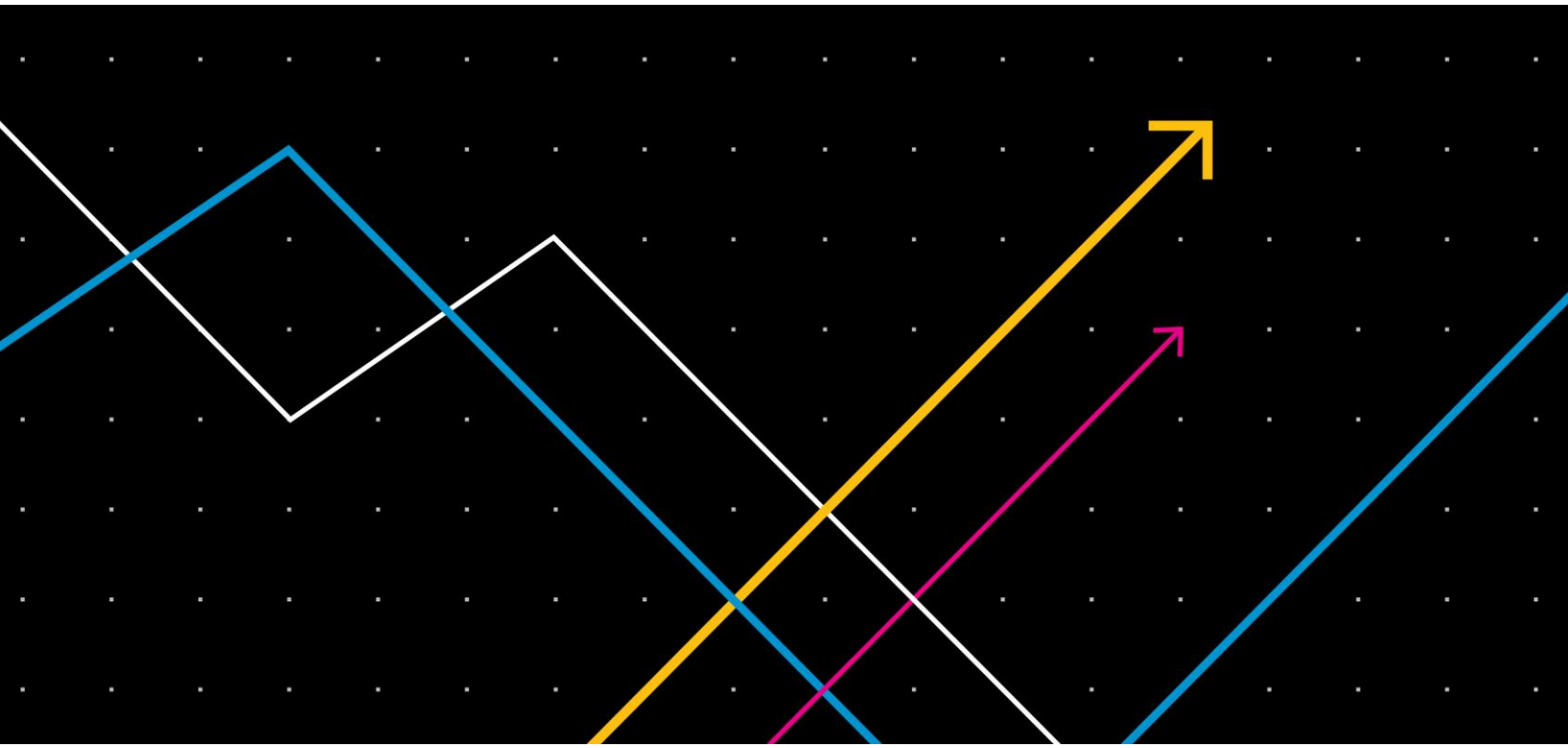

RESEARCH REPORT

Why the Most Affordable Homes Increased the Most in Price between 2000 and 2019

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Executive Summary

This report investigates factors in metropolitan statistical areas (MSAs) associated with higher price appreciation at the low end of the market relative to appreciation at the high end. US home prices have exceeded the 2006 peak, just before the 2008 housing market collapse. Between 2000 and 2019, the house price index has almost doubled, with a larger increase occurring at the low end of the market. Home prices in the lowest 20th percentile have increased 126 percent while prices in the top 20th percentile have increased 86 percent.

The relative price appreciation varies substantially across MSAs. For example, in Los Angeles, the appreciation rate of low-tier homes was 133 percentage points higher than for high-tier homes, while the difference was only 18 percentage points in Chicago. We find that in MSAs with higher employment growth, stronger zoning and land-use regulation, and less land available for development, prices for low-tier homes have increased more than for high-tier homes. The investor share and its growth in the home transaction market is not associated with the price growth rate differences between low-tier and high-tier homes. The relatively greater increase in housing costs for low-income households has caused residual income inequality (household income minus housing costs) to increase more than income inequality. Additionally, because MSAs with lower home price growth rates also experienced lower employment growth, housing cost burden and residual income inequality increased at a similar level across most MSAs. This suggests the need for policies to mitigate high housing cost burdens at the local level because the reasons for the increased burden—a weak labor market or stringent housing supply—differ by MSA.

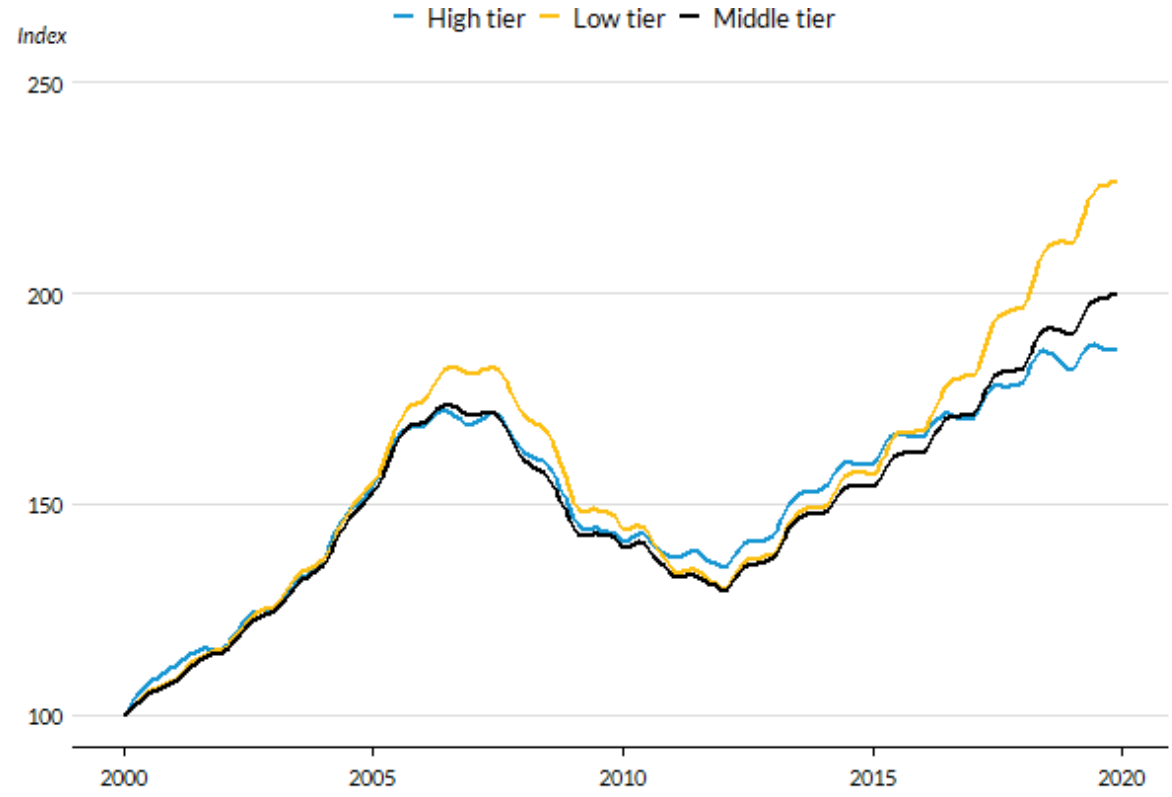
Why the Most Affordable Homes Increased the Most in Price

Since 2017, US house prices have exceeded the peak set in 2006, the year the housing market started to collapse. Figure 1 shows that home prices began increasing in 2012. The appreciation rate has not been even across price tiers. Black Knight data divide each metropolitan statistical area (MSA) or micropolitan area into five price tiers. The transaction prices of homes in the highest tier (top 20th percentile) and the lowest tier (bottom 20th percentile) showed a similar growth rate between 2012 and 2015, but the path diverged after 2015, as low-tier homes experienced a noticeably higher price growth rate than high-tier homes. Between January 2000 and December 2019, prices for the low-tier homes increased 126.2 percent nationwide, while prices for high-tier homes increased 86.4 percent.

