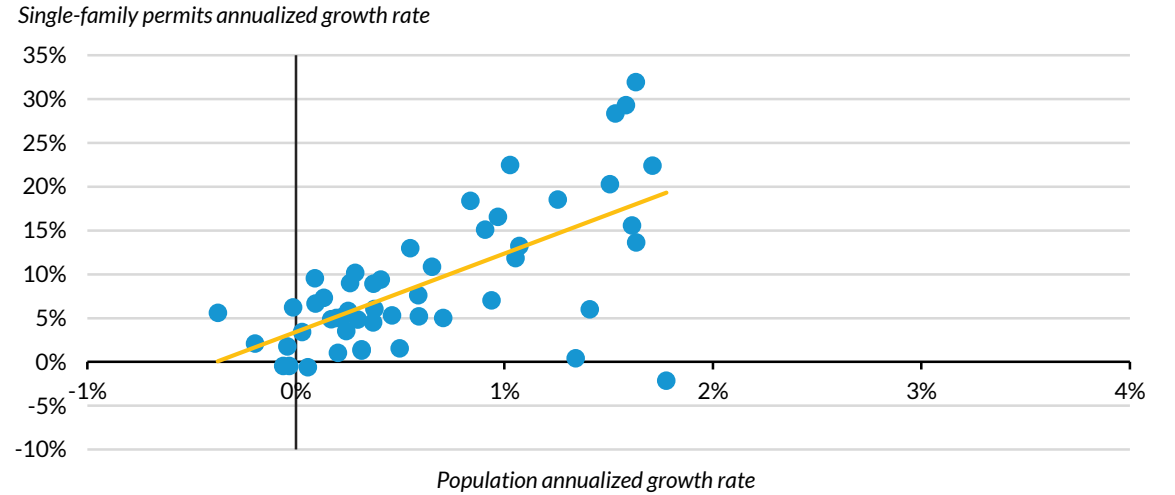
# Housing Permits, by Region, 2020

Although the single-family housing stock is generally not correlated with population growth, this assertion may be dependent on time period. The figures on the next page compare the annualized increase of single-family permits for all 50 states and Washington, DC, with annualized population growth. The two figures on the left cover 2000 to 2003, a period in which residential construction is generally considered to have been normal. The two on the right show these data from 2010 to 2020. The figures illustrate that between 2000 and 2003, growth in neither single-family nor multifamily permits was closely related to population growth, echoing population-adjusted residential construction shown at the bottom of page 13. But after the Great Recession, single- and multifamily production growth is more closely related to population growth (and population growth itself has slowed, on average, relative to the 2000–03 period).

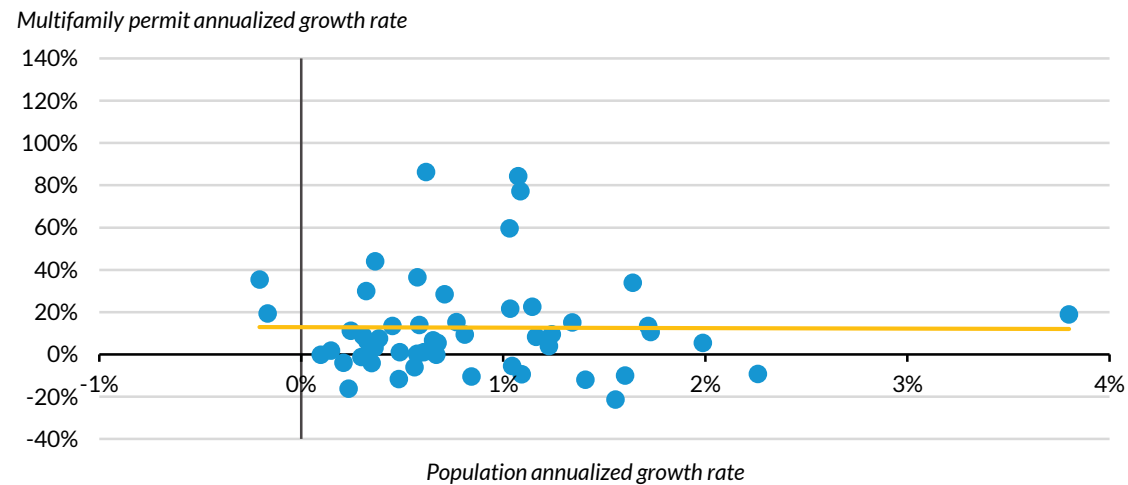
## Population and Single-Family Permit Growth, 2000–03



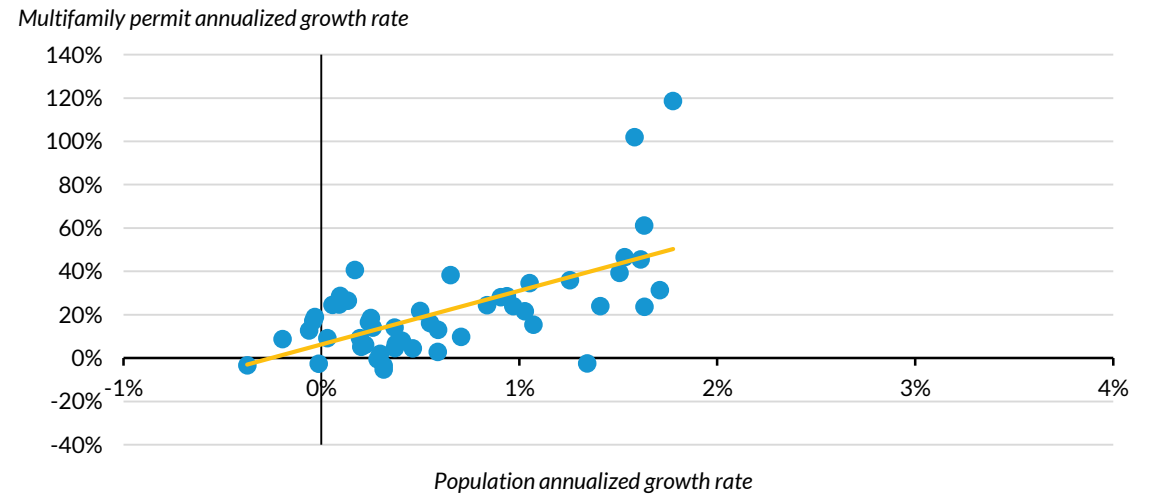
## Population and Single-Family Permit Growth, 2010–20



## Population and Multifamily Permit Growth, 2000–03



## Population and Multifamily Permit Growth, 2010–20



Source: Census Bureau.

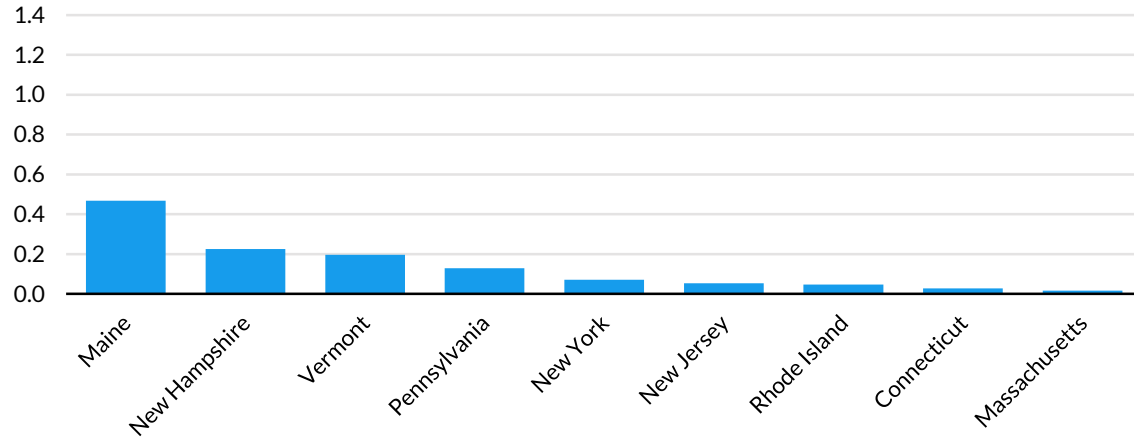
# Manufactured Housing Shipments, by Region, 2020

Scaling the shipments of manufactured homes by population is one way to compare the flow of manufactured homes across different areas. Many states with fewer shipments relative to the population also had a small stock of manufactured homes. For example, the four Northeast states with the fewest shipments—New Jersey, Connecticut, Massachusetts, and Rhode Island—also had the fewest manufactured homes relative to the population, though the ordering was different. The same is true for the four states in the Midwest and the three states in the South with the fewest shipments. In the West, the four states with the fewest mobile homes relative to the population accounted for four of the five states with the fewest shipments per population nationwide. The similarity across both the stock and shipments of manufactured homes suggests significant state-specific differences in manufactured housing.



