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Where Is the Housing Shortage?

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ABSTRACT

This article examines the extent to which the US as a whole and its metropolitan areas face a housing shortage by comparing change in total housing units and total households from 2000 to 2020. Although various studies indicate that the nation has a shortage of anywhere from 2 million to 4 million units, Census data show little evidence of a shortage. Household formation did exceed the growth of households from 2010 to 2020, but that does not take into account the large surplus of housing produced during the previous decade. From 2000 to 2020, housing production exceeded the growth of households by 3.3 million units. Of the nation's 381 metropolitan areas, only four experienced a housing shortage during this time, as did only 19 of the nation's 526 micropolitan areas. Even though the stock of housing is adequate in most markets, the mismatch between the distribution of incomes and the distribution of housing prices results in housing affordability problems, especially for extremely low-income renters.

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Introduction

Many people believe that the nation is confronting a shortage of housing. The popular literature often makes this claim (Badger & Washington, 2022; Kaysen, 2023; Lowrey, 2022; Timiraos, 2022). The academic literature contains many claims that a shortage exists (Freemark, 2022; Herbert, 2023). The housing industry supports these claims with multiple studies estimating the scale of the shortage (Betancourt et al., 2022; Hayward, 2022; Khater et al., 2021; Nechayev, 2023; Zinkula, 2023). Public policy is based, at least in part, upon the notion that there is a shortage of housing units. The White House states that the Biden plan "includes legislative and administrative actions that will help close America's housing supply shortfall in 5 years" (The White House, 2023).

This research attempts to determine whether there is a shortage of housing in the US, and if so where it is located. Specifically, it compares growth of households with growth of the housing stock to find where the growth in stock has not been able to keep up. It goes on to examine the number of households in two income categories, those with incomes between 30 percent and 60 percent of area median family income (AMI), referred to here as very low-income (VLI) and those with incomes below 30 percent of AMI, referred to as extremely low-income (ELI). The counts of households in each category are compared with the number of housing units appropriately priced for these households to identify any mismatches. We examine these conditions at the national level to establish a baseline for a further examination of all core-based statistical areas (CBSAs), including both metropolitan areas and micropolitan areas. This disaggregation to

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the metropolitan scale permits identification of those markets where there are housing shortages as well as those markets where there are no price–income mismatches.

We find that, in the aggregate, there may be no overall shortage of housing. Rather, a surplus may exist. In a few individual markets, shortages are found, but most markets are not experiencing shortages. Some of the shortages may be due to pandemic-related short-term shortfalls in construction due to supply-chain problems, labor problems, and, lately, high interest rates. We also find a large mismatch between the number of renter households with incomes below 30 percent of AMI and the number of housing units affordable to them. These conditions suggest that housing policies should be designed to reflect better use of the existing stock rather than expanding this stock where no expansion is needed.

Literature Review

The research on whether there is a housing shortage or a housing surplus tends to fall into two categories. The first looks across all prices of homes, from low to high. The second examines only homes deemed affordable to low-income households. Khater et al. (2021) with Freddie Mac provide a leading example of the first category. They estimate a national housing shortage of 3.8 million units in total, including all housing units of any tenure and at any price. Betancourt et al. (2022) with Fannie Mae provide a leading example of the second category. They estimate that across the largest 75 metropolitan markets, the cumulative shortage is around 4.4 million units affordable to households with incomes below 60 percent of the AMI.

The Freddie Mac team estimates the demand for housing as the number of units needed to satisfy three conditions. First, the housing supply needs to be sufficient to accommodate the level of household formation that occurs with population growth. Second, housing supply should meet the needs of additional households who cannot now form due to a shortage of housing. The team estimates the shortage due to a failure to meet actual plus latent demand to be about 400,000 units. Third, the housing supply needs to maintain a 13 percent vacancy rate for the market as a whole (Khater et al., 2018a, 2018b). The team estimates that there is a shortage of about 3.5 million units due to actual vacancy rates falling below their target level. Given these three conditions, the Freddie Mac researchers arrived at a shortage of nearly 4 million units, a shortage driven largely by the long-term decline in the construction of single-family homes (Khater et al., 2021). The authors further hold that "A well-functioning market needs vacant units" (Khater et al., 2018a, 2018b). But they find that the total vacancy rate has declined sharply since 2010, mostly due to lack of inventory. They contend that to bridge the shortfall of total units and to maintain an adequate inventory of vacant units, the US housing market may need to supply more than 1.6 million units per year.

From a policy perspective, the Freddie Mac team finds that a shortage of housing remains a major issue for the United States. They hold that years of underbuilding has created a large deficit, particularly for states with strong economies that have attracted many people from other states. They contend that the undersupply of housing will be further exacerbated as millennials and younger generations enter the housing market (Khater et al., 2020).

The Fannie Mae team estimates the shortage of *affordable* units only, not all units at any price. Betancourt et al. (2022) state "[T]here is a broad, national consensus that the United States has a housing shortage. For decades, housing production and preservation has fallen short of what is needed to keep housing affordable—particularly for low- and moderate-income renters and homebuyers." Their focus is on units needed to reduce the incidence of cost-burdened households—that is, households who must allocate more than 30 percent of income toward housing costs. They recognize that the problems of housing affordability vary widely by type of metropolitan area, with these types distinguished by income levels, housing prices, and employment levels, as well as other housing market characteristics. They estimate the shortfall in the 75

largest metropolitan areas between the number of households earning no more than 60 percent of the metropolitan AMI and the number of units offered at prices affordable to these households. They find shortages for both owners and renters and find that the shortages are not just in high-cost metropolitan areas.