Researchers have pointed out that increases in land, material, and labor costs have all contributed to a lower housing supply; difficulty filling jobs in the construction sector and stagnant construction labor productivity are also to blame.[1] According to the Urban Institute's newly released Housing Supply Chartbook, insufficient supply relative to new household formation resulted in a national housing shortage of 350,000 units (Neal, Goodman, and Young 2020). When building costs increase, a greater portion of construction occurs at the high end of the market, widening the mismatch between what is being built and what consumers demand. This mismatch disproportionately drives up housing costs at the low end of the market, where demand substantially outpaces supply.

FIGURE 1

Home Price Changes by Price Tier, National Index

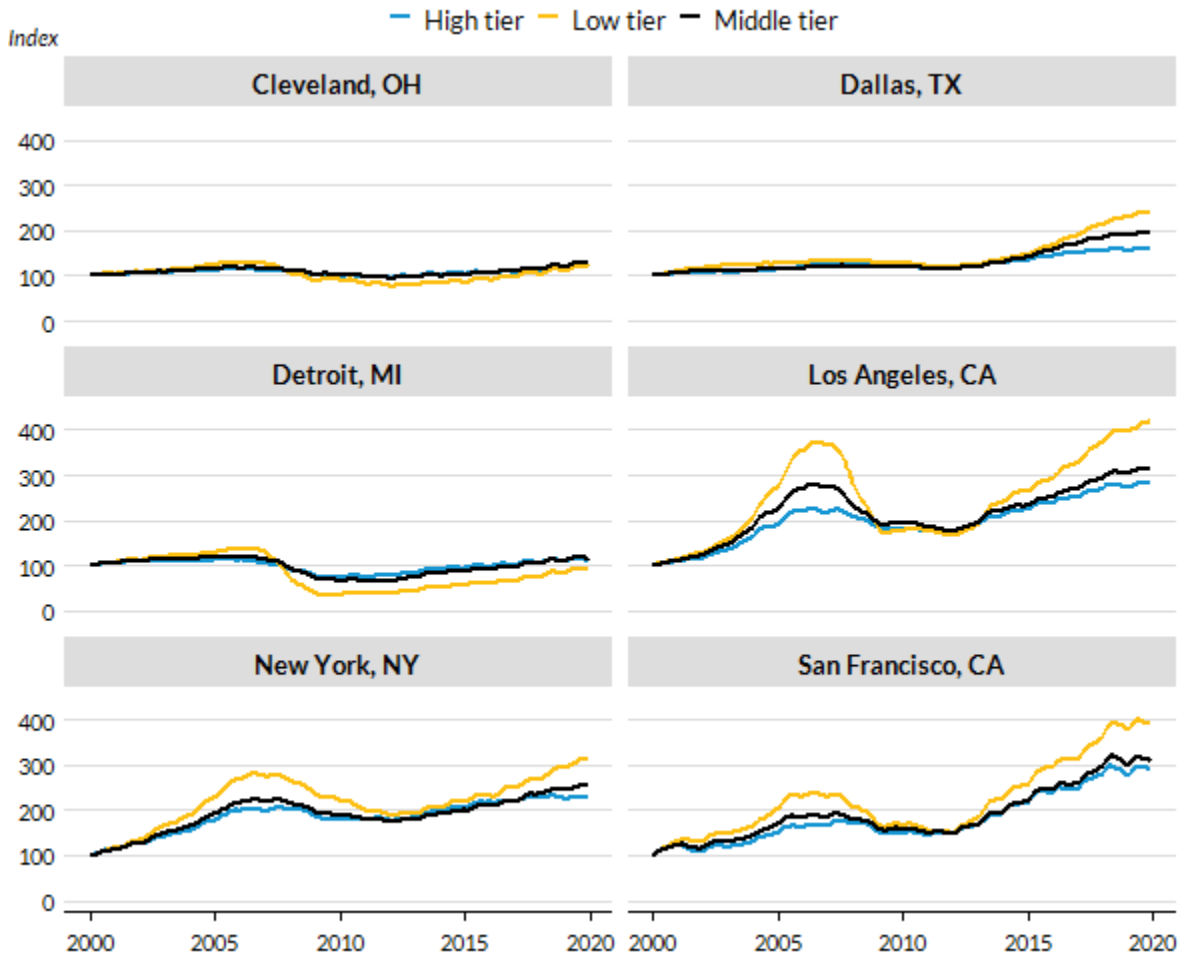


Source: Black Knight.
Note: Base year = 2000.

The price growth disparities between low-tier and high-tier homes vary across MSAs (figure 2). MSAs such as Dallas, Los Angeles, New York, and San Francisco have experienced greater price increases for low-tier homes than for high-tier homes. In Cleveland, homes in both price tiers have seen a similar growth rate, while in Detroit, prices for low-tier homes have increased less than those for high-tier homes. This variation allows us to examine which factors are associated with differences in home price appreciation between low-tier homes and high-tier homes.

FIGURE 2

Home Price Changes by Price Tier in Six Metropolitan Statistical Areas



Source: Black Knight.
Note: Base year = 2000.

In this study, we examine factors associated with appreciation rates for low- and high-tier homes and the differences between the two groups. We chose the years 2000 and 2019 to calculate the growth rate. Between these years, US home prices were highly volatile, and the degree of house price fluctuation varied substantially across markets. This makes the growth rate estimates sensitive to base year selection. We use 2000, the year before the boom-and-bust cycle, as the beginning point to capture long-term trends in home prices.

Following our regression analysis, we cluster the MSAs into three groups according to the three variables—the Wharton Residential Land Use Regulation Index (Gyuorko, Saiz, and Summers 2008), the

Saiz Land Unavailability Index (Saiz 2010), and employment growth—that emerged as the biggest contributing factors to the differences in price growth between low- and high-tier homes. For each group, we calculate changes in housing costs, household income, housing cost burden (housing costs divided by household income), and residual income. Because of the greater increase in housing costs relative to income, especially at the low end of the market, we find that the housing cost burden for households in the bottom quartile of the income distribution (low-income households) increased 8.8 percent, while the burden on the top quartile decreased 0.5 percent. The residual income decreased 5.8 percent for low-income households but increased 8.0 percent for high-income households. Because of the greater increase in housing costs for low-income households, residual income inequality increased significantly more than income inequality. Additionally, because MSAs with lower home price growth rates also experienced lower employment growth, housing cost burden and residual income inequality increased at a similar level in all three clusters. This suggests that we need policies to mitigate high housing cost burdens at the local level because the main factors contributing to the increased burden—weak labor market conditions and housing supply constraints—differ across MSAs, though the outcome looks similar.

House Price Appreciation by Tier across MSAs

Figure 3 shows home price changes in 936 MSAs and micropolitan areas, classified by price growth for low-tier homes between 2000 and 2019, price growth for high-tier homes between 2000 and 2019, and the difference in the growth rate between low- and high-tier homes. Most MSAs in map 1 (price growth for low-tier homes) are darker than the MSAs in map 2 (price growth for high-tier homes), indicating that low-tier home prices have increased more than high-tier home prices. Among the 936 MSAs in the Black Knight data, high-tier home price growth exceeded low-tier home price growth in only 65 MSAs (7 percent).[2]

We used Black Knight data for all the home price analyses in this report. As a check on quality, we compared Black Knight data with data from Case-Shiller's home price index where their coverage overlapped (appendix figure A.1), and we found the two sources to be consistent.