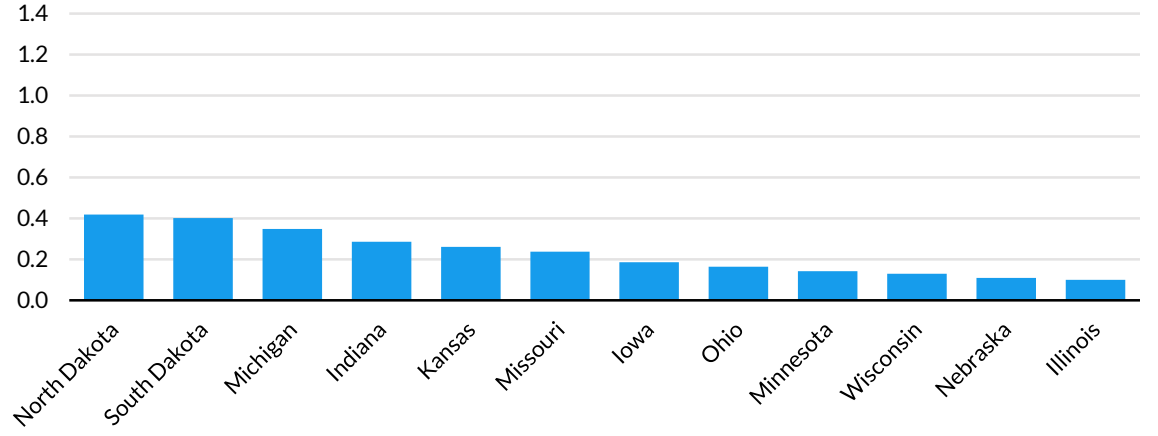
## Northeast

Per 1,000 people



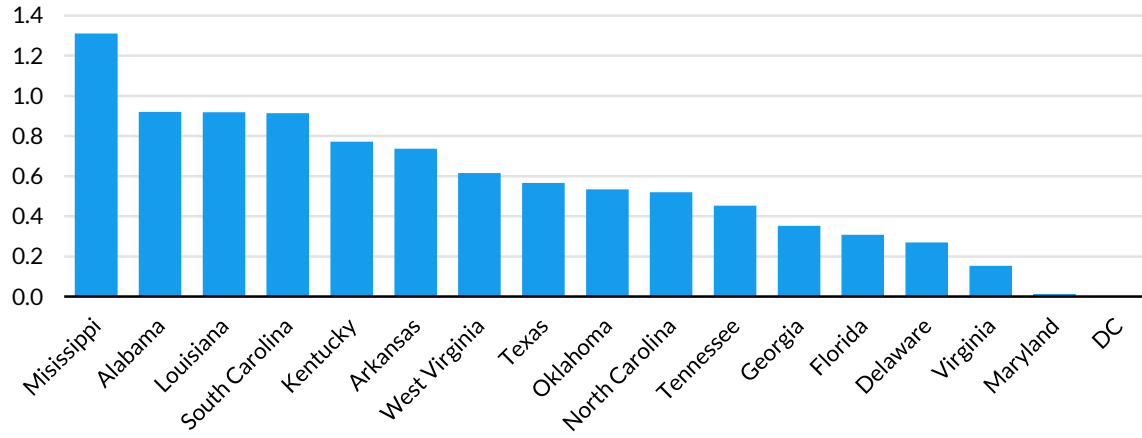
## Midwest

Per 1,000 people



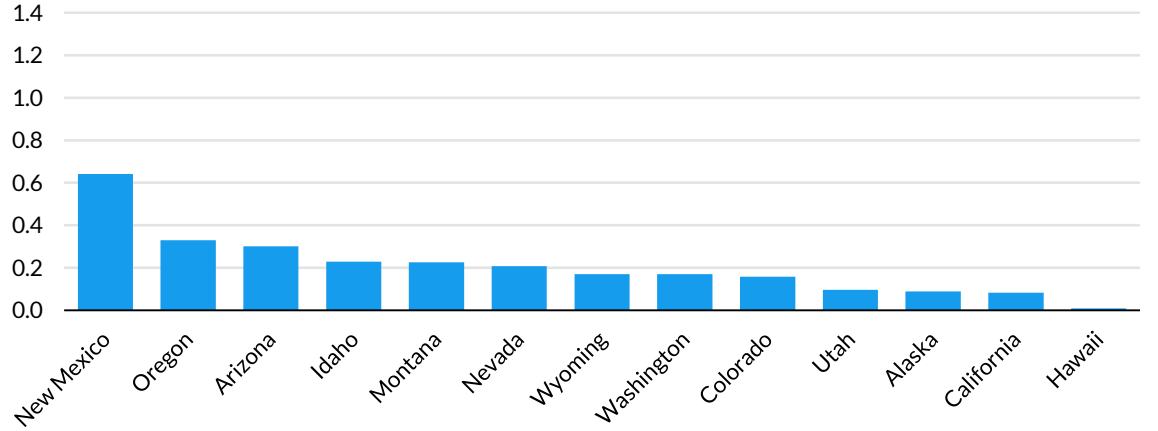
## South

Per 1,000 people



## West

Per 1,000 people

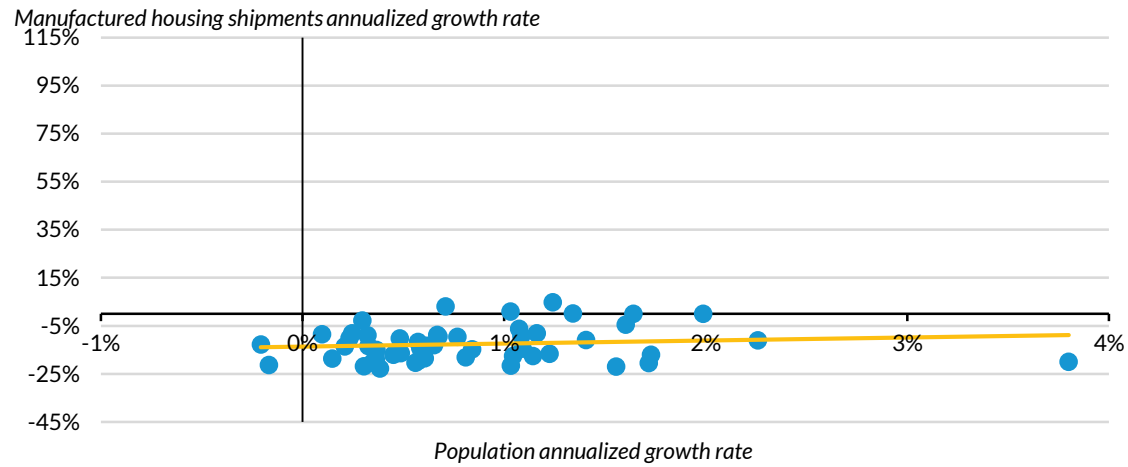


Source: US Census Bureau.

# Manufactured Housing Shipments, by Region, 2020

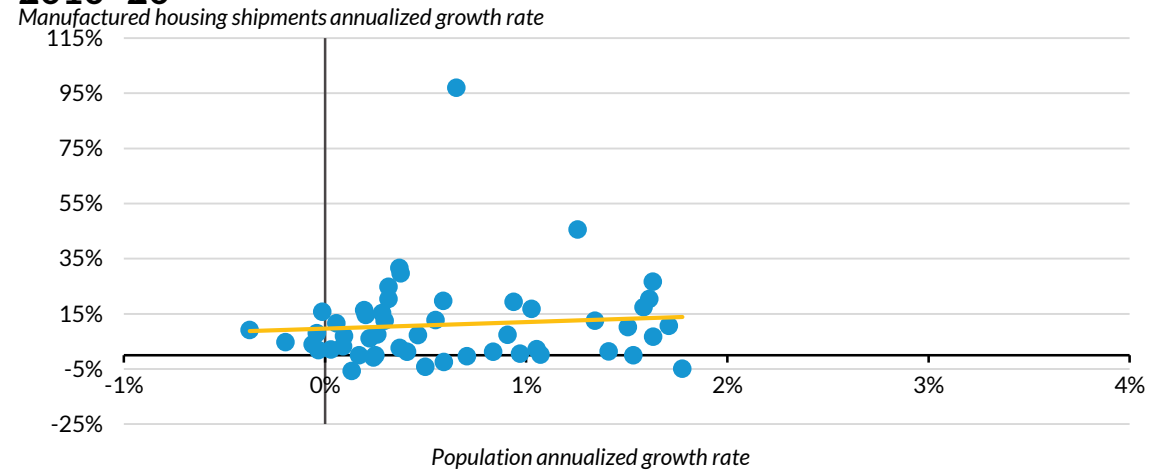
The following figures compare the annualized increase of manufactured housing shipments for all 50 states and Washington, DC, with annualized population growth. The figure on the left covers 2000 to 2003, a period in which residential construction is generally considered to have been normal. The figure on the right shows the data for 2010 to 2020. The figures show how manufactured housing shipments declined on an annual average percentage change basis across many states between 2000 and 2003 but increased across most states between 2010 and 2020. It also illustrates that within manufactured housing shipments, the weak relationship between shipments and population from 2000 to 2003 also prevails from 2010 to 2020. The increased shipments in the aftermath of the Great Recession remain unrelated to changes in the population.

## Population and Manufactured Housing Shipment Growth, 2000–03



Source: Census Bureau.

## Population and Manufactured Housing Shipment Growth, 2010–20

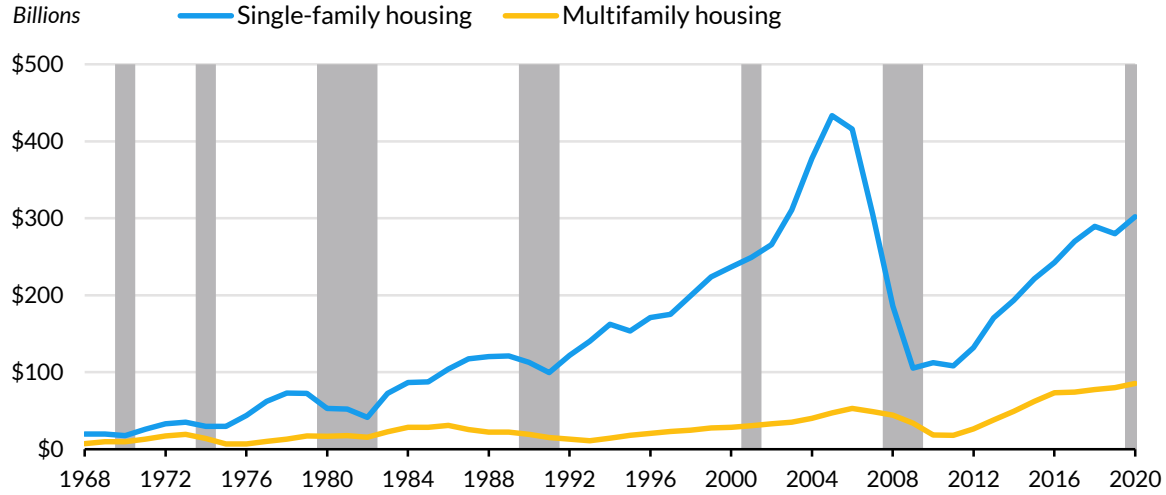


# Housing and the Economy

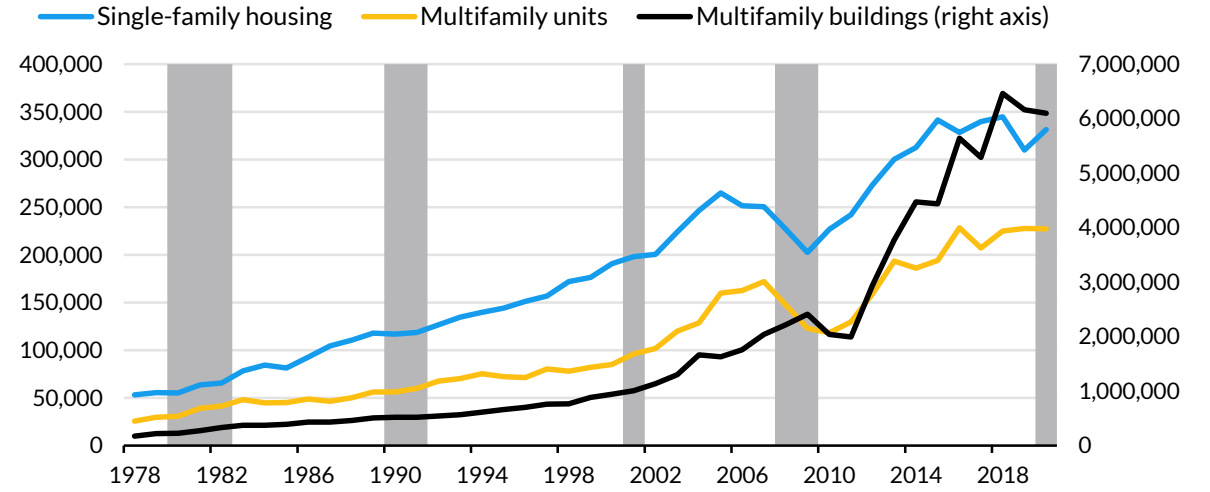
# Residential Construction Costs

Despite recent increases, total spending on private residential single-family construction remains below the 2005 peak. Meanwhile, total spending on private multifamily construction flattened in 2018 but remains at a level modestly above its pre-Great Recession high. Private residential single-family construction spending is low because fewer units are being completed. Total single-family construction spending per unit has held steady in recent years but at elevated levels. In contrast, total multifamily spending per unit is on par with its pre-Great Recession peak. But total multifamily spending per building has soared as multifamily construction has shifted to larger buildings. The Bureau of Labor of Statistics' Producer Price Index indicates that the inputs to construction costs—which exclude services and, more notably, labor costs—reached a new high in 2018. Prices of key materials, such as concrete, gypsum, lumber, and steel, sit at their highest levels since 1987.