From a policy perspective, the Fannie Mae team calls for varied and locally focused solutions to the housing shortage. They find distinct differences between types of metropolitan areas in terms of levels of employment, income, and costs. They find differences in levels of population growth and housing development. They find the affordability gap to be greatest for rental housing and to be most acute in markets suffering from lagging economies.

Finding a shortage does not in and of itself indicate that a housing production strategy is the preferred solution to the problem. In many circumstances, it is best to make use of existing stock rather than pay the very large sums needed to add stock to an already ample market. Helping low-income households rent existing units is much less costly than building deeply subsidized units with rents affordable to low-income households (Deng, 2005). Helping moderate-income homeowners remain in their units during periods of income insecurity can be cost-effective by preventing foreclosure and displacement (Gabriel et al., 2021).

Four issues need to be examined given these two influential estimates of the housing shortage. First, is there a shortage of housing units in total? Has housing stock growth over the long term failed to keep up with the pace of household formation? Much of the prior analysis looks only at the last decade. We examine increases in households and increases in the housing stock since 2000. This longer time period demonstrates that the calibration of a housing shortage is very much a function of the time period examined.

Second, is the level of vacancy lower than is desirable? It is widely agreed that a healthy market needs to maintain an adequate inventory of vacant units (Belsky, 1992; Belsky & Goodman, 1996). With too few units, asking prices rise and households are unable to move as their lifestyle and job needs change. But too many vacant units can have a depressing effect on overall housing values (Harrison & Immergluck, 2021; Immergluck, 2015). We examine long-term trends in housing vacancy rates and attempt to identify what should be the optimum level. Specifically, we will explore whether the 13 percent vacancy rate suggested by the Freddie Mac team is appropriate.

Third, is the rate of household formation lower than what it should be due to a shortage of housing stock? The Freddie Mac team argues that the shortage of housing has held down the growth of households; with more supply, household formation would have been higher (Khater et al., 2021).

Fourth, is there a mismatch between household incomes and housing prices? Specifically, we examine shortages of units priced appropriately for households earning between 30 percent and 60 percent of AMI as well as those below 30 percent for all metropolitan areas.

The contribution of our research is to provide insights into how we design housing solutions for individual markets reflecting the presence or absence of shortages and the scale of the mismatches between income and prices.

Data

For this analysis we use several data sources from the US Census Bureau. These include the decennial census counts for 2000, 2010 and 2020.[1] We also used data from the Current Population Survey/Housing Vacancy Survey (CPS/HVS), a survey of fewer than 100,000 respondents per year at the national level (US Census Bureau, 2021). Finally, we use data from the American Community Survey (ACS). The decennial census is our primary data source for analyzing trends in housing stock growth and household formation from 2000 to 2020. We use CPS/HVS data to analyze long-term trends in housing vacancy and to cross-check our findings regarding housing stock and household growth. We draw from the ACS to analyze the supply of rental and owner-occupied housing affordable to households earning up to 60 percent of AMI.

The variables drawn from these sources estimate household growth or contraction. Housing stock changes over time were identified as well as by whether the stock was occupied or vacant. The data were assembled at the county level and then aggregated into CBSAs as defined in 2020. If a county was in a CBSA in 2020, it is deemed to always have been in that CBSA. This corrects for the problems of changing boundaries of metropolitan and micropolitan areas.

The time horizon looks at 2000, 2010, and 2020. This range begins in 2000 at the end of a period of relative stability as the 1990s enjoyed comparable growth in households and housing units. The study covers a period with a housing price and production bubble (2000 to 2007), the collapse of the mortgage market and the Great Recession and its aftermath (2007 to 2012), and a period of recovery from the crash (2012 to 2020). This two-decade study period is needed so that short-term fluctuations in housing demand or supply do not lead to incorrect conclusions on whether housing production has kept up with household formation.

Methods

Like the Freddie Mac team, we define a housing stock shortage as stock growth that is insufficient to meet household formation. We compare housing stock growth and household growth to see where stock growth has fallen short, where it has kept pace, and where it has expanded faster than households formed. In addition, we look at headship rates (the ratio of households to population) to see if they are significantly lower in metropolitan areas with housing shortages.

We also look at vacancy rates to determine their behavior over time. We seek to establish what levels of vacancy indicate a shortage, a balance, or a surplus within a market. We look at the composition of the inventory of vacant units, which has changed in the last two decades with a growing number of units that are off the market.

Like the Fannie Mae team, we identify mismatches between the number of households with income below 60 percent of AMI and the number of housing units affordable to these households. We take this one step further by subdividing households with income below 30 percent of AMI from those with income between 30 percent and 60 percent of AMI.

Analysis of Housing Stock and Household Growth for the Nation

Household Growth and Housing Stock Growth From 2000 to 2020

The analysis begins by establishing a baseline, looking at the nation as a whole. While this approach merges markets that are growing, stable, and declining, it establishes a norm against which all markets can be assessed. We look at the change in households and change in housing units for the nation to see if there is evidence of an overall housing shortage.