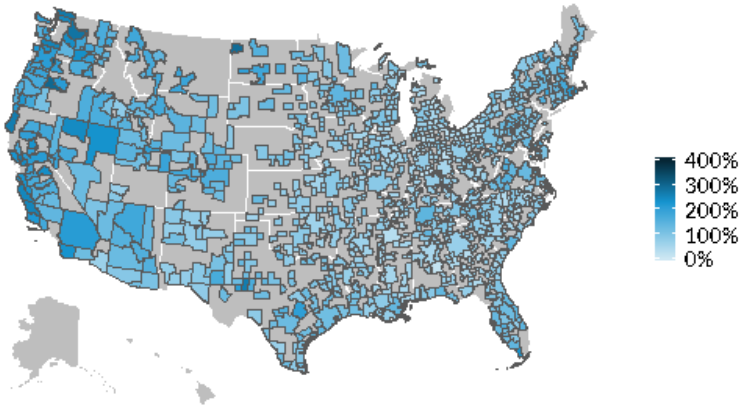
Among cities with more than 100,000 residents, Los Angeles, California, experienced the largest price increase for low-tier homes (312.7 percent), while Detroit, Michigan, experienced the largest decline (4.5 percent). For high-tier homes, San Francisco, California, experienced the greatest increases (190.0 percent), and Saginaw, Michigan, experienced the smallest increases (41.6 percent). Bend-

Redmond, Oregon, showed the largest growth rate gap between low- and high-tier homes (203.7 percent), and Detroit, Michigan, showed the smallest gap (−20.7 percent).

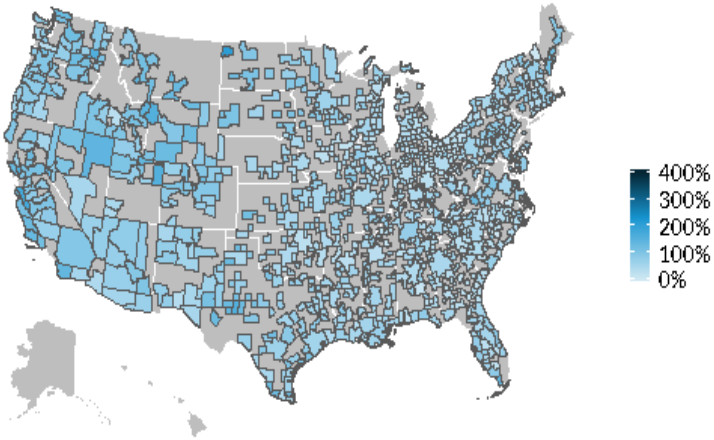
FIGURE 3

Home Prices by Tier in All Metropolitan Statistical Areas

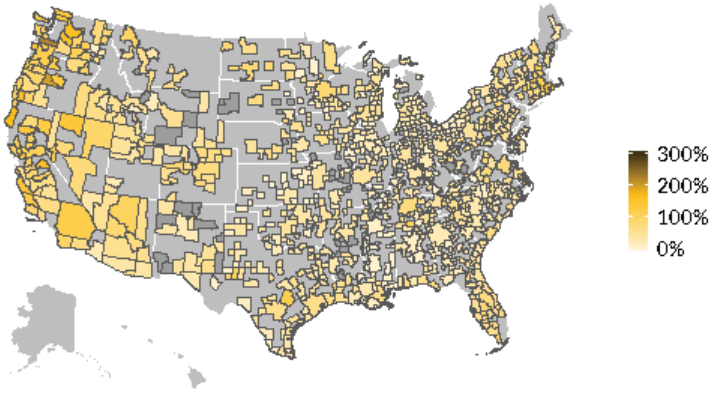
1. Price growth for low-tier homes



2. Price growth for high-tier homes



3. Difference



Source: Black Knight.

Why Is the Growth Different across MSAs?

Variations in MSAs make for different patterns in home price growth. As the data described above show, year-over-year home price appreciation looks different depending on the MSA. This difference allows us to examine what factors are associated with price appreciation across MSAs for both low- and high-tier homes. We compared MSA-level price appreciation for high-tier and low-tier homes with three MSA-level market characteristics: housing supply constraints, employment growth, and the presence of investors in the transaction market.

Housing Supply Constraints

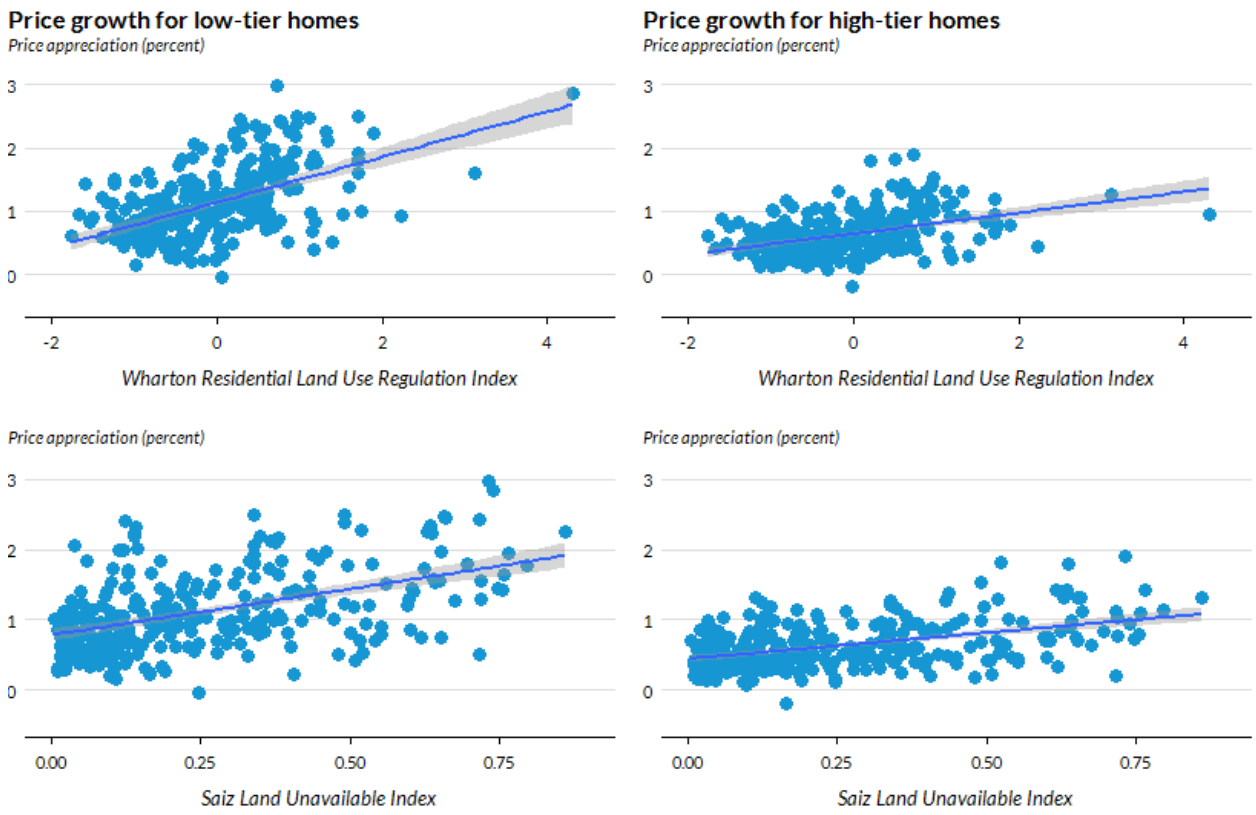
Figure 4 shows the relationship between home price growth and two indicators of housing supply: the 2008 Wharton Residential Land Use Regulation Index (WRLURI) and the 2010 Saiz Land Unavailable Index. These measures of MSA-level supply constraints correlate strongly with house price fluctuations (Aladangady 2017; Chakraborty, Goldstein, and MacKinley 2018; Mian and Sufi 2009). A higher score on each index reflects greater restrictions on new home construction in a market, with Wharton measuring overall land-use regulation and Saiz assessing land availability. We use these measures to test how limits on supply influence price growth at the high and low ends of the market.