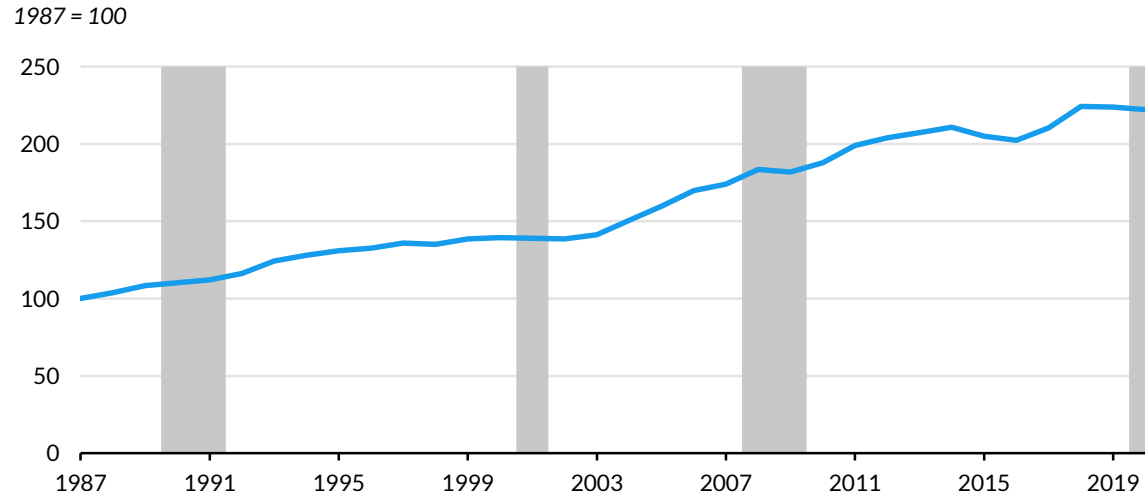
## Value of Private Construction Put in Place



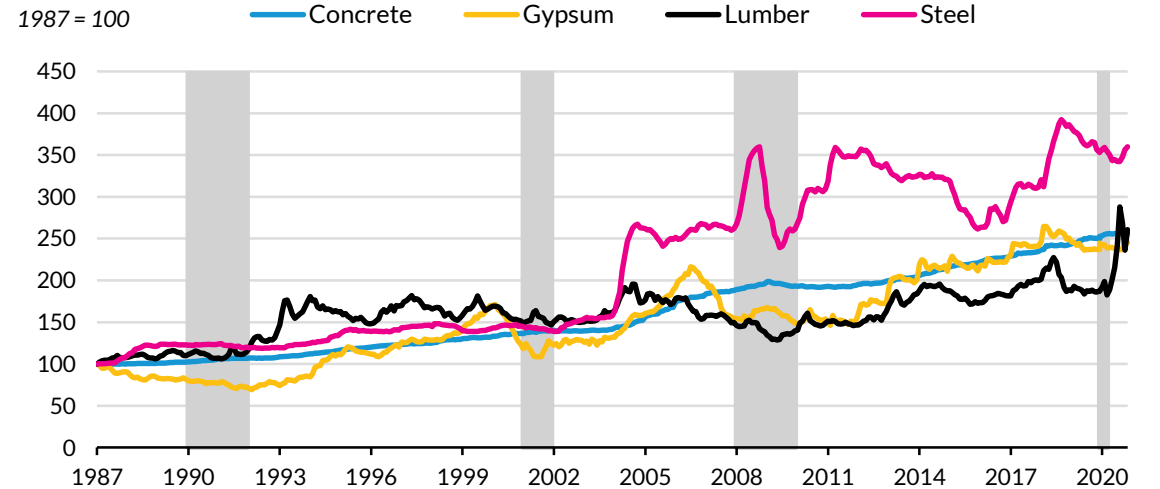
## Construction Spending per Unit



## Price-Level Residential Construction Inputs, Goods



## Selected Building Material Prices



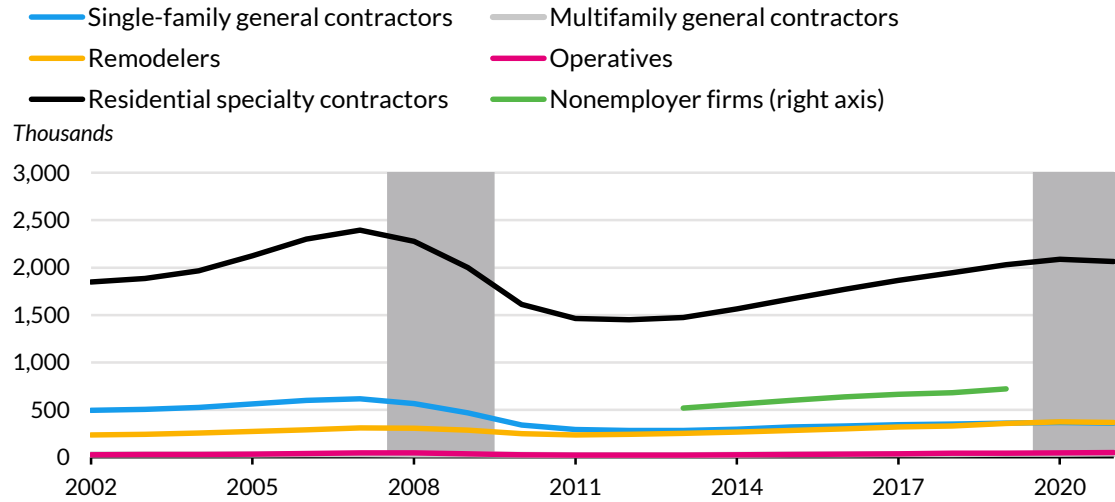
Source: Census Bureau, Bureau of Labor Statistics, and the National Bureau of Economic Research.

Note: Gray shading indicates a recession.

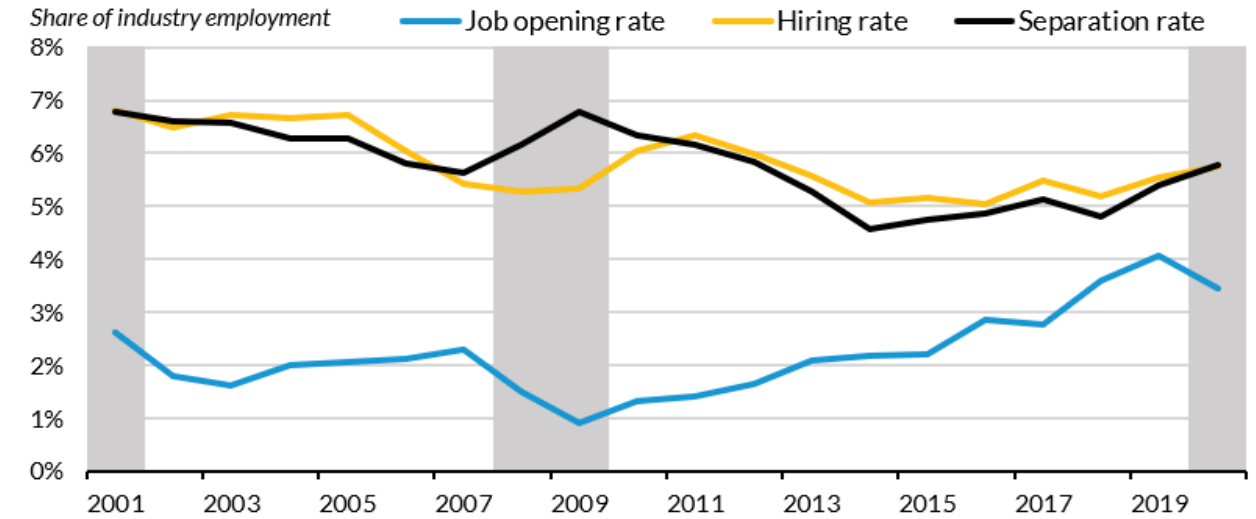
# Labor Market Conditions

The residential construction industry is dominated by specialty contractors. But the numbers of specialty contractors and single-family general contractors remain below their peaks. And non-employee employer firms may contribute more to the residential construction labor force than single-family general contractors. But amid a smaller labor force, the job opening rate, or the number of job openings as a share of payroll employment in the construction industry, is above its boom-era high, despite a small tick downward during the COVID-19 recession. These job openings remain elevated because the hiring rate does not significantly exceed the separations rate. Evidence indicates an ability to fill open positions, and the single-family construction industry has benefited from long-term productivity gains, despite short-run fluctuations. Amid a high rate of job openings and productivity at its 1987 level, average hourly earnings have risen, further increasing construction costs.