Table 1 shows the number of households, housing units, and vacant housing units in 2000, 2010, and 2020. Note that housing stock expansion is defined as new construction plus conversions into housing net demolitions and conversions out of housing. The stock increased by 8.8 million units from 2010 to 2020. During this period, stock expansion was slower than household growth (10.1 million), but the inventory of vacant units from the bubble provided more than enough units to satisfy the growth in households not accommodated by increased housing production. Perhaps this recent decade of housing stock expansion failing to keep pace with household formation has led analysts to believe that the housing industry has failed to produce enough units. Over the entire period, 2000 to 2020, it is clear that the stock expanded by more than enough to meet the needs of household growth, suggesting that there is no overall shortage of housing. From 2000 to 2020, the number of households grew by 21.3 million (an average of about 1.07 million net new households per year). During the same time period, the housing stock expanded by 24.6 million units (about 1.23 million units per year). The excess stock expansion suggests that there was a surplus, not a shortage, of about 3.3 million units in 2020.

Table 1. US households, total housing units, and vacant housing units.

	Year				Growth in households and units			
	2000	2010	2020	2022	2000–2010	2010–2020	2000–2020	2020–2022
Source: Decennial census								
Housing units (millions)	115.9	131.7	140.5		15.8	8.8	24.6	
Households (millions)	105.5	116.7	126.8		11.2	10.1	21.3	
Vacant housing units (millions)	10.4	15.0	13.7		4.6	−1.3	3.3	
Vacancy rate	9.0%	11.4%	9.7%					
Source: Housing Vacancy Survey								
Housing units (millions)	116.3	131.8	140.8	143.7	15.5	8.9	24.5	2.961
Households (millions)	102.6	112.9	125.9	128.6	10.3	13.0	23.3	2.737
Vacant housing units (millions)	13.7	18.9	14.9	15.1	5.2	−4.0	1.2	0.224
Vacancy rate	11.8%	14.3%	10.6%	10.5%				

Sources: US Bureau of the Census, Decennial Census 2000, 2010, 2020; Housing Vacancy Survey 2000, 2010, 2020, 2022.

Vacancy is the difference between total units and occupied units. The national total vacancy rate was 9.0 percent in 2000 and grew to 11.4 percent by the end of the bubble in 2010. This increased vacancy rate corresponds to the imbalance between housing stock growth and net new households formed. To give scale to this rate of vacancy, about one in every nine housing units in the nation was vacant in 2010.

After the Great Recession the reduced rate of stock growth combined with the relatively steady rate of household formation caused the vacancy rate to fall slightly, but as of 2020 it remained high at 9.7 percent, with a total inventory of nearly 14 million vacant units. Thus, about one in every 10 housing units in the nation was vacant.

The period of 2010 to 2020 saw stock expansion failing to keep up with household formation, but this shortage was easily absorbed by the large stock of vacant housing units. The net surplus from 2000 to 2020 stands at 3.3 million units. This is a very different outcome than the shortages estimated by the Freddie Mac team. This presence of a surplus in the housing stock raises the question: is the analysis sensitive to the source of the data? The answer is yes. The estimate of the surplus above comes from the decennial census counts for 2000, 2010, and 2020.

Using data from CPS/HVS, we found a surplus over the study period, but it was smaller at 1.2 million units. This is much smaller than the estimates derived from the decennial census data, but the estimate using CPS/HVS data also finds a surplus, not a shortage. Moreover, the CPS/HVS estimates suggest that the housing stock has increased faster than household formation from 2020 to 2022, further increasing the surplus. The CPS/HVS data suggest that more new households formed from 2000 to 2020, but slightly fewer units were added to the stock during the study period than estimated by the decennial census data, resulting in a smaller surplus.

Table 1 leads to three conclusions. First, the source of the data matters, but independent of source, there does not appear to be an overall shortage of housing. Rather, the question is the scale of the surplus. Second, the reliability of the estimates probably depends upon the scale of the surveys. The 1.2 million unit surplus estimated from CPS/HVS data was drawn from a survey of about 72,000 units per year, while the decennial census data count every unit and every household in the nation that the Census Bureau could identify. Thus, the higher estimate of the housing surplus is probably closer to the true number for the nation. Finally, the CPS/HVS suggests that the two years following 2020 may have experienced a slight expansion, rather than a contraction, of the surplus.

Decomposition of Vacancy Rates Over Time

Another needed baseline is the vacancy rate for housing. This baseline determines what has been the vacancy rate over time and how it has varied by tenure. Figure 1 shows the vacancy rates for the nation's housing from 1965 to 2021 as estimated by the CPS/HVS.

The total vacancy rate is simply all vacant units as a percentage of the total count of housing units. Vacant units include units available for rent, units rented but not occupied, units for sale, units sold but not occupied, seasonal units, and units that are off the market. Units that are off the market include units that are in occasional use, in probate, in foreclosure, abandoned, etc.

The long-run average vacancy rate in the US is 11.1 percent with a standard deviation of 1.8 percentage points, suggesting that in normal market circumstances, the total vacancy rate will rarely reach 13 percent, the vacancy rate deemed desirable by Khater et al. (2018a, 2018b).