The plots in figure 4 show that the MSAs that scored higher on the Wharton and Saiz indexes also experienced more robust home price appreciation. But higher scores on the supply indexes related more strongly to price growth for low-tier housing than for high-tier housing, indicated by the steeper slopes. The Wharton index, which focuses on regulatory restrictions on supply, shows a stronger relationship for both low- and high-cost housing.

These data support theory and empirical findings (Glaeser et al. 2005; Ihlanfeldt 2007; Mayer and Somerville 2000) that restrictions on new home construction, whether regulatory or geographic, are putting upward pressure on home prices. The stronger correlation at the low end of the market also supports the suggestion that supply restrictions may have a greater effect on the most affordable housing.[3]

FIGURE 4

Housing Price Index and Housing Supply Indicators



Sources: Data from Black Knight, the 2010 Saiz Land Unavailable Index, and the 2008 Wharton Residential Land Use Regulation Index.

Employment Growth

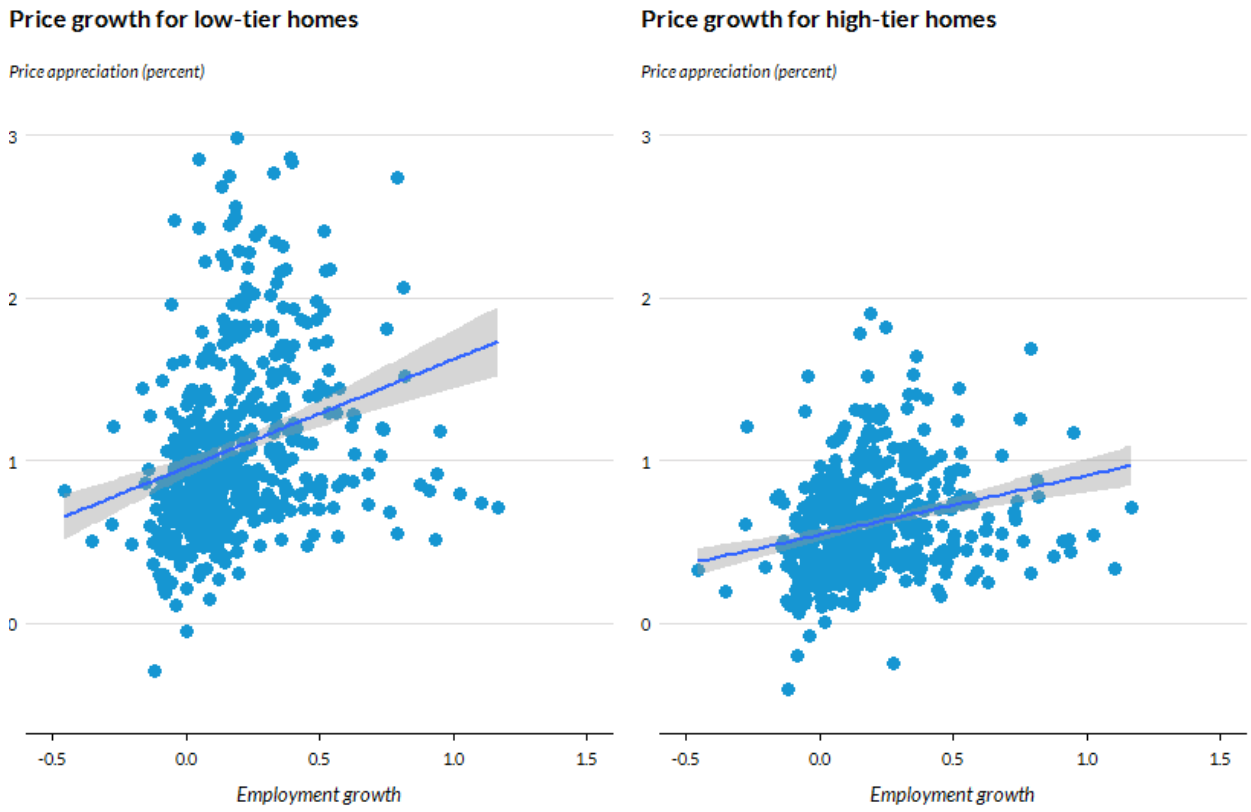
Employment growth, as measured by the change in the number of employed people living in an MSA from 2000 to 2018, is indicative of housing demand in a local market. Figure 5 shows price tier growth plotted against employment growth. In MSAs where the number of employed people grew the most, we see the most robust home price growth. As was the case with the supply indicators, employment growth was a stronger indicator of price growth at the low end of the market, as indicated by the steeper slope.

Employment growth is an adequate approximation of household growth. MSAs that had higher employment growth also experienced a growing number of households. This puts pressure on the number of units needed to house a city, which, as recent work has shown, may be a better measure of housing demand than simply looking at the population.[4] Seniors are also staying in their first homes

longer than ever before, keeping starter single-family homes off the market (Zhu and McManus 2019), which may leave newcomers to fight for the remaining affordable housing.

FIGURE 5

Housing Price Index and Housing



Sources: Data from Black Knight, the 2000 Census, and the 2018 American Community Survey.

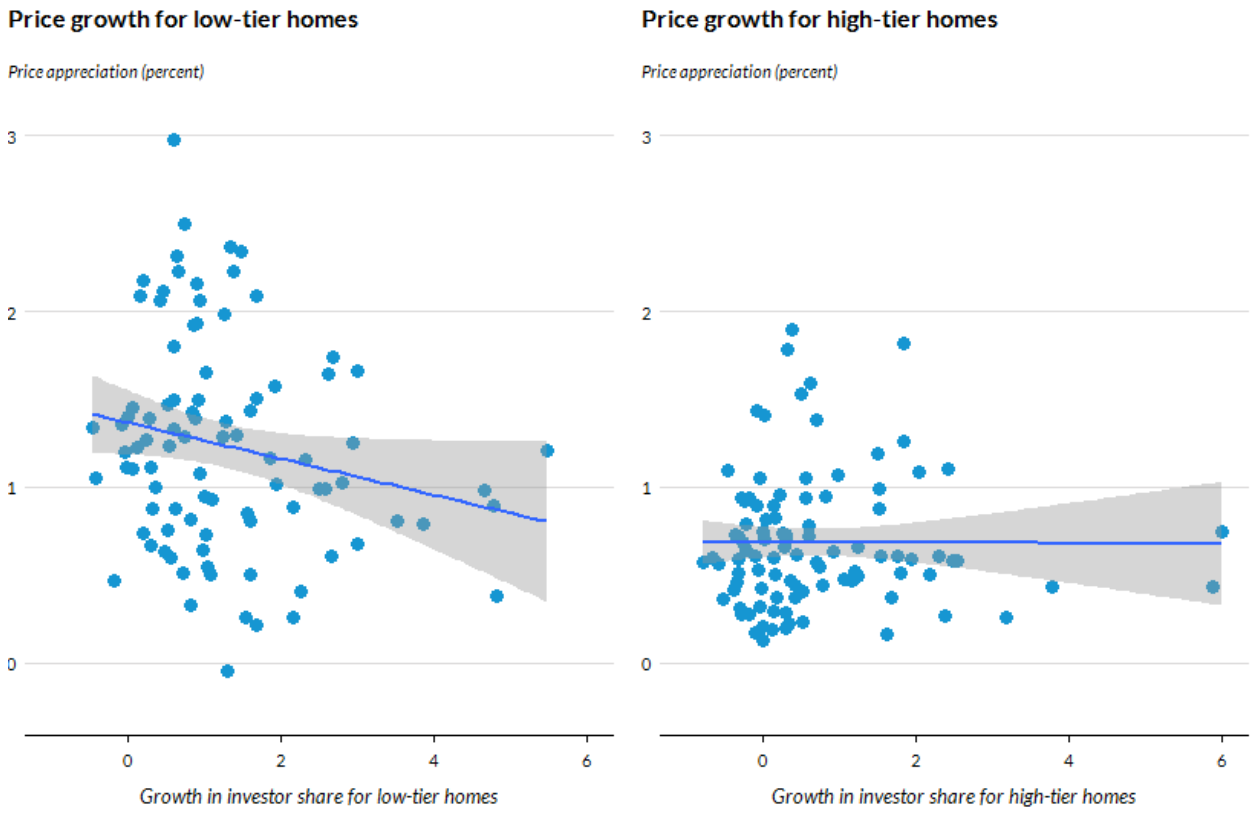
Single-Family Investors

CoreLogic released data on the share of single-family homes purchased by investors (non–primary residences) at the MSA level over time. Research on single-family investors has shown a spillover effect of these kinds of purchases onto the prices of similar housing nearby (Ganduri, Xiao, and Xiao 2019; Lambie-Hanson, Li, and Slonkosky 2019) During the crux of the Great Recession, when institutional buyers were purchasing a high share of distressed properties, this spillover effect may have been even higher (Ganduri, Xiao, and Xiao 2019).