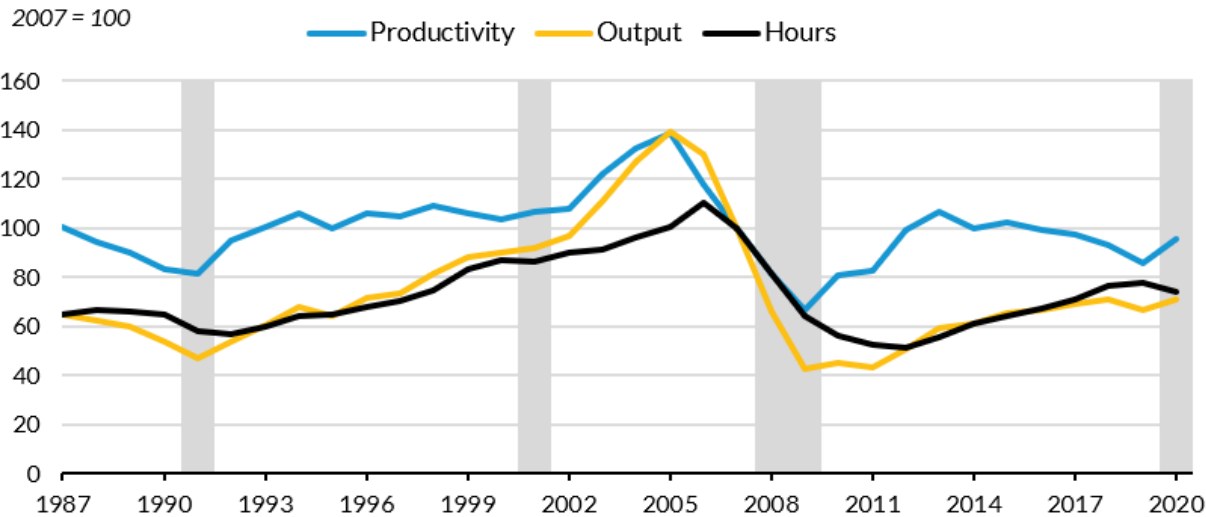
## Residential Construction



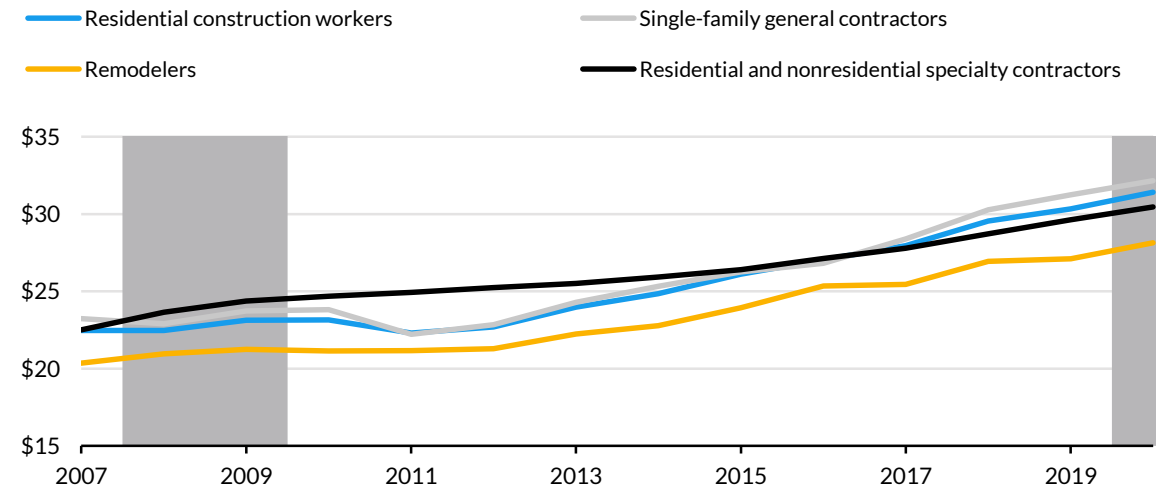
## Worker Flows in the Construction Industry



## Single-Family Residential Construction Labor Productivity



## Average Hourly Earnings



Source: Bureau of Labor Statistics, Census Bureau, and National Bureau of Economic Research.

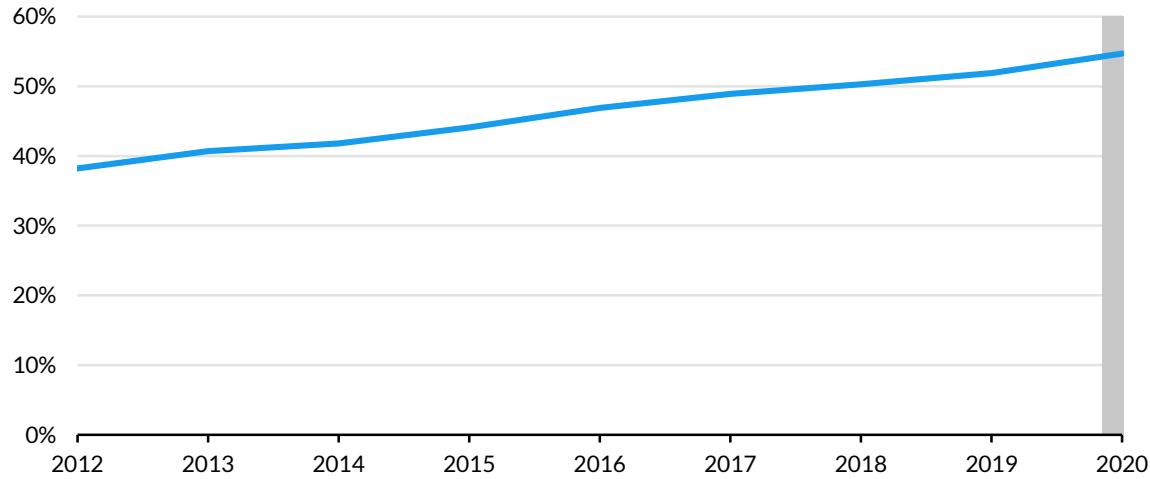
Note: Gray shading indicates a recession.



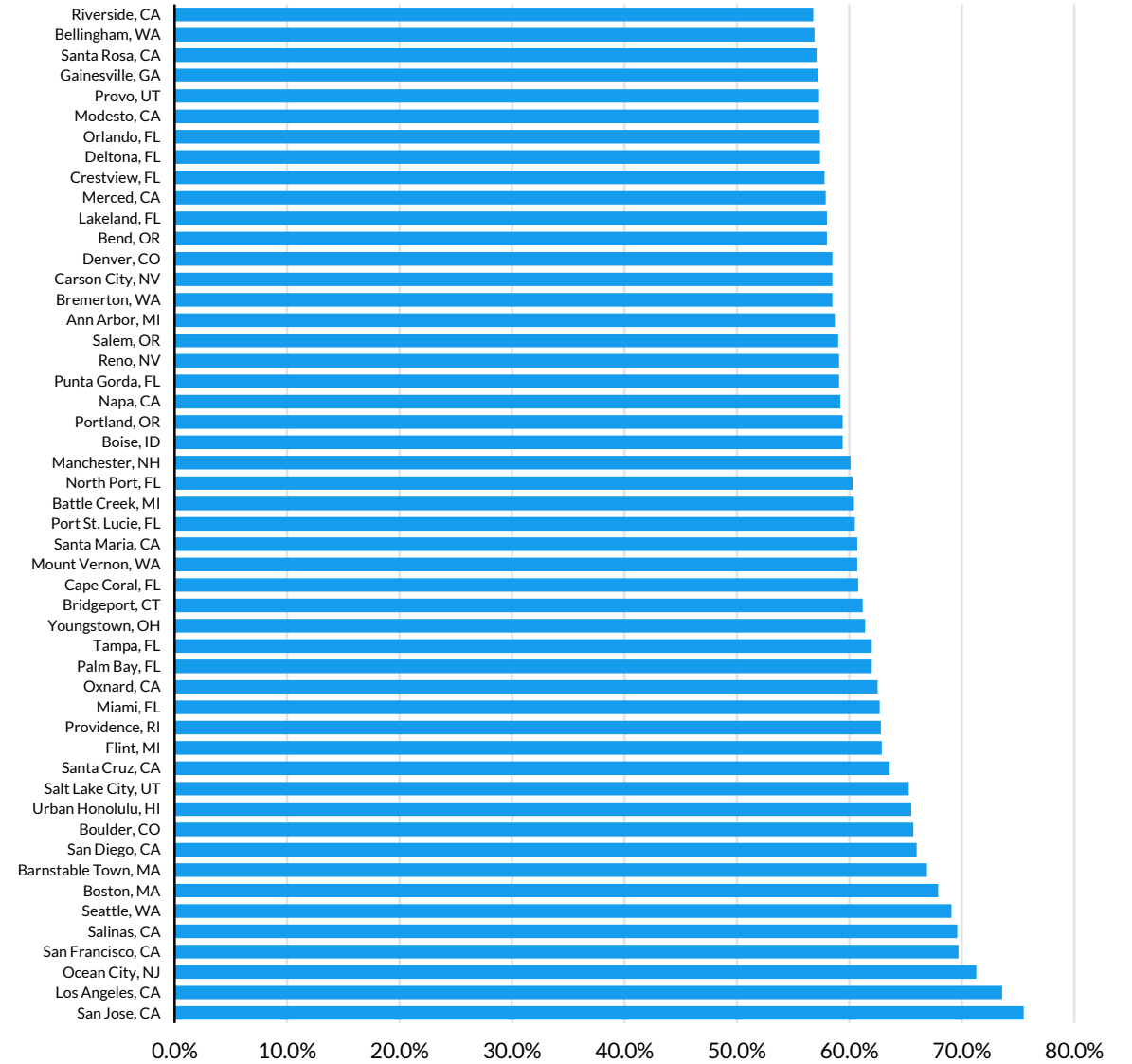
# Land Values and Structure Costs

Evidence in our 2018 chartbook indicated that land values were rising nationwide. But land has also become an increasing share of property values overall, now accounting for 55 percent of home values. The distribution of the land share of property values varies by market.

## Land's Share of Property Values



## Land's Share of Property Values in 50 Large CBSAs



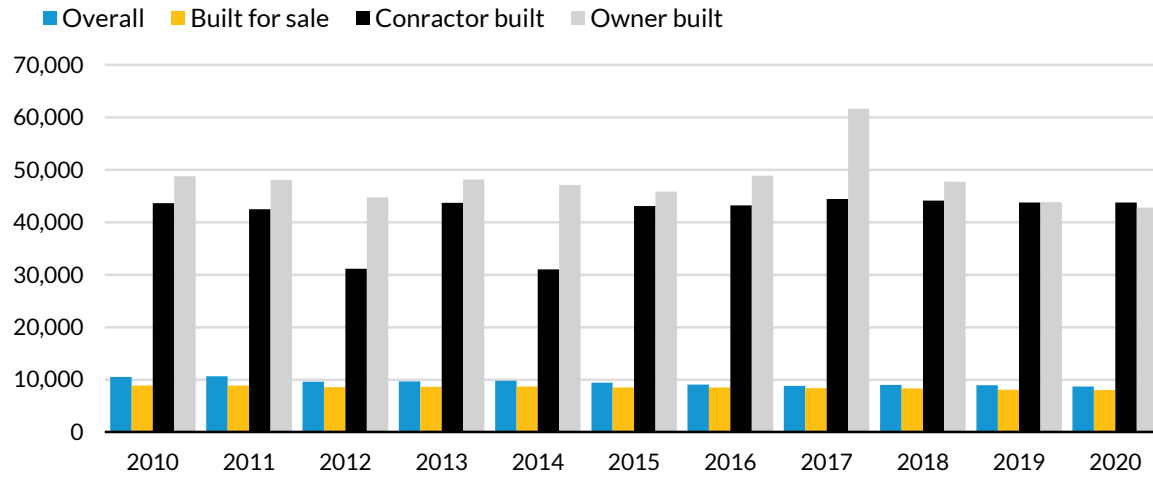
Sources: American Enterprise Institute and the National Bureau of Economic Research.

Notes: CBSA = core-based statistical area. Gray shading indicates a recession.