This long-run average may be biased high by the presence of the years after the housing production bubble, which brought about a multi-year increase in vacancy. The total vacancy rate first reached 13 percent in 2006 at the height of the housing production bubble. The vacancy rate stayed at or above 13 percent for 9 years before subsiding back into more typical territory and returning to 11 percent by 2020. Note that the long-run average vacancy rate prior to the housing bubble (1965–2000) was 10.0 percent. Thus, the notion of what is a balanced market may have been skewed due to the shock of the housing production bubble. When so many units are added to the market, the effect is felt for a very long time because of the longevity of housing. It is possible that 10 percent or even lower is a better standard for long-run vacancy in a healthy housing market.

The long-run average vacancy rate for owner-occupied housing is 1.6 percent for all years, but again, it was lower (1.4 percent) for the years before the housing bubble. The vacancy rate for homes for owner-occupancy did not reach 2.0 percent until 2006, the peak year of the housing bubble. It stayed above this level through 2013 and has fallen steadily since then. In 2019, it fell below 1.2 percent, out of its historical long-term typical range defined as the average plus or minus one standard deviation. In 2021, the owner vacancy rate reached a historic low of 0.9 percent—the first time it fell to below 1.0 percent.

While the total vacancy rate may be high, the current vacancy rate for owner-occupied housing is very low, indicating a short-term shortage. The Census Bureau estimates that only 726,000 units were vacant in 2021. This number would need to be about twice as high to return the market to a normal average. It is worth noting that this precipitous fall took place in the two years of the COVID pandemic which effectively shut down the economy, including home construction. Prior to the pandemic, the owner vacancy rate was 1.4 percent, well within the normal range.

The long-run average vacancy rate of rental housing (vacant units for rent divided by all occupied and vacant rental units) is 7.3 percent, ranging typically from 8.8 percent to 5.8 percent. The trend in rental vacancy rates has been upward. The pre-bubble average was 6.6 percent. As low as this may seem now, it is within the historical typical range. The trend in rental vacancy rate can be best described by a set of periods. In the early 1960s the rental vacancy was high at 8 percent but fell to about 6 percent in the mid-1960s where it remained until the mid-1980s. At

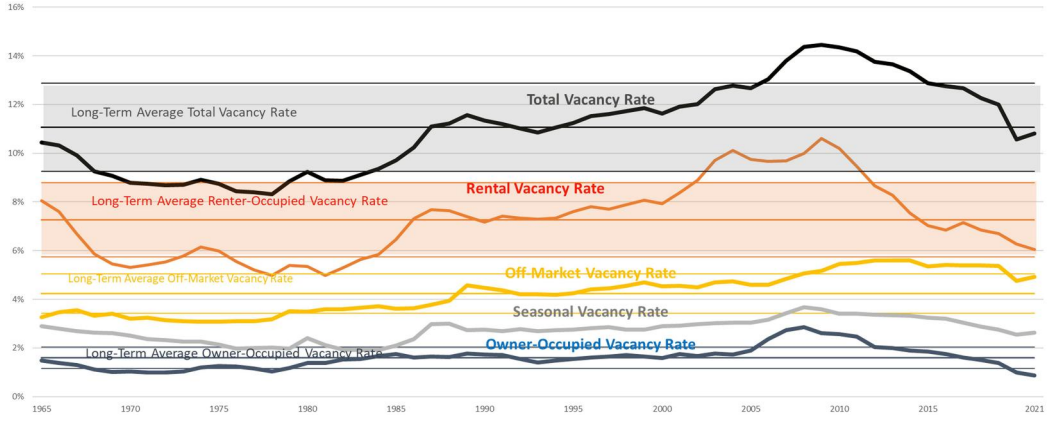


Figure 1. Housing vacancy rates in the United States, 1965 to 2021.
Source: US Census Bureau, Current Population Survey/Housing Vacancy Survey, March 15, 2022.

that point, it rose to about 7 percent. It stayed at this level until 2000 when it rose to 10 percent, well above its historical norms. It has generally declined since 2009, reaching 7.0 percent in 2016 but falling to a low of 6.0 percent in 2021. This seems very low after years with national rental vacancy rates above 10 percent, but this was normal in the 1970s and 1980s.

Often ignored in housing market analysis is the stock of off-market vacant units. It is now too large to ignore (Kresin, 2013). These are units that are empty but not on the market for sale or for rent. Even a very well-functioning market will have some of these units, which include those in probate, in foreclosure, or held empty while the owner is elsewhere such as a hospital. In the decades before 1990, these units comprised about 3 percent of the total housing stock. This may represent the normal share expected in a balanced market. During the 1990s and through the housing bubble, off-market units shifted up to account for 4 percent of the total. As the housing price bubble burst but production continued on faster than household formation, off-market vacant units climbed further to the range of 5 to 6 percent of all units, nearly double the share seen before. Only with the pandemic and the reduction in housing production has the off-market share dipped back to about 5 percent, where it is now. This means that 1 in every 20 units is sitting empty and is off the market in the US.

The one category of vacant housing that has remained essentially unchanged over time consists of seasonal vacancies. These are units intended for occupancy only during certain seasons of the year and are found primarily in resort areas. The baby boom is entering its retirement years, a phenomenon when the ownership of seasonal second homes was expected to rise (National Public Radio, 2023). Yet the seasonal vacancy rate has remained constant over time, at about 2.7 percent.