But even though the investor share of single-family purchases has increased overall (figure 6), it has little relationship to price growth among high-tier homes. It shows a slightly negative relationship with price growth for low-tier homes. This relationship does not fully align with recent studies that looked at the impact of institutional investors on home prices. (These studies focused on the period after the housing market crisis and looked only at institutional investors who account for just one-third of all investors.[5]) Figure 6 suggests that investors who buy low-price homes tend to buy in cheaper markets, where growth has been slow over the past 20 years. This is not a causal analysis, however. The regression analysis tests whether these relationships hold after adding control variables.

FIGURE 6

Housing Price Index and Housing Supply Indicators



Sources: Black Knight and CoreLogic.

Regression Analysis

Data

We collected data from multiple sources to conduct regression analyses. The home price data are from Black Knight. Using transaction price data in January 2000 and December 2019, we calculated the home price growth rate for high-tier and low-tier homes for each MSA. We also calculated the difference in the growth rate between the two tiers. These variables are the three dependent variables in our regression analyses.

The control variables can be grouped into four large categories: home prices in 2000, employment and income, housing supply, and investors. The employment and income data come from the 2000 Census and the 2018 American Community Survey. To capture the MSA-level housing supply, we look at the number of housing units in 2000 and housing unit growth between 2000 and 2018 using the 2000 Census and the 2018 American Community Survey. We also use the 2008 WRLURI and the 2010 Saiz Land Unavailable Index (Gyourko, Saiz, and Summers 2008; Saiz 2010). Finally, data about the investor share of home sales in 2000 and 2018 are from CoreLogic. These data provide the share of investors in the 100 largest MSAs (by population) and breaks down the investor share by home price tiers.

Summary Statistics

Because we collect data from different sources, the number of observations differs by variable. This is also reflected in the regression results, where the sample size decreases as we add more control variables. Table 1 shows that the average price growth rate for low-tier homes was 108 percent between 2000 and 2019, while the growth rate for high-tier homes was 63 percent. The number of employed people increased 19 percent between 2000 and 2018. Among the 230 MSAs that were in both the 2000 Census data and the 2018 American Community Survey data, the average household income for the bottom quartile fell 5 percent while the average income increased 4 percent for the top quartile. We also calculated the income ratio between households in the top and bottom quartiles to capture inequality. This ratio increased 11 percent, reflecting growing income inequality during the past two decades.

The number of housing units increased 24 percent between 2000 and 2018. The mean value of the WRLURI over that same period was close to zero, and on average, about 25 percent of the land was unavailable for development in 285 MSAs. Finally, investors purchased 11 percent of low-tier homes

and 6 percent of high-tier homes in 2000. The share of investors grew 149 percent in the low-tier market and 70 percent in the high-tier market. Overall, the investor share increased 122 percent. (There is not a one-to-one correspondence between the CoreLogic data we used for the investor share and the Black Knight price tiers we used for the overall analysis, as CoreLogic uses three tiers and Black Knight uses five.)

TABLE 1

Summary Statistics

	Obs.	Mean	Std. dev.
Dependent variables			
Low-tier price growth (Jan. 2000–Dec. 2019)	936	1.08	0.61
High-tier price growth (Jan. 2000–Dec. 2019)	936	0.63	0.32
Difference	936	0.45	0.44
Home prices in 2000			
Low-tier home price in 2000 (in 1,000s of dollars)	936	65.93	13.81
High-tier home price in 2000 (in 1,000s of dollars)	936	301.67	120.85
Employment and income			
Thousands of employed people in 2000	495	226.80	591.07
Employment growth (2000–18)	495	0.19	0.33
P25 HH income in 2000	258	31.62	6.39
P25 HH income growth (2000–18)	230	-0.05	0.11
P75 HH income in 2000	260	96.57	18.15
P75 HH income growth (2000–18)	230	0.04	0.09
P75 HH income/P25 HH income in 2000	258	3.11	0.30
P75 HH income/P25 HH income growth (2000–18)	230	0.11	0.08
Housing supply			
Thousands of housing units in 2000	495	197.17	496.62
Housing unit growth (2000–18)	495	0.24	0.37
Wharton Residential Land Use Regulation Index	285	-0.08	0.83
Saiz Land Unavailable Index	285	0.25	0.21
Investors			
Investor share in low-tier homes in 2000	100	0.11	0.06
Investor share in low-tier homes growth (2000–18)	98	1.49	1.59
Investor share in high-tier homes in 2000	99	0.06	0.02
Investor share in high-tier homes growth (2000–18)	98	0.70	1.19
Investor share in 2000	100	0.06	0.03
Investor share growth (2000–18)	98	1.22	1.21

Sources: Data from the American Community Survey, Black Knight, CoreLogic, the Wharton Residential Land Use Regulation Index, and the Saiz Land Unavailable Index.
Note: HH = household; P25 = 25th percentile; P75 = 75th percentile.

Table 2 presents the regression results where the dependent variable is the price growth rate of low-tier homes between January 2000 and December 2019. The places where low-tier homes were at the top of their tier's price range in 2000 experienced a larger growth in low-tier home prices. We also find that MSAs that are higher on the WRLURI and that have less land available for development experienced a significant price increase among low-tier homes. These two variables remain significant

even after including additional control variables. Column 2 shows that MSAs with higher employment growth, lower housing unit growth, and higher income growth for low-income households have experienced greater price growth in low-tier homes. MSAs with an increase in income inequality between 2000 and 2018 also show a greater price increase among low-tier homes.

In columns 3 and 4, we added the investor share and its growth in the low-tier home sales market. MSAs with a larger investor share in 2000 and those with a larger increase in the investor share have experienced less price growth for low-tier homes. This may seem contradictory to some studies, but we examine a different time period and include all investors, not just institutional investors. We also find that the presence of investors has a weaker association with home price appreciation in the high-tier market. Recent studies (Ganduri, Xiao, and Xiao 2019; Lambie-Hanson, Li, and Slonkosky 2019) have focused on the impact of institutional investors on the market following the housing crisis and have found that the presence of institutional investors largely explains the rise in house prices between 2006 and 2014. In 2018, mom-and-pop investors accounted for more than 61 percent of the purchase home sales, and their presence in the market has increased in recent years.[6]

TABLE 2

Low-Tier Home Price Growth Regression Results

	(1)	(2)	(3)	(4)
Low-tier home price in 2000 (in 1,000s of dollars)	0.010***	0.004*	0.009**	-0.002
	(0.002)	(0.002)	(0.003)	(0.003)
Thousands of employed people in 2000		0.001		0.001**
		(0.000)		(0.001)
Thousands of housing units in 2000		-0.001		-0.001*
		(0.001)		(0.001)
P75 HH income/P25 HH income in 2000		-0.021		0.034
		(0.128)		(0.242)
P25 HH income in 2000		0.005		0.006
		(0.008)		(0.012)
Employment growth (2000–18)		0.674**		1.424**
		(0.325)		(0.603)
Housing unit growth (2000–18)		-0.649*		-1.037
		(0.384)		(0.717)
P75 HH income/P25 HH income growth (2000–18)		1.871***		1.425
		(0.483)		(1.230)
P25 HH income growth (2000–18)		3.554***		3.850***
		(0.460)		(0.851)
Wharton Residential Land Use Regulation Index	0.242***	0.169***		0.147**
	(0.034)	(0.037)		(0.062)
Saiz Land Unavailable Index	0.838***	0.752***		0.725***
	(0.134)	(0.147)		(0.243)
Investor share in low-tier homes in 2000			-5.774***	-2.805***
			(1.344)	(1.027)
Investor share in low-tier homes growth (2000–18)			-0.185***	-0.073**
			(0.048)	(0.035)
Constant	0.265**	0.597	1.560***	1.094
	(0.120)	(0.543)	(0.385)	(1.059)
Observations	285	191	98	76
R^2	0.458	0.688	0.354	0.784

Source: Data from Black Knight, the Saiz Land Unavailable Index, the 2008 Wharton Residential Land Use Regulation Index, CoreLogic, the 2000 Census, and the 2018 American Community Survey.