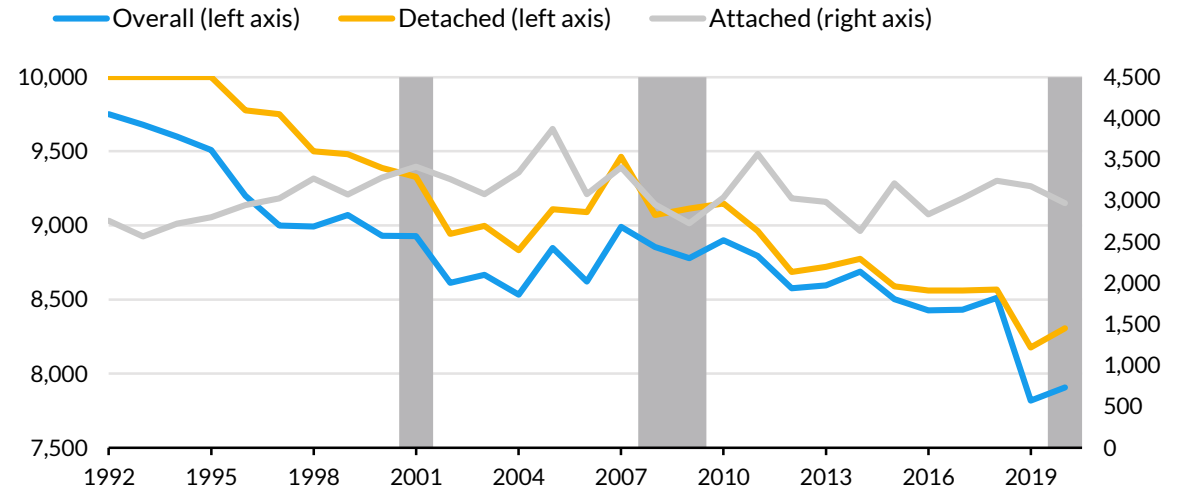
# Lot Sizes

Amid a larger role for land values, the median lot size for new single-family homes has decreased since 2010, reflecting smaller lot sizes of homes built for sale. The decline in the median lot size of single-family homes built for sale, measured using new single-family homes sold, reflects smaller lots for detached single-family homes, while the median lot size on which an attached single-family home is built has remained steady. In contrast to the median lot size for single-family homes built for sale, the median lot size for contractor- or owner-built single-family homes is more than four times as large, reflecting the wealth of the owners that ultimately own these homes.

## Median Lot Size for New Single-Family Homes



## Median Lot Size for New Single-Family Homes Sold

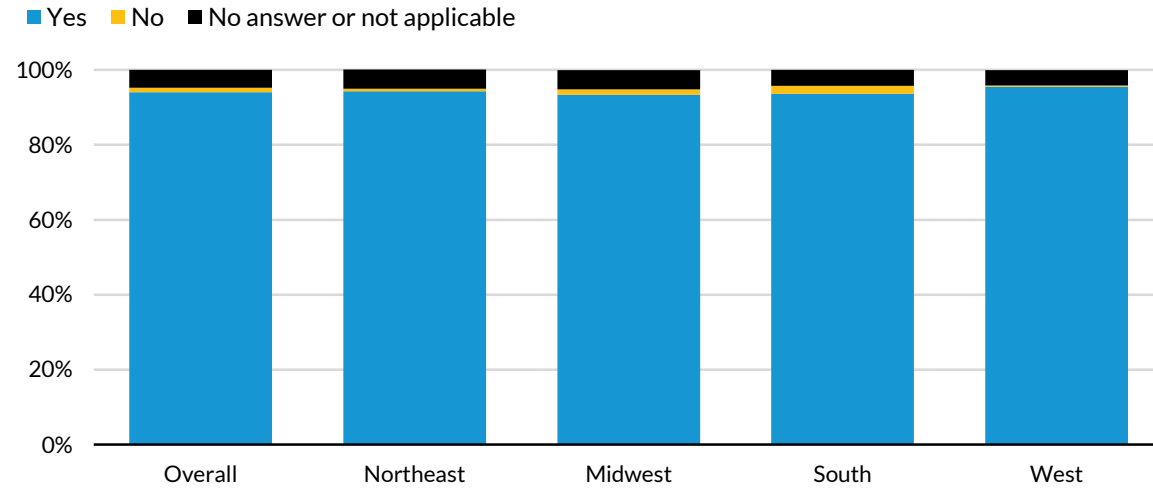


Sources: Census Bureau and the National Bureau of Economic Research.

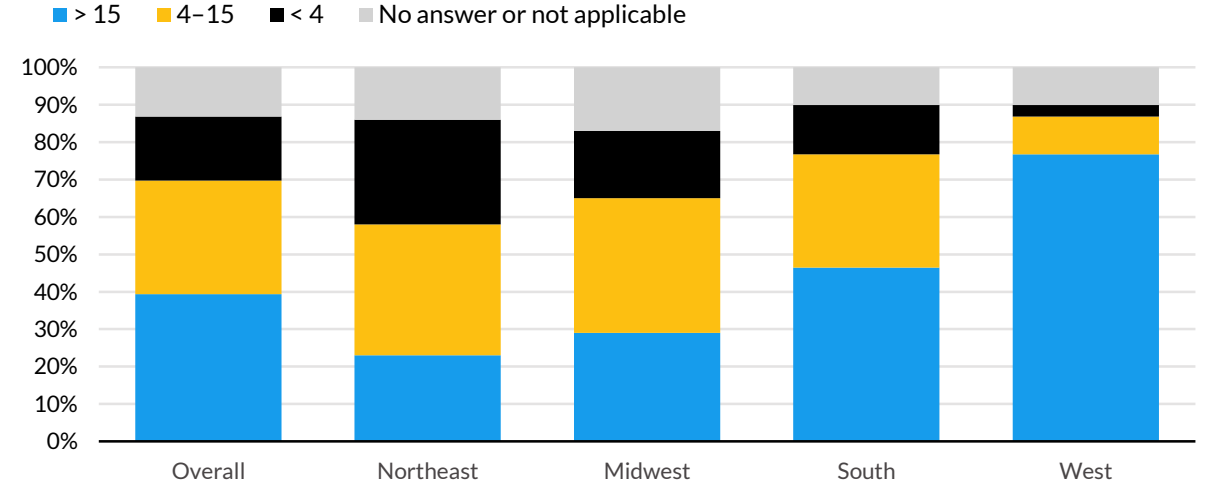
# Zoning

Nationwide, 94 percent of respondents to the National Longitudinal Land Use Survey indicated that their jurisdiction had a zoning ordinance with little regional variation. Although most municipalities reported having zoning ordinances in 2019, restrictions varied by region, which may limit the housing supply. For example, a smaller share of jurisdictions in the Northeast allowed the highest-density dwelling units. But midwestern markets were most likely to restrict manufactured homes and accessory dwelling units.

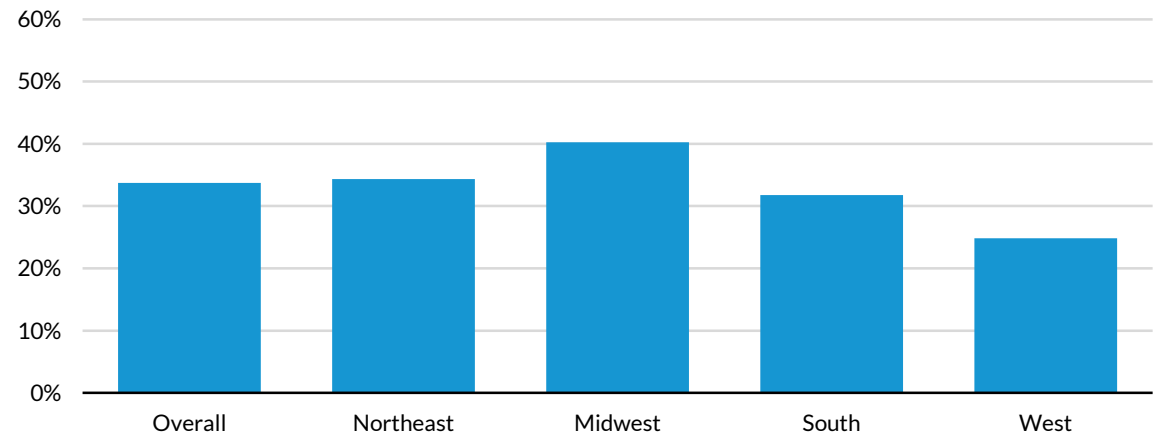
## Presence of a Zoning Ordinance, 2019



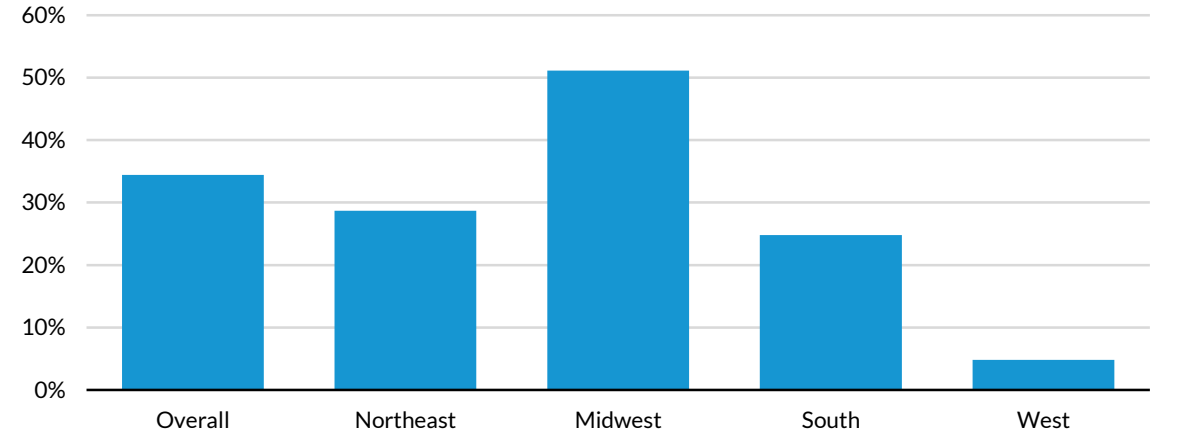
## Maximum Number of Dwelling Units per Acre, 2019



## Share of Jurisdictions Not Permitting Manufactured Homes, 2019



## Share of Jurisdictions Not Permitting Accessory Dwelling Units, 2019

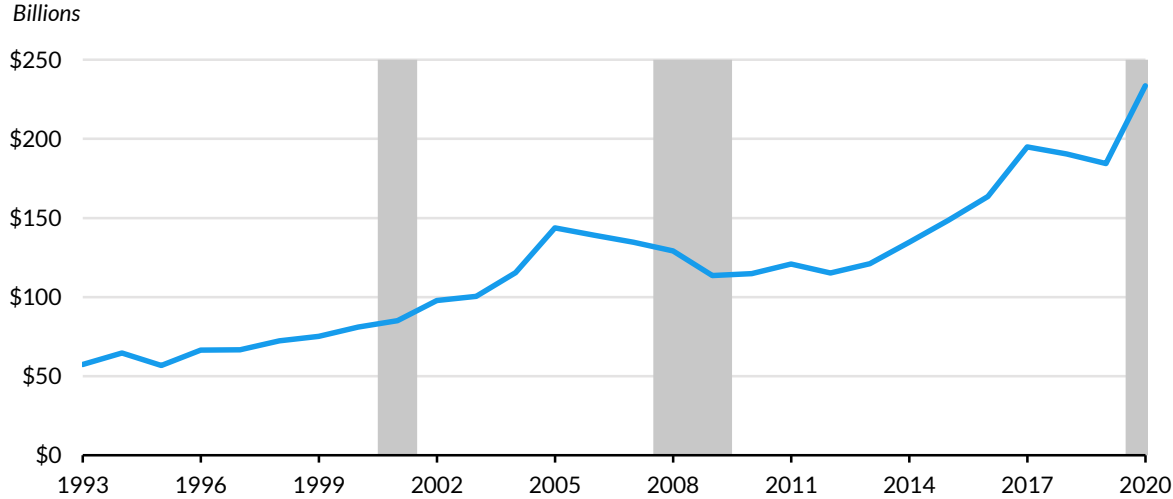


Source: National Longitudinal Land Use Survey.