This review of historical trends in vacancy rates helps us estimate what the long-term normal is. The historical vacancy rate for the market as a whole is about 11.1 percent, and this figure may be biased high by the unexplained increase in off-market vacant units. The estimated target normal vacancy rate probably should be 9.3 percent. This would have the rental stock at 6.6 percent (the pre-bubble historical average), the owner stock at 1.4 percent (also the pre-bubble norm), seasonal units at 2.7 percent and the off-market stock at 3.6 percent (again the pre-bubble norm). Thus, the ideal vacancy rate would fall well below the 13 percent used in the Freddie Mac estimated model. This means that the current vacancy rate is 1.9 percentage points above the 9.3 percent ideal rate. This spread suggests that the inventory of vacant units contains 4.1 million more units than is desirable.[2] To give scale to this surplus, the number of surplus vacant housing units is more than the number of homes in the average state.

We know little about the physical condition of vacant units. If these units are in especially poor condition, the desirable vacancy rate could be higher. Unfortunately, the Census Bureau does not collect data on the physical condition of vacant housing.

Analysis of Housing Stock and Household Growth for the CBSAs

The next step in the analysis is to examine the CBSAs, as they represent the markets that most consumers consider in their housing consumption decisions. While many people move from one market to another with job change and lifestyle change (schooling, retirement, etc.), most households are tied to a metropolitan market by job or family and only examine housing options within that market. A shortage or surplus of housing nationwide may mask great variation between markets, and it is the local market conditions—not national conditions—that matter to consumers. Some markets may be very well balanced between the number of households and number of housing units, with healthy inventories of vacant housing. Other markets may have a mismatch between counts of households and units, with some in shortage and some in surplus.

The CBSAs contain 94 percent of the US population. As expected, the patterns of growth of housing units and households for the nation are reflected in the CBSAs (see Table 2). Looking at the period from 2010 to 2020, the number of households in CBSAs grew by 10.2 million and the

Table 2. Core-based statistical areas of the United States households, total housing units, and vacant housing units, 2000, 2010, 2020.

	Year			Growth in households, units		
	2000	2010	2020	2000–2010	2010–2020	2000–2020
Housing units (millions)	106.8	121.9	131.0	15.1	9.1	24.2
Households (millions)	98.2	109.1	119.3	11.0	10.2	21.1
Vacant housing units	8.7	12.8	11.7	4.2	−1.1	3.0
Vacancy rate	8.1%	10.5%	8.9%			

Sources: US Bureau of the Census, Decennial Census 2000, 2010, 2020.

housing stock grew by a smaller 9.1 million units. Thus, the housing stock expanded at a pace slower than household formation.

Looking at the preceding decade from 2000 to 2010, 11.0 million new households were formed, but the stock expanded by 15.1 million units, an excess expansion of over 4 million units. This increase added to the already large inventory of vacant units and pushed the national metropolitan housing vacancy rate to 10.5 percent.

Looking over the two decades from 2000 to 2020, households in CBSAs grew by 21.1 million, but the housing stock grew by a significantly greater 24.2 million units. This expansion of the stock added a surplus of 3.0 million units to the CBSAs of the nation.

The inventory of vacant housing grew rapidly with the housing bubble (2000–2010). Despite the recent slowdown in the construction of new housing, the metropolitan vacancy rate remains high. The inventory of vacant units in 2020 remains very large at 11.7 million units or 8.9 percent of the stock. Just in terms of quantities of housing units and counts of households, there is no shortage.

Is There Variation by the Size of the CBSA?

The Bureau of the Census categorizes CBSAs into two types based on size. The first group is made up of metropolitan areas. There are 381 metropolitan CBSAs, containing 1,166 counties. They range in size from the New York City metropolitan area, with a population of over 20 million, to Carson City, Nevada, with about 58,000 people. The second type are the micropolitan areas, of which there are 536, containing 641 counties. The average micropolitan area has a population of about 51,000 persons.

Table 3 looks at the pace of growth of households and housing units over the period of 2000 to 2020 across these types of CBSAs.

Metropolitan areas experienced a net gain of 20.2 million households and 22.9 million units from 2000 to 2020, for a net surplus of 2.7 million units. Micropolitan areas also posted a net surplus in housing stock but on a smaller scale. These micropolitan areas grew by about 1.0 million households but added 1.3 million housing units for a surplus of about 300,000 housing units.

Non-metropolitan counties experienced much less growth than metropolitan areas, but followed a similar pattern, with the increase of households lagging behind housing stock growth: Total households increased by about 200,000 while the housing stock grew by 400,000 units.

These patterns suggest that the stock is expanding faster than household growth in all types of markets, including large and small metropolitan areas as well as non-metropolitan areas.

Are Headship Rates Constrained by Shortages of Housing?

One other area of concern exists. The analysis assumes that the level of household growth is appropriate to the level of population growth. It is possible that household formation is constrained, in some markets, by a lack of sufficient growth in the housing stock. Were this the case, the headship rate (the ratio of households formed to the total population) would be lower than in markets with more robust housing stock growth. We found no correlation between

Table 3. Change in housing units and households for counties by metropolitan, micropolitan, or non-metropolitan category, 2000 and 2020.