Notes: HH = household; P25 = 25th percentile; P75 = 75th percentile. Standard errors in parentheses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table 3 presents the regression results where the dependent variable is the price growth rate for high-tier homes between January 2000 and December 2019. Places where high-tier homes were at the top of their tier's price range in 2000 experienced larger price growth among high-tier homes. MSAs that are higher on the WRLURI and that have less land available for development experienced an increase in high-tier home prices, but the size of the coefficients is less than half the size in table 2. Among employment and income variables, only the growth in income for high-income households and the growth in income inequality are statistically significant. Income growth is positively associated and income inequality growth is negatively associated with the price growth of high-tier homes. The investor share and its growth in the high-tier home sales market also do not show any statistical

relationship with high-tier home price growth. These results reveal that low-tier home prices are more sensitive to changing market conditions than high-tier home prices.

TABLE 3

High-Tier Home Price Growth Regression Results

	(1)	(2)	(3)	(4)
High-tier home price in 2000 (in 1,000s of dollars)	0.001***	0.001*	0.002***	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)
Thousands of employed people in 2000		0.000		0.000
		(0.000)		(0.000)
Thousands of housing units in 2000		-0.000		-0.000
		(0.000)		(0.000)
P75 HH income/P25 HH income in 2000		-0.055		-0.077
		(0.063)		(0.123)
P75 HH income in 2000		-0.001		-0.003
		(0.002)		(0.003)
Employment growth (2000–18)		0.214		0.489
		(0.195)		(0.361)
Housing unit growth (2000–18)		-0.191		-0.307
		(0.232)		(0.432)
P75 HH income/P25 HH income growth (2000–18)		-0.442**		-0.853
		(0.200)		(0.546)
P75 HH income growth (2000–18)		1.887***		1.870***
		(0.252)		(0.456)
Wharton Residential Land Use Regulation Index	0.094***	0.049**		0.074*
	(0.020)	(0.022)		(0.037)
Saiz Land Unavailable Index	0.418***	0.467***		0.439***
	(0.087)	(0.093)		(0.157)
Investor share in high-tier homes in 2000			1.519	-1.064
			(1.552)	(1.653)
Investor share in high-tier homes growth (2000–18)			0.024	0.012
			(0.032)	(0.027)
Constant	0.270***	0.576**	-0.130	0.606
	(0.050)	(0.278)	(0.118)	(0.497)
Observations	285	191	98	76
R^2	0.359	0.648	0.445	0.758

Sources: Data from Black Knight, the Saiz Land Unavailable Index, the 2008 Wharton Residential Land Use Regulation Index, CoreLogic, the 2000 Census, and the 2018 American Community Survey.
Notes: HH = household; P25 = 25th percentile; P75 = 75th percentile. Standard errors in parentheses.
*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

The final regression results examine factors associated with the price growth differences between low- and high-tier homes. The dependent variable is the growth rate for low-tier homes minus the growth rate for high-tier homes. Table 4 shows that the prices for low-tier homes increased more in MSAs with stronger land-use regulations and less available land. The number of employed people in 2000 and employment growth is positively associated with the growth rate difference, while the number of housing units in 2000 and housing unit growth shows a negative association. MSAs with a

higher investor share in 2000 and higher growth in the investor share experienced slower price growth among low-tier homes than among high-tier homes.

TABLE 4

Difference between Low-Tier and High-Tier Home Price Growth Regression Results

	(1)	(2)	(3)	(4)
Wharton Residential Land Use Regulation Index	0.170***	0.166***	0.150***	0.090*
	(0.021)	(0.025)	(0.027)	(0.047)
Saiz Land Unavailable Index	0.441***	0.467***	0.473***	0.187
	(0.082)	(0.098)	(0.098)	(0.172)
Thousands of employed people in 2000		0.001***	0.001***	0.001**
		(0.000)	(0.000)	(0.000)
Thousands of housing units in 2000		-0.001***	-0.001***	-0.001**
		(0.000)	(0.000)	(0.000)
P75 HH income/P25 HH income in 2000		0.057	0.011	0.129
		(0.070)	(0.073)	(0.152)
Employment growth (2000–18)			0.869***	1.477***
			(0.233)	(0.420)
Housing unit growth (2000–18)			-0.832***	-1.414***
			(0.283)	(0.500)
P75 HH income/P25 HH income growth (2000–17)			-0.492*	-1.003
			(0.255)	(0.644)
Investor share in 2000				-4.330**
				(1.741)
Investor share growth (2000–18)				-0.119***
				(0.036)
Constant	0.399***	0.219	0.419*	0.569
	(0.027)	(0.220)	(0.240)	(0.554)
Observations	285	208	191	76
R^2	0.328	0.345	0.414	0.561

Source: Data from Black Knight, the Saiz Land Unavailable Index, the 2008 Wharton Residential Land Use Regulation Index, CoreLogic, the 2000 Census, and the 2018 American Community Survey.
Notes: HH = household; P25 = 25th percentile; P75 = 75th percentile. Standard errors in parentheses.
*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Metropolitan Statistical Area Cluster Analysis

Metropolitan statistical areas are unique, each shaped by idiosyncratic experiences with industry, employment patterns, governance, and geography. But some share commonalities. For example, Detroit-Dearborn-Livonia, Michigan, and St. Louis, Missouri-Illinois, face similar housing challenges that are vastly different than those in New York-Jersey City-White Plains, New York-New Jersey, and Los Angeles-Long Beach-Glendale, California.

Economic growth and activity and regulatory burdens align more closely in some areas than in others. To better understand how MSAs align along these characteristics, we conducted a cluster analysis of 271 MSAs that we sorted into three clusters based on three key characteristics, shown in our regression analysis: employment growth, the Wharton Land Use Regulation Index, and the Saiz Land Unavailable Index.