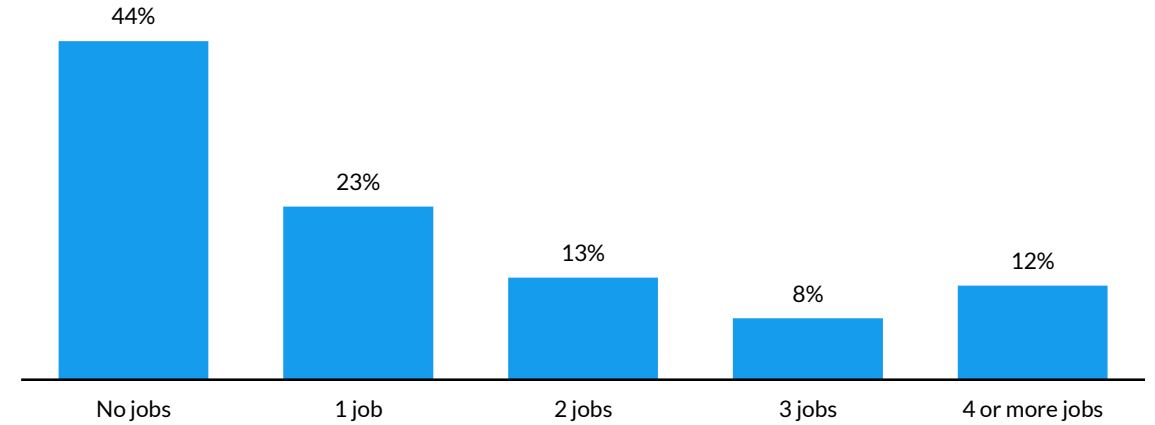
# Home Improvements

Spending on home improvements has soared since 2012, with a significant jump in 2020. From 2018 to 2019, more than half of homeowners had at least one home improvement project. Most such projects are for improvements or repairs. And these home improvement jobs are lower-cost activities, on average. Other types of home improvement jobs, which are less likely to occur, are more expensive.

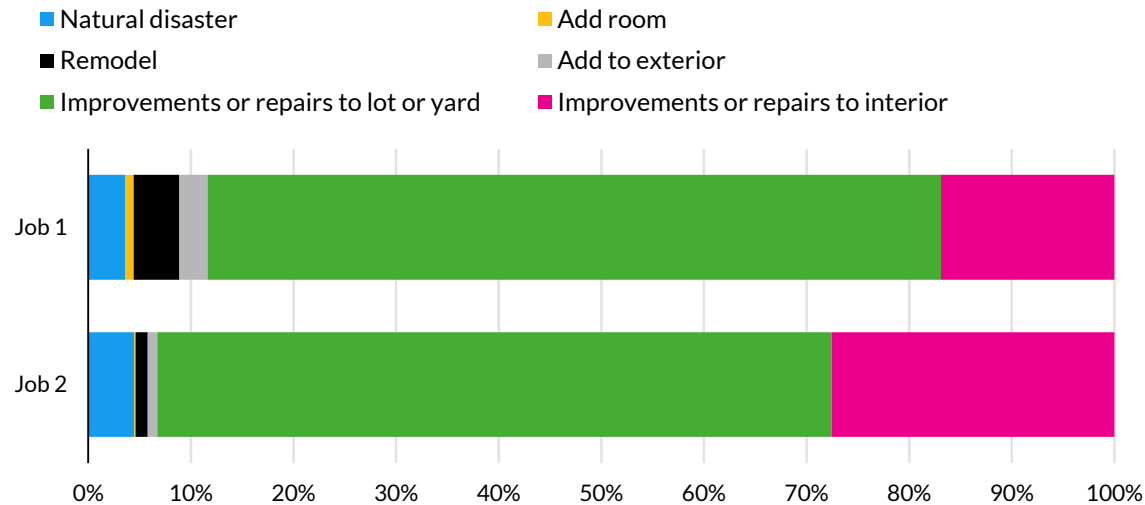
## Home Improvement Spending



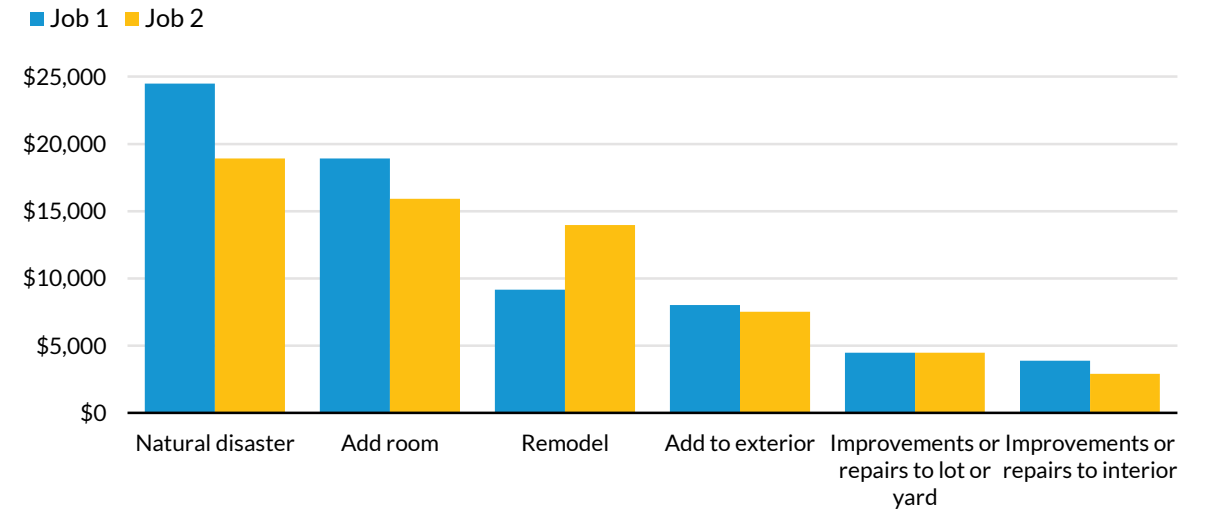
## Owner-Occupied Homes, by Number of Improvement Jobs, 2019



## Job Type, by Job Number, 2019



## Mean Job Cost, by Job Type, 2019



Sources: US Department of Housing and Urban Development, Census Bureau and the National Bureau of Economic Research.

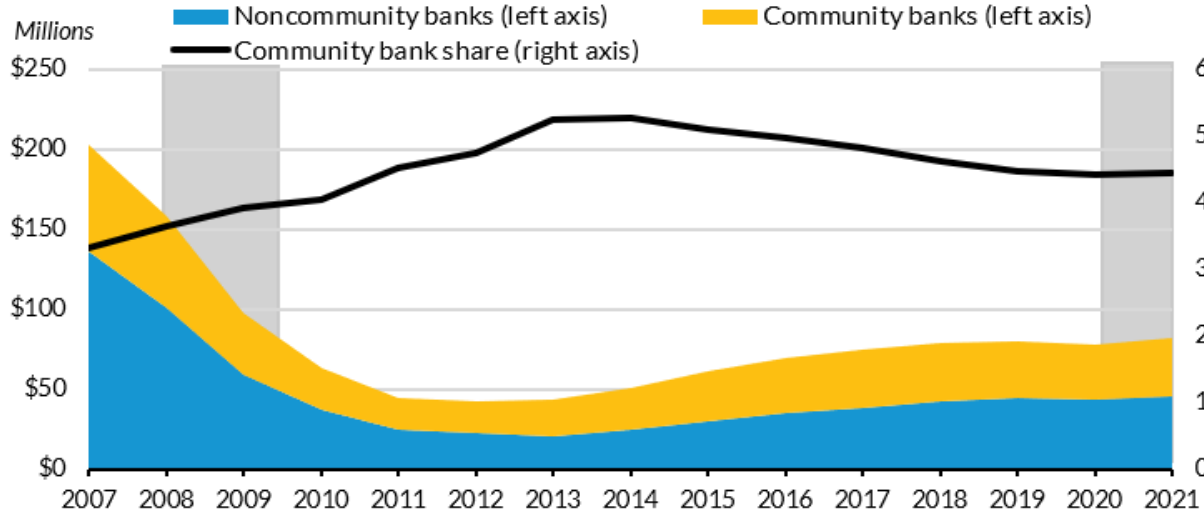
Note: Gray shading indicates a recession.



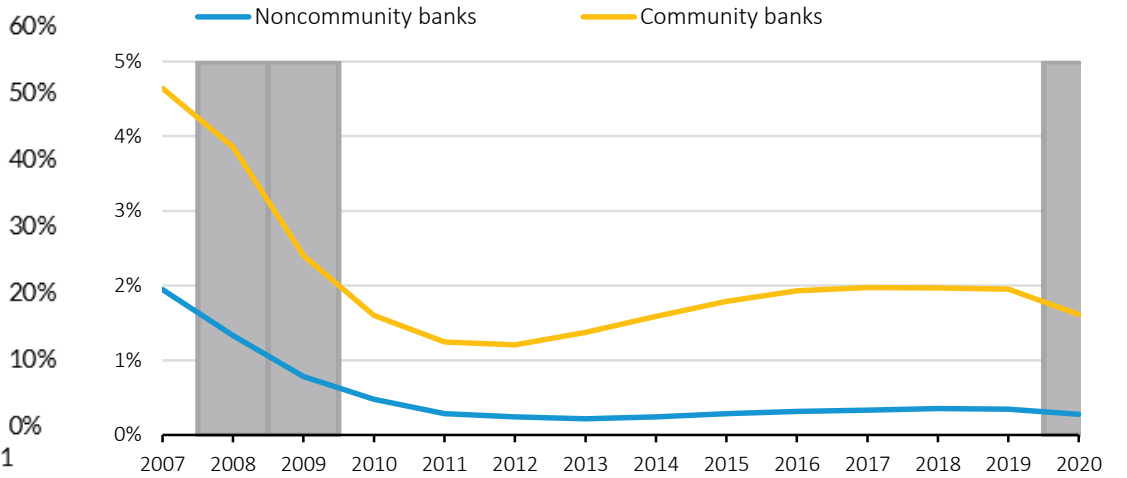
# One-to-Four-Family Residential Construction Loans

Like demand for one-to-four-family housing, supply is typically debt financed. But unlike the mortgage side, commercial banks (especially community banks) remain the key source of residential construction loans. And analysis of data on Federal Deposit Insurance Corporation-insured banks reveals that community banks hold more loans against their deposit base. In addition, across the one-to-four-family construction loan stock held on banks' balance sheets, 44 percent of the stock resides on community banks' balance sheets. In 2020, there was a decline in the one-to-four-family residential construction loan volume held by banks relative to their deposits across community banks. This decrease partly reflected a sharp increase in the volume of deposits, which increased by 16 percent between 2019 and 2020. But at the same time, net demand for construction loans fell, and lending standards tightened. But in contrast to the Great Recession era, net charge-off rates for one-to-four-family residential construction loans remained near zero, suggesting that during the COVID-19 recession, loan defaults did not contribute to a decline in one-to-four-family residential construction loans.