County type		2000	2020	Change
Metropolitan	Units (millions)	95.4	118.3	22.9
n = 1,166	Households (millions)	88.3	108.5	20.2
	Change in units net change in households (millions)		2.7	
Micropolitan	Units (millions)	11.4	12.7	1.3
n = 641	Households (millions)	9.9	10.8	1.0
	Change in units net change in households (millions)		0.3	
Metro and micro	Change in units net change in households (millions)		3.0	
Non-metropolitan	Units (millions)	9.1	9.5	0.4
n = 1,336	Households (millions)	7.3	7.5	0.2
	Change in units net change in households (millions)		0.2	
Total	Units (millions)	115.9	140.5	24.6
n = 3,143	Households (millions)	105.5	126.8	21.3
	Change in units net change in households (millions)		3.3	

Sources: US Bureau of the Census, Decennial Census 2000, American Community Survey 2010, 2021.

headship rates and the ratio of housing stock growth to household formation. We did find that headship rates are correlated inversely with median gross rents and median value of owner-occupied homes, suggesting that headship rates are not constrained by housing shortages but are constrained in markets where housing cost levels are high.

Housing Surplus and Shortages in Individual Metropolitan Markets

The analysis now turns to an examination of individual metropolitan markets. Surpluses in the aggregate do not mean surpluses in every individual market. The surplus or deficit of housing units compared to the number of households formed over the 2000–2020 period was used to categorize the 917 metropolitan and micropolitan markets. When the number of housing units increased by less than the growth in the number of households, markets are seen as having a shortage of housing. Markets with a surplus of housing are defined as those where the number of housing units increased by more than 110 percent of the growth in the number of households. If the housing stock expanded from 100 to 110 percent of the growth in households, the market is categorized as balanced. If a CBSA experienced a loss of households from 2000 to 2020, it is categorized as declining.

About 60 percent) of all CBSAs are in a housing surplus condition, with a higher share among metropolitan markets (63 percent) and a lower share among micropolitan markets (57 percent). Metropolitan markets contain larger populations, making it important to examine the share of the total population in the nation contained in these surplus markets. Because micropolitan markets are smaller, the 53 percent that are in surplus contain only 5 percent of the total population, whereas the 63 percent of metropolitan markets with a surplus contain 55 percent of the population.

About 22 percent of markets are balanced, with housing stock growth closely corresponding with the pace of household formation, and these balanced markets contain nearly 32 percent of the US population. This leaves only 23 CBSAs (about 3 percent of the total) with a shortage of housing. Most of these (19) are micropolitan areas, and they contain less than 1 percent of the population. The CBSAs with shortages include only four MSAs (Chico CA, Yuma AZ, Albany OR, and Longview WA). None of the largest MSAs were found to have a shortage. Interestingly, 19 metropolitan areas and 121 micropolitan areas are declining in household counts (Table 4).

Mismatches Between Households by Income and Housing Units by Rent Levels and Home Values

Shortages (or surpluses) in the housing stock for a metropolitan market provide useful information on the capacity of the housing production industry to keep up with population growth. But

Table 4. Core-based statistical areas (CBSAs) by growth in units to growth in households by type of area, 2000 to 2020.

Housing stock growth as a percentage of household growth					
CBSAs with increasing households					
	Surplus greater than 110%	Balanced 0% to 110%	Shortage less than 0%	CBSAs with declining households	Total CBSAs
Type of CBSA					
Metropolitan areas	240	118	4	19	381
Percent of metro areas	63.0%	31.0%	1.0%	5.0%	100.0%
Percent of US population	54.7%	30.2%	0.2%	1.0%	86.1%
Micropolitan areas	305	91	19	121	536
Percent of micro areas	56.9%	17.0%	3.5%	22.6%	100.0%
Percent of US population	5.0%	1.4%	0.2%	1.6%	8.3%
Total CBSAs	545	209	23	140	917
Percent of CBSAs	59.4%	22.8%	2.5%	15.3%	100.0%
Percent of US population	59.7%	31.6%	0.4%	2.6%	94.4%

Sources: US Bureau of the Census, Decennial Census 2000, 2020.

a metropolitan housing market is not a single market. Rather, it is a collection of submarkets. These submarkets are a set of individual markets separated by quality strata and corresponding price levels from low to high. Each household decides which submarket to enter given the price levels in each submarket and the household's income constraints (Rothenberg et al., 1991).

Betancourt et al. (2022) compared the number of units affordable to households below 60 percent of AMI with the number of households in this income group in the 75 largest metropolitan areas. They estimate how many units are required to offset the shortage of affordable units. Across the top 75 metro areas, they estimate the cumulative shortage to be around 4.4 million units.

We carry their analysis two steps further. First, using ACS data for 2017–2021 (5-year estimates) we approximate four different submarkets in each CBSA. For both renters and owner-occupants, we estimate the number of units affordable to households with incomes up to 30 percent of AMI and the number affordable to those with incomes from 30 to 60 percent of the AMI. The 30 percent of AMI threshold identifies what the US Department of Housing and Urban Development (HUD) calls the Extremely Low-Income population. The 30 percent threshold also is roughly equivalent to the poverty level. Households in the Extremely Low-Income population comprise the bulk of the participants in HUD's major rental assistance programs, including public housing, the Housing Choice Voucher program, and the various Section 8 project-based rental assistance programs. The 60 percent threshold serves, with some exceptions, as the upper limit for income eligibility for the Low-Income Housing Tax Credit program, which is the nation's largest housing production program. This program has often come under criticism for producing units with rents too high to serve the poorest households who experienced the greatest need for housing assistance (Williamson, 2011). Separation of households in each metropolitan area into these two separate income strata helps to identify where housing assistance is most needed.

Second, we perform this analysis of submarkets by affordability thresholds on all CBSAs in the nation, rather than the largest 75. Expanding the analysis in this way permits examination of CBSAs that are both large and small and are experiencing surpluses and shortages of housing stock.