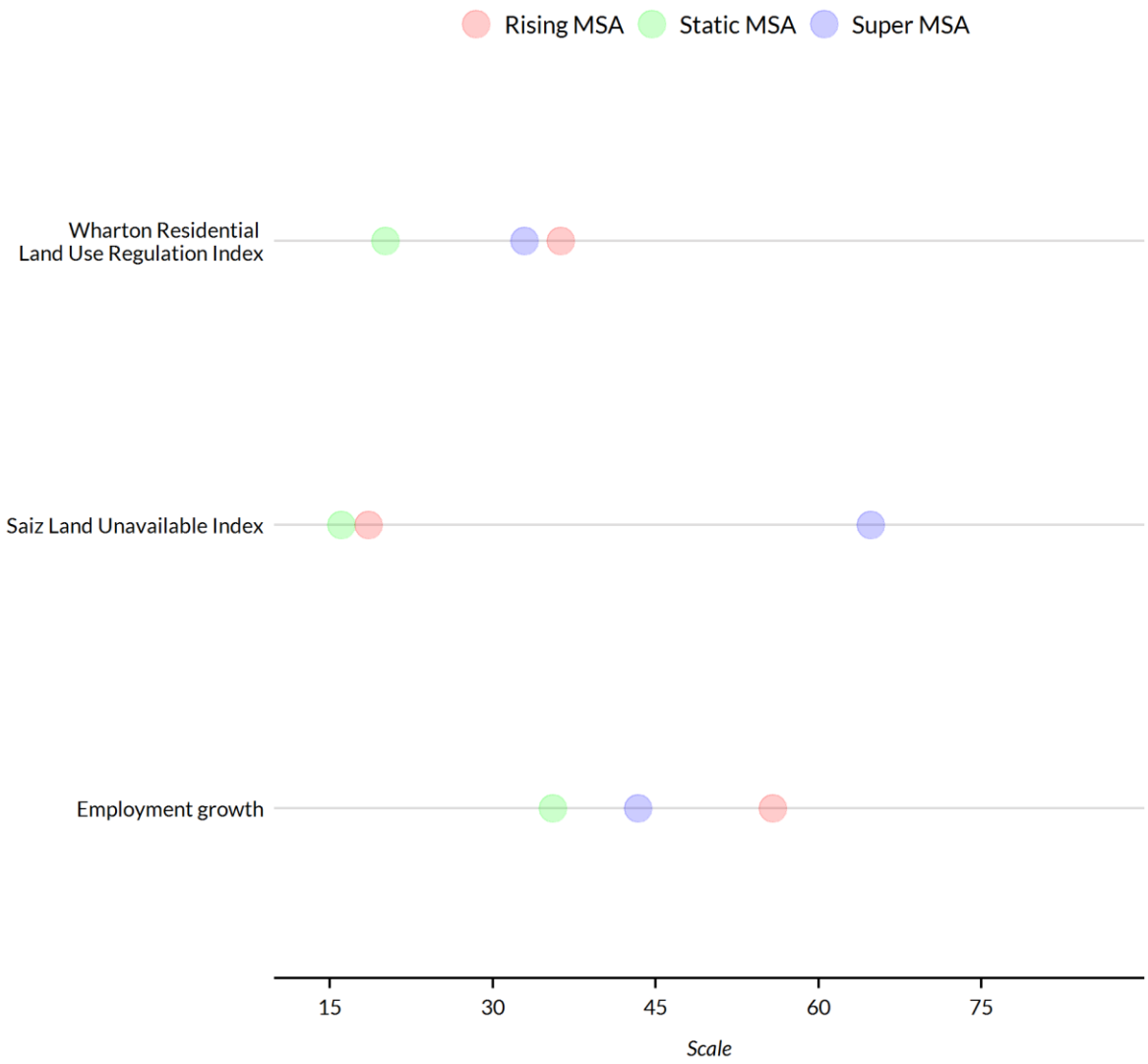
We used the k-means methodology, based on the algorithm written by Hartigan and Wong (1979). The algorithm divides the points into k groups so the sum of squares from points to the assigned cluster centers is minimized. At the minimum, all cluster centers are at the mean of their Voronoi sets (the set of data points nearest to the cluster center).

We identified three types of clusters with the following shared characteristics:

1. **66 rising MSAs.** Significant land-use regulation but plenty of available land, and high employment growth. Notable MSAs include Dallas-Plano-Irving, Texas; Washington-Arlington-Alexandria, DC-Virginia-Maryland-West Virginia; Philadelphia, Pennsylvania; and Atlanta-Sandy Springs-Roswell, Georgia.
2. **123 static MSAs.** Minimal land-use regulation, plenty of available land, and little employment growth. Notable MSAs include Detroit-Dearborn-Livonia, Michigan; St. Louis, Missouri-Illinois; Pittsburgh, Pennsylvania; and Indianapolis-Carmel-Anderson, Indiana.
3. **82 super MSAs.** Significant land-use regulation, little available land, and moderate employment growth. We labeled these super MSAs because they have the largest populations and robust labor and housing markets. Notable MSAs include New York-Jersey City-White Plains, New York-New Jersey; Los Angeles-Long Beach-Glendale, California; Chicago-Naperville-Arlington Heights, Illinois; and San Francisco-Redwood City-South San Francisco, California.

FIGURE 7

MSA Clusters by Scaled Average of Cluster Variables



Sources: Data from Black Knight, the Saiz Land Unavailable Index, the 2008 Wharton Residential Land Use Regulation Index, CoreLogic, the 2000 Census, and the 2018 American Community Survey.
Note: MSA = metropolitan statistical area.

We list the MSAs in each cluster in appendix table A.1. Appendix figures A.1–A.3 show how the clusters break out in comparison between our economic and population indicators and home price data. These visuals reflect how unavailable land and employment growth were stronger influences on the clusters than land-use regulation, indicated by lower overlap of points belonging to each cluster color.

To explore how the greater price increases among low-tier homes relative to high-tier homes affected households in different income buckets, we conducted the following analysis separately for owners and renters.[7] For each cluster, we calculated the changes in housing costs, household income, residual income (housing costs minus household income), and housing cost burden (housing costs divided by household income) for households below the lower quartile of the income distribution and for households above the upper quartile.[8]

For owners, we find that housing costs increased the most in MSAs where land-use regulation was strong and the share of unavailable land was limited (i.e., super MSAs).[9] Households in the bottom quartile of the income distribution experienced an 11.8 percent increase in their housing costs, while those in the top quartile experienced a 3.0 percent increase. The difference reflects the fact that low-tier home prices have increased more than high-tier home prices. Housing costs have increased more for low-income owners than for high-income owners for all clusters. In fact, high-income households living in MSAs with fewer supply restrictions experienced a decrease in housing costs while the housing costs of low-income households went up. This reflects the fact that low-tier homes experienced higher appreciation than high-tier homes in almost all MSAs between 2000 and 2019.

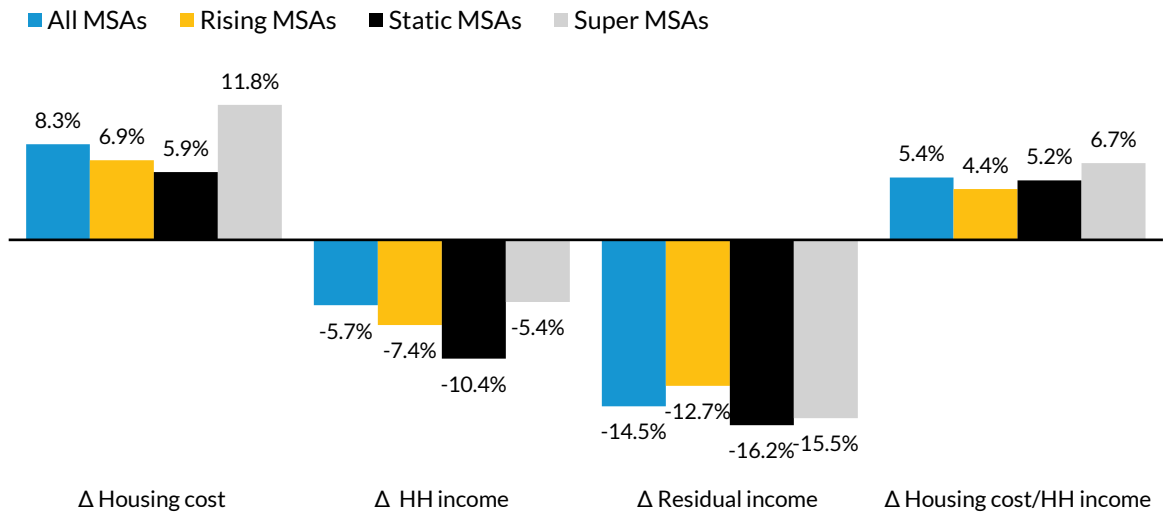
In addition to increased housing costs, low-income owners experienced a decline in household income, in contrast to high-income households. On average, income for households below the bottom income quartile fell 5.7 percent while those in the top 25 percent of the income distribution experienced an 8.7 percent increase. The households in static MSAs (cluster 2), which experienced a smaller increase in housing costs, also experienced the greatest decline (or smaller increase) in household income, showing that weak labor market conditions affect housing affordability. Overall, residual income (household income minus housing costs) for low-income owners in all three clusters has dropped more than 12 percent, and the housing cost burden increased more than 4 percent.

On the other hand, the household income of high-income owners increased in all three clusters. The greatest increase occurred in super MSAs (11.3 percent) and the lowest increase was in static MSAs (3.5 percent). This rise in income fully offset the rise in housing costs for high-income owners in super MSAs, resulting in the greatest increase (12.7 percent) in residual income. The housing cost burden decreased for all three clusters by more than 1 percent. The changes in residual income and housing cost burden for high-income and low-income owners indicates that there has been a greater increase in inequality when housing costs are incorporated in the inequality calculation because low-income households experienced a relatively greater increase in housing costs.