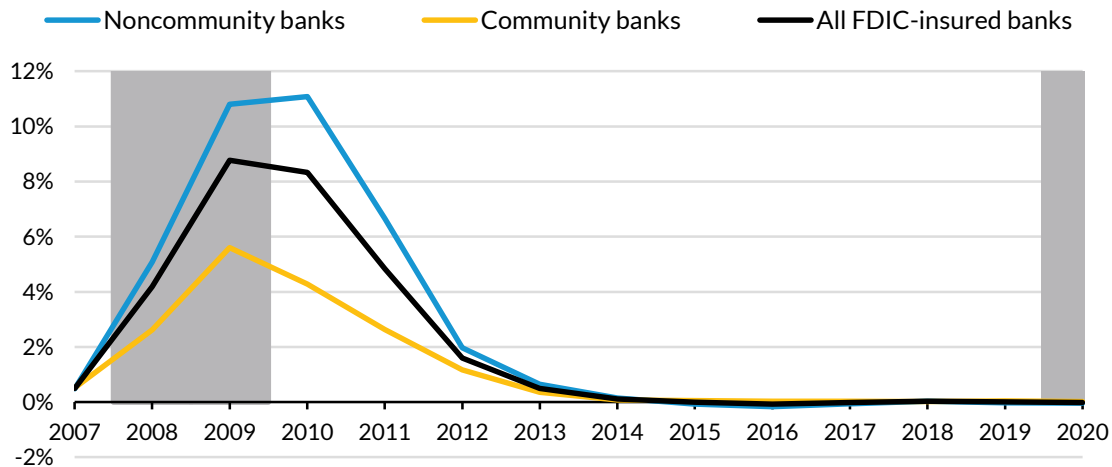
## Residential Construction Loan Volume



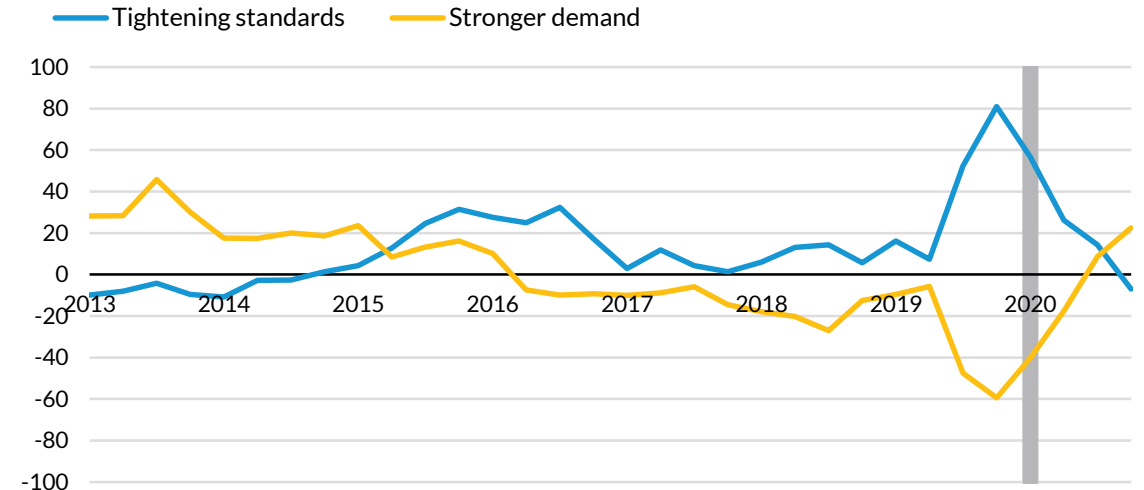
## Loan Volume as a Share of Deposits



## Net Charge-Off Rates at FDIC-Insured Banks



## Lending Standards on Construction Loans



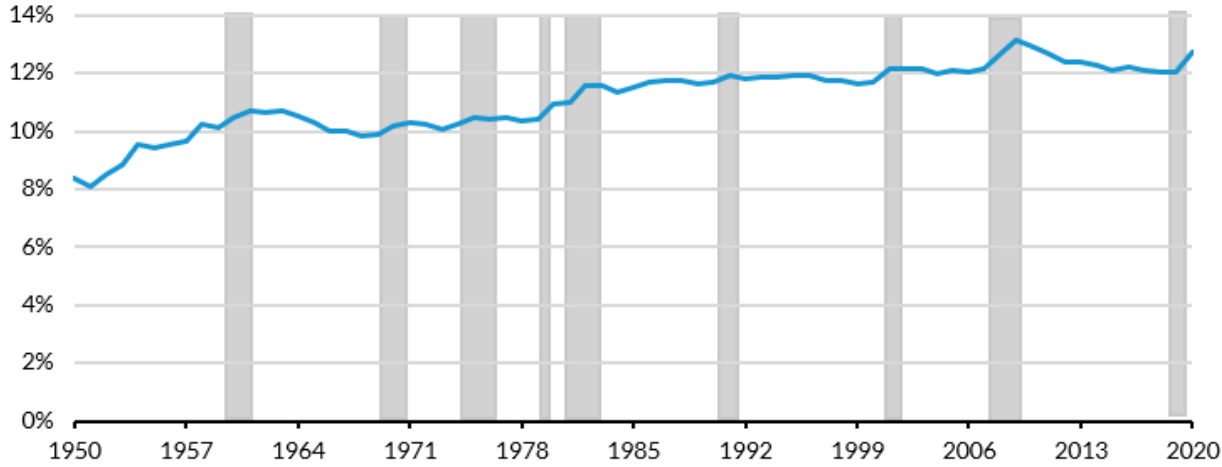
Sources: Federal Deposit Insurance Corporation (FDIC), the Federal Reserve Board, and the National Bureau of Economic Research.

Note: Gray shading indicates a recession.

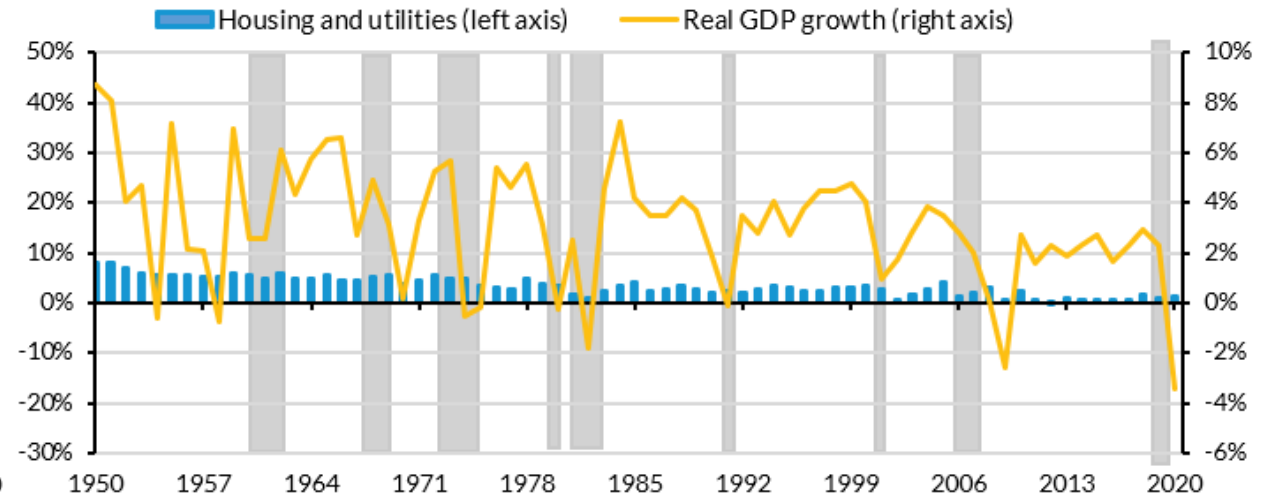
# Housing and Utilities

Housing is also integral to the overall economy. Within the context of gross domestic product (GDP), a broad measure of the economy, the cost of households' use of the housing stock is captured by housing and utilities, which consists of rents paid by tenants for tenant-occupied housing, an imputed rental value for owner-occupied dwellings, the rental value of farm dwellings, and spending on group housing. Given the size of the household sector, housing and utilities account for a significant portion of the overall economy. But echoing the stability of the housing stock and the broader population, growth in real housing and utilities has been largely steady over time, though annual growth has been lower in recent decades. As a result, real housing and utilities typically contribute positively to GDP growth, irrespective of the economy's point in the business cycle, but its contribution is small. Although real housing and utilities activity tends to be a smaller contributor to GDP growth, housing and utilities inflation has systematically exceeded economy-wide inflation since the late 1970s.