Table 5 translates the matchups of households by income and housing units by rent levels and home values into the VLI and ELI categories. The AMIs for each CBSA vary, but to help understand the income and prices levels of these submarkets, we list the averages. The average income ceiling for ELI is about $22,000, while it is $44,000 for VLI. The average affordable home value ceiling for ELI owners is about $106,000, and for VLI owners it is about $212,000. The average affordable rent ceiling is about $550 for ELI and about $1,100 for VLI renter households.[3]

Table 5. Average number of households and units by income category and tenure core-based statistical areas, 2021.

	Average units by tenure	Average households by tenure	Average surplus (shortage)
Owner occupancy			
Extremely low-income	15,109	8,437	6,672
Very low-income	25,457	13,056	12,402
Renter occupancy			
Extremely low-income	5,601	13,309	(7,708)
Very low-income	22,336	11,999	10,337

Source: American Community Survey 2021.

Table 6. Core-based statistical areas (CBSAs) by size and by shortage or surplus of units for extremely low-income and very low-income households by tenure.

	Metropolitan CBSAs		Micropolitan CBSAs		All CBSAs	
	Shortage	Surplus	Shortage	Surplus	Shortage	Surplus
Rental housing						
Very low-income (30% to 60% AMI)	2	377	5	512	7	889
Extremely low-income (<30% AMI)	377	2	489	28	866	30
Owner-occupied housing						
Very low-income (30% to 60% AMI)	33	346	21	496	54	842
Extremely low-income (<30% AMI)	61	318	30	487	91	805

AMI = area median family income. Sources: US Bureau of the Census, Decennial Census 2000, American Community Survey 2010, 2021.

Note: CBSAs in shortage experienced more households in the income category than units priced affordably to the income category.

CBSAs in surplus experienced more units priced affordably to the income category than households in the income category.

The average CBSA contains enough units to house its existing ELI owner-occupants as well as its existing VLI owner-occupants. The pattern is very different for renters. The average CBSA has enough units affordable to its VLI renters, but it has a significant shortage of units affordable to its ELI renters. The average number of rental units affordable to the ELI renter households is less than one half of the need.

Averages across all CBSAs can mask differences between CBSAs. Table 6 categorizes CBSAs by whether they have a shortage or a surplus of units in the submarket for either ELI households or VLI households by tenure. The CBSAs are also divided between the larger metropolitan areas and the smaller micropolitan areas. The CBSAs tend to follow the pattern expected: few have shortages in the submarkets for owner-occupancy. Only 6 to 10 percent of CBSAs have shortages in the submarkets for ELI or VLI homeownership.

The rental market is different. Shortages are rare in the VLI rental markets. Only two metropolitan markets, Miami (Florida) and Salinas (California), have shortages. All the rest have adequate stocks of rental units serving VLI rental households. On the other hand, shortages are pervasive in the ELI rental markets. Only two metropolitan markets have surpluses: Cedar Rapids (Iowa) and Jefferson City (Missouri). All of the other metropolitan markets have shortages of rental units serving ELI renter households.

Conclusions and Policy Implications

It is popular to believe that there is a shortage of housing. Our analysis suggests that shortages are not commonplace. Of the 362 metropolitan areas that are growing, only four have shortages of housing. Of the 415 growing micropolitan areas, only 19 have shortages of housing. The housing stock boomed during the housing bubble, adding about 140 units for every 100 new households, generating a huge overhang of surplus housing. That overhang continues to exist today in most markets. Construction and development slowed after the bubble burst, but while CBSAs continue to absorb the housing production overhang, the surplus remains at about 3 million units.

Although we found little evidence to indicate a shortage of housing at the national or metro level, our analysis shows a pervasive shortage of units affordable to renter households with income below 30 percent of AMI.

Caveats

Reasons exist to question these results:

Unit of analysis: The analysis reported here is at the level of the metropolitan area. The results for a metropolitan area will not be the same for all cities within a metropolitan area. For example, it is reported that New York City has a shortage of housing while the remainder of the metropolitan area contains a surplus (Srinivasan & Nesta, 2023). It would not be uncommon for the housing market of a central city to behave very differently from its suburbs. However, housing units in each of these jurisdictions serve as substitutes even if market conditions differ markedly from city to city.

Time period of analysis: The analysis reported here assumes that the year 2000 is a good starting point. The aggregate data for the nation suggests that the national housing market was approximately balanced in 2000 and had been throughout the decade of the 1990s. As a result, 2000 seems to be a safe starting point for most markets. However, an earlier starting point might be better for some markets. Again, New York City is reported to have experienced household growth greater than housing construction since 1990 (Srinivasan & Nesta, 2023).

Adequacy of vacant housing: Our analysis assumes that vacant for-rent and for-sale housing is habitable. However, if vacant housing units are physically inadequate or located in places that are undesirable, housing vacancy rates may overstate the actual availability of housing. In addition, the size and configuration of vacant housing units (e.g., number of bedrooms) may be misaligned with the size of households in need of housing. More research is needed to shed light on the condition, location, and configuration of vacant housing.

Results of Our Examination of Metropolitan Markets Nationwide

Overwhelmingly, metropolitan markets do not have a shortage of housing. The markets with shortages are disproportionately found among the smaller micropolitan areas. While these small markets contain only 9 percent of the nation's population, they make up the bulk of the markets with shortages.

Vacancy rates fell in all sectors of the market since the end of the housing bubble, but they generally remain within historically defined normal ranges. Rental vacancy rates returned to historically normal levels in 2016, but they have fallen low recently. Owner vacancy rates were high at the peak of the housing bubble, but they returned to typical levels as recently as 2018. They have fallen lower only over the pandemic years, reflecting the loss of new home construction in this period. We should not confuse a short-term shortage of new single-family homes entering the market with an overall shortage of housing. The stock of off-market housing is historically high and rising, posing a threat to market health with about 1.7 million more units than would be expected in a healthy market.

During the Housing Bubble, the housing industry demonstrated its capacity to spring into high rates of production, even when household formation did not call for all of these units. Given this production capacity, we expect that the pandemic-induced spot shortages of housing will be soon corrected. The National Association of Home Builders projects a rebound in 2024 for both single-family and multi-family construction (Thompson, 2023).

The mismatch between the distribution of household incomes and housing prices is a problem. Too few units exist that are affordable to ELI households, especially ELI renter households.

This lack of low-priced units forces these ELI households to expend a burdensome share of their income on housing.

Policy Implications

Federal policy should focus on helping households consume the housing that already exists, rather than adding to the already ample stock of housing. We acknowledge that some markets have very low vacancy rates, justifying the addition of stock to these markets in the short term, but these are exceptions, not the rule. There may also be shortages of specific types of housing, such as units with four or more bedrooms, or for populations with special needs, such as people with disabilities. These needs can and should be addressed with additional specialized housing units. While short-term problems may exist in terms of producing enough units, in the long run, the housing industry has the capacity to build all of the units needed to accommodate new household formation. Since 2000, the number of households grew by about 1.07 million annually. During the same period, the stock of housing grew by about 1.23 million units per year, more than enough to meet the need.

We are not arguing that the status quo is desirable or acceptable. The federal government plays important roles in helping the housing industry produce the incremental housing units needed each year. It does this on the ownership side through supervision of the secondary mortgage market, through regulation of mortgage lenders, and through mortgage insurance programs. It does this on the rental side through provision of tax credits to support the development of moderately priced rental units. All of these efforts continue to be necessary for the industry to perform well, and these efforts require constant adjustments as market conditions change.

But these efforts cannot be expected to meet the needs of the lowest-income households in the nation. The costs of operating properties in the marketplace are too high to feasibly rent units or sell units to ELI households. With an average annual income of under $22,000, the most that these households can afford to spend on housing is no more than $550 per month—less than the total cost of maintenance, insurance, taxes, debt-service and other operating expenses (US Census Bureau, 2023). The costs of owning or renting even modest units is beyond the reach of the poor.

Affordability problems do not seem to be a function of too few housing units coming into the stock over time. Rather, affordability problems seem to be a function of mismatches between housing prices and incomes, especially for VLI and ELI households.

The appropriate policy responses should seek to lower prices and raise incomes.

The current efforts to reform zoning practices that inhibit the development of needed housing options in desirable areas are on target (Kahlenberg, 2023; Schuetz, 2022). Zoning controls too often serve to exclude affordable housing, multi-family housing, and the missing middle (duplexes, triplexes and fourplexes). Development controls too often force developers to build at high price points. While the housing industry appears to be building enough units, the price distribution of these incremental units does not reach down to low-income households. Policies and programs are needed to increase the proportion of truly affordable units within the incremental flow of housing units into the stock.

On the income side of policy responses, we know how to help households consume existing housing. For low-income renters, the Housing Choice Voucher program is successful. It helps renters afford housing that would not otherwise be within reach (Turner, 2003). For moderate-income homebuyers, various forms of homebuyer assistance programs help low-income households purchase homes that would otherwise be unaffordable (Van Zandt, 2007). Similarly, various programs such as property-tax circuit breakers and home-repair assistance help low- and moderate-income homeowners remain in place. The pandemic demonstrated that the government can

step into emergency situations by helping renters pay rent when circumstances make the household unable to pay and by providing loan forbearance when the homeowner is unable to make mortgage payments (Aiken et al., 2022; Hepburn et al., 2023; Reina & Lee, 2023). These successes suggest that, as a nation, we should help low-income households make use of the ample stock of housing found in almost all housing markets to address housing affordability problems.

Notes

1. Because of its scale, the decennial census is considered the most accurate information on the counts of the housing stock both occupied and vacant compared to other Bureau of the Census surveys which are drawn from samples of various sizes. However, the 2020 census experienced data collection problems due to the COVID pandemic as well as efforts to suppress participation by immigrants (Bozick et al., 2023). Given these problems, the 2020 census is believed to be accurate at the national level, but, unlike prior decennial census counts, the 2020 census suffers from both overcounts and undercounts of some states (Cohn & Passel, 2022).
2. If the desirable vacancy rate is 9.3 percent of the total stock, then the stock should be 1.093 times the number of households. For 2022, this would be 140.6 million units, which is 3.1 million fewer units than were in the stock.
3. The ceiling rents for each income category are the ceiling annual income/12 months * .3 for acceptable rent to income burden. The ceiling home values for each income category are the ceiling annual income/12 * .28 for an acceptable cost burden of principal, interest, property taxes, and Insurance using 2021 loan terms, which results in an income multiplier of 4.8.

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