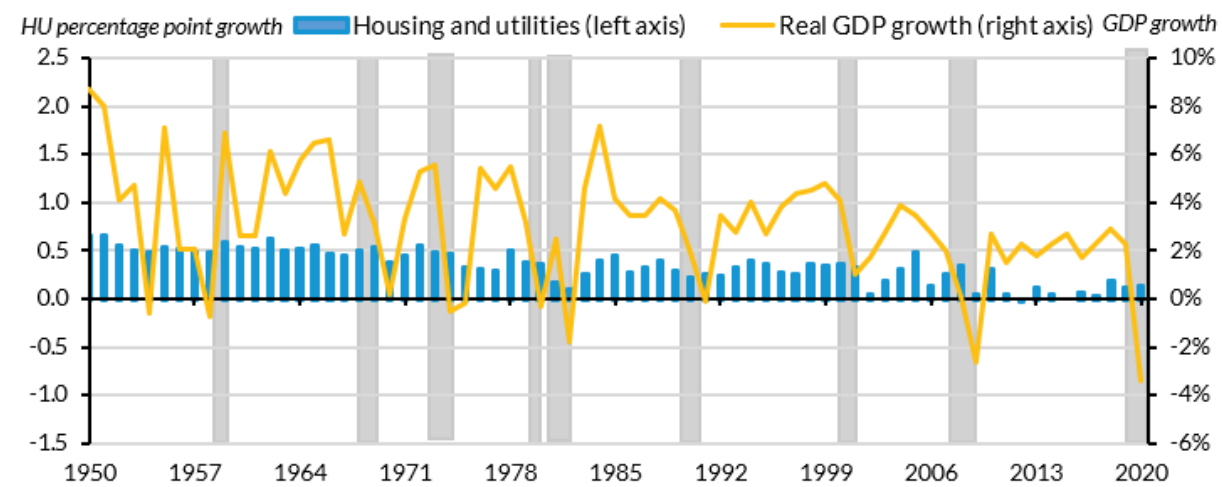
### HU Share of Nominal GDP



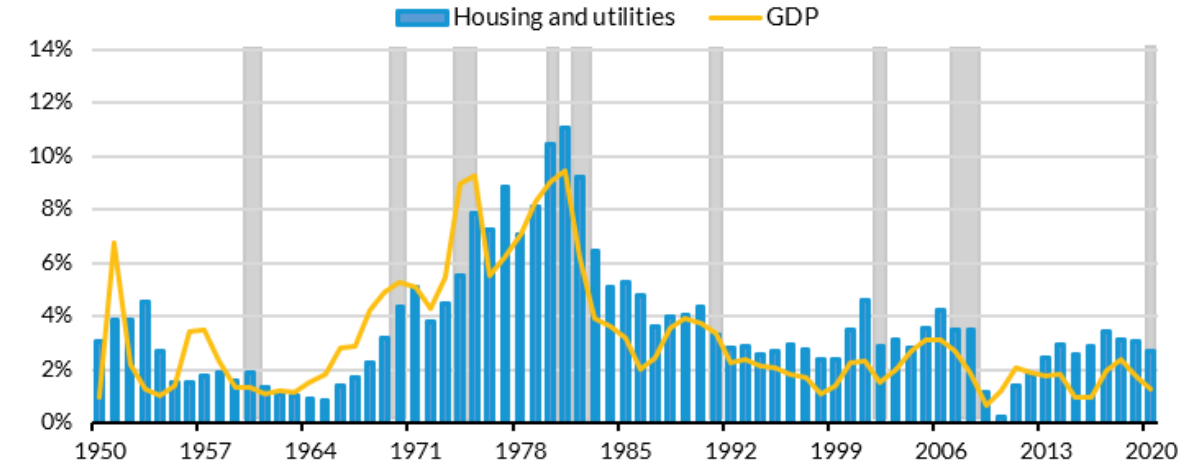
### Growth in Real HU and Real GDP



### Real HU's Contribution to Real GDP Growth



### HU and GDP Inflation



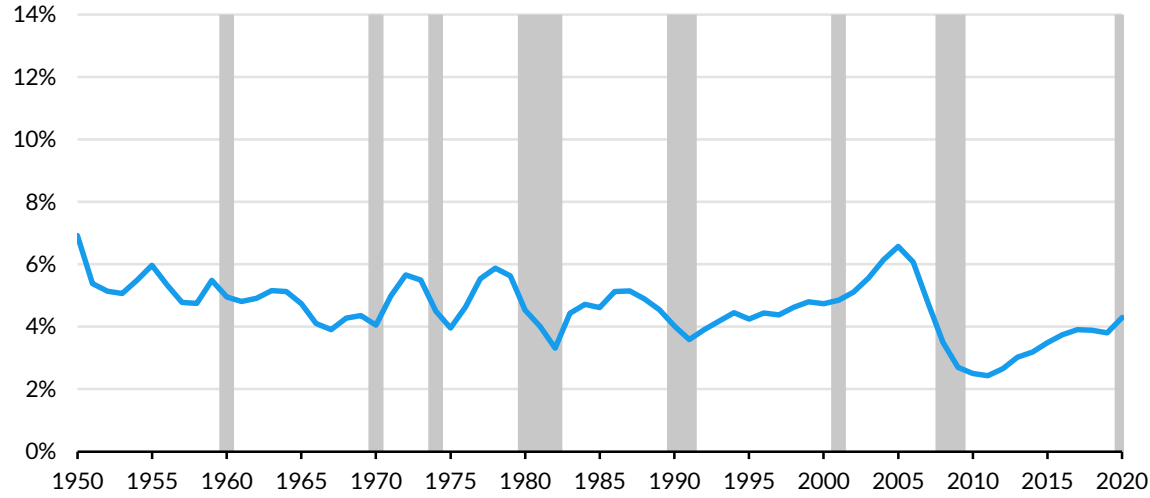
Sources: Bureau of Economic Analysis and the National Bureau of Economic Research.

Notes: GDP = gross domestic product; HU = housing and utilities.

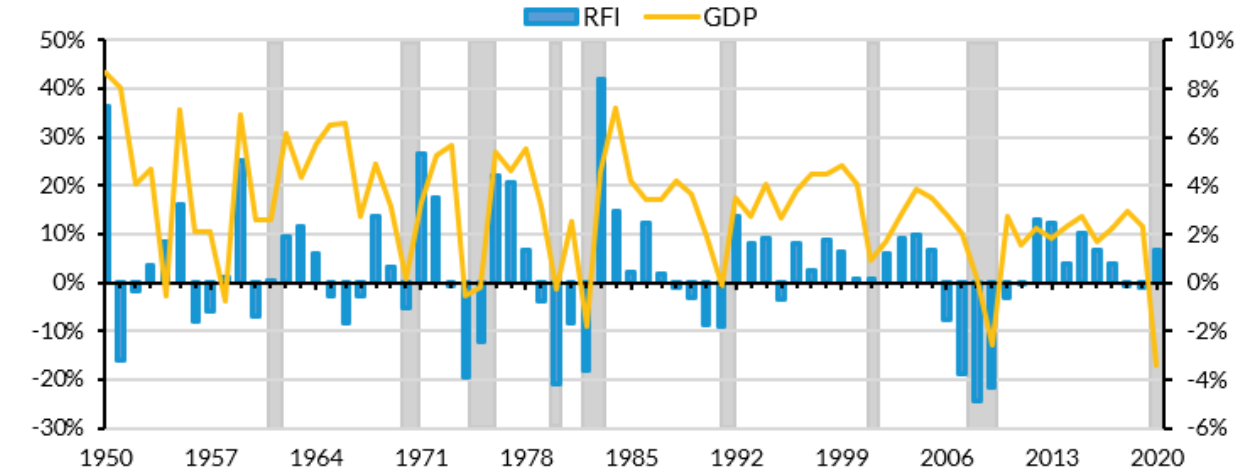
# Residential Fixed Investment

Within the overall economy, housing production is typically measured by residential fixed investment (RFI). The RFI component of GDP includes single-family residential construction and multifamily residential construction spending, as well as new manufactured housing. Brokers' commissions associated with home sales are also included in this category. Relative to housing and utilities, RFI is a smaller share of GDP but is more cyclical, echoing the long-term trend in residential construction. And historically, declines in RFI often precede economic recessions. And unlike housing and utilities, RFI can both boost and reduce real GDP growth. But similar to housing and utilities, RFI price inflation has systematically exceeded economy-wide inflation since the late 1970s. Combining housing and utilities and RFI means that housing accounts for 16 to 17 percent of the nation's economy, as measured by nominal GDP.

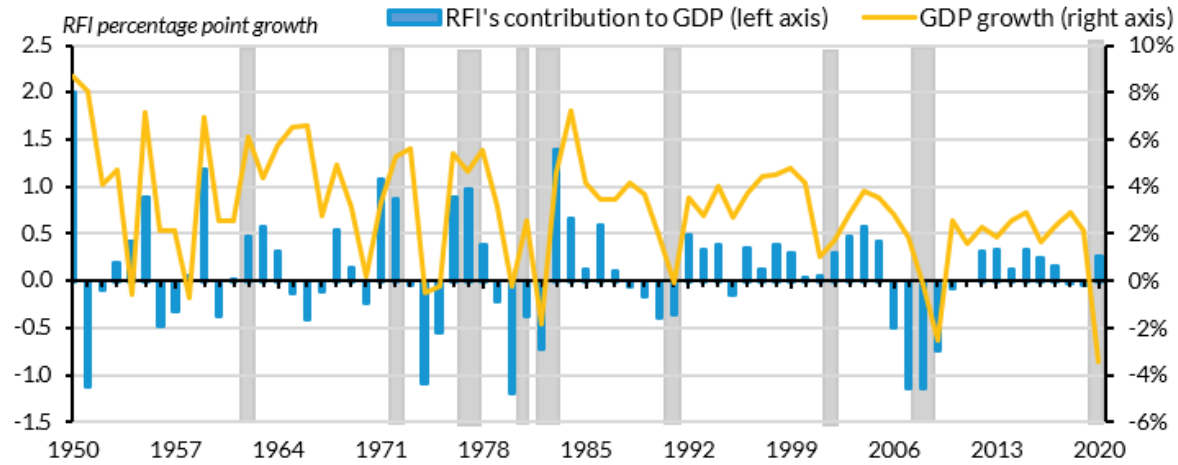
## Nominal RFI Share of Nominal GDP



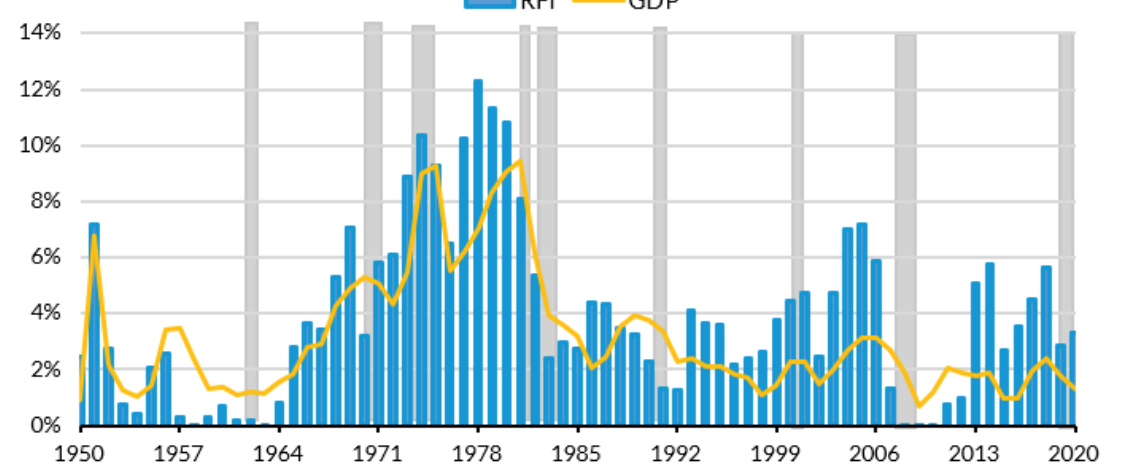
## Real RFI and Real GDP



## Real RFI's Contribution to Real GDP Growth



## RFI and GDP Inflation



Sources: Bureau of Economic Analysis and the National Bureau of Economic Research.

Note: GDP = gross domestic product; RFI = residential fixed investment.

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Michael Neal, Caitlin Young  
November 1, 2021

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