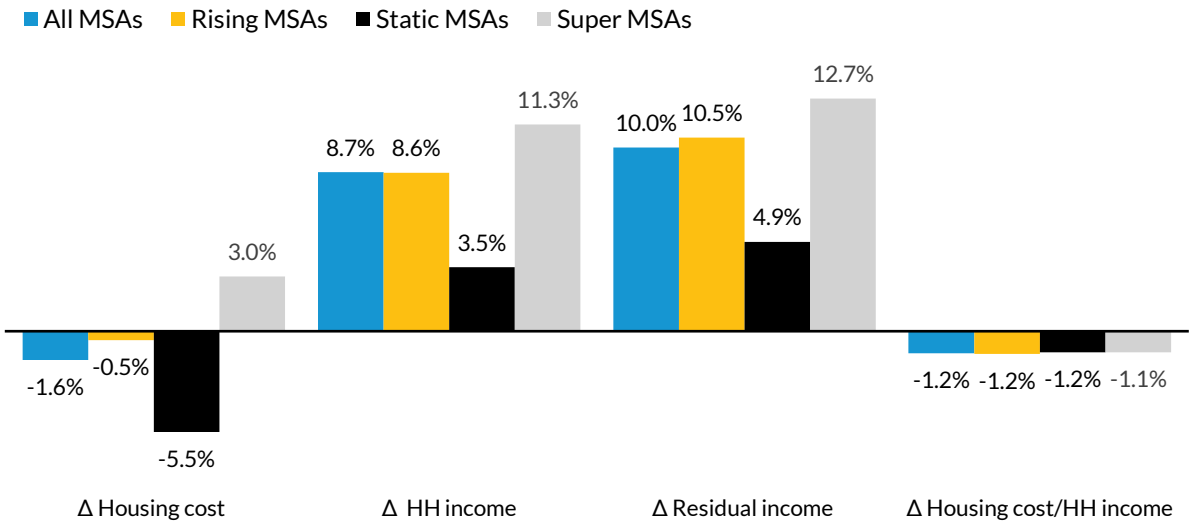
FIGURE 8

Changes in Housing Costs and Household Income among Homeowners

Low-income homeowners



High-income homeowners



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Sources: The 2000 Census and the 2018 American Community Survey.
Note: HH = household; MSA = metropolitan statistical area.

Renters are also affected when the prices of low-tier homes increase more than the prices of high-tier homes. More low-income households find it difficult to find affordable housing, which increases the demand for rental housing. At the same time, the rental housing supply is also affected by the increase in building costs, which puts upward pressure on rental prices. Figure 9 reveals how housing costs and household income have changed between 2000 and 2018 for both low- and high-income renters. We

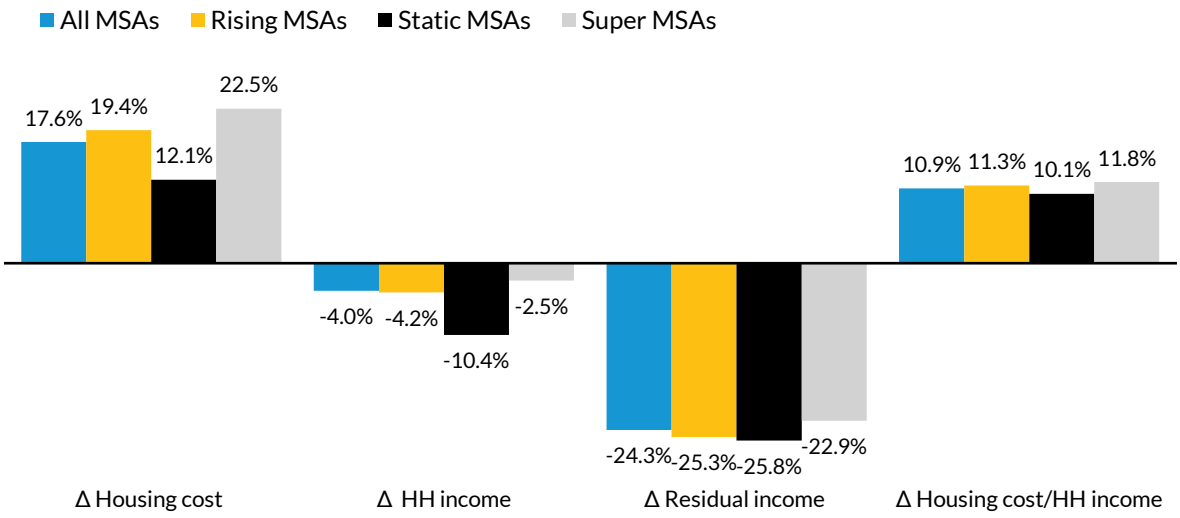
find that housing costs have gone up more for renters than for homeowners. This result also aligns with recent research that showed the rent burden increased for all income levels since 2001 (Joint Center for Housing Studies of Harvard University 2020). In contrast to homeowners, housing costs have increased more for high-income renters than for low-income renters in all three clusters.

But because household incomes went up for high-income renters but fell for low-income renters, high-income renters have experienced an increase in residual income of 4.4 percent while the residual income fell 24.3 percent for low-income renters. Compared with low-income owners, low-income renters experienced a greater decrease in residual income and a greater increase in housing cost burden. Except for those in static MSAs (cluster 2), high-income renters have experienced an increase in residual income, though the increase was smaller than it was for owners.[10] High-income renters also experienced a slight increase in housing cost burden. Overall, our results show that owners are in a better financial position than renters, as housing costs have increased more for renters than for owners.

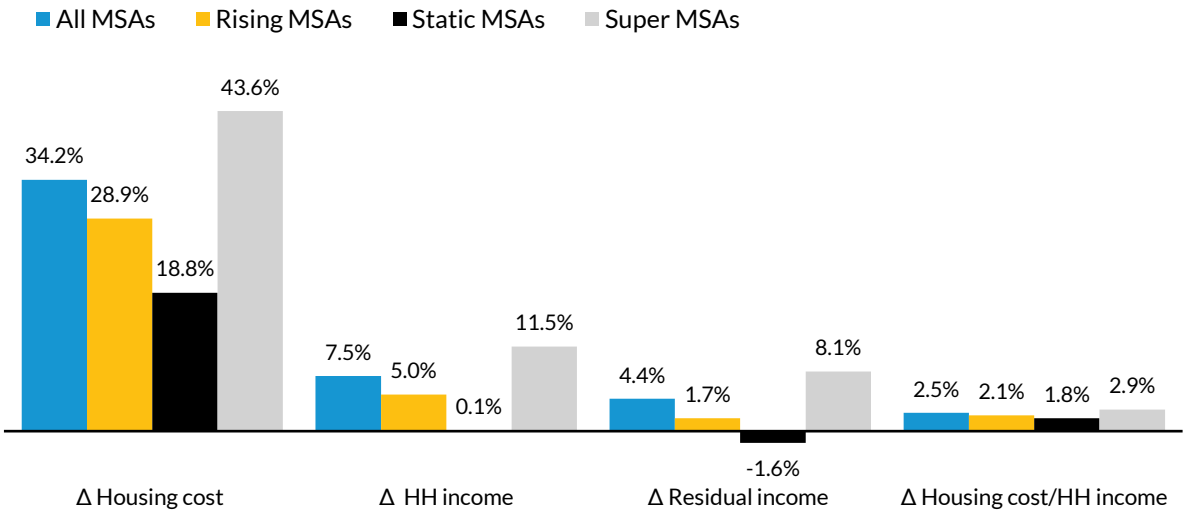
FIGURE 9

Changes in Housing Costs and Household Income among Renters

Low-income renters



High-income renters



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Sources: The 2000 Census and the 2018 American Community Survey.
Note: HH = household; MSA = metropolitan statistical area.

Conclusion

This report looks into why prices of low-tier homes have increased substantially more than the prices for high-tier homes in recent years. Price increases for low-tier homes were greatest in super MSAs,

which have more land-use regulation, less available land for development, and stronger employment growth. We found the same pattern—prices for low-tier homes increased more than they did for high-tier homes—in static MSAs with fewer housing supply restrictions and weaker labor market conditions. So even if housing costs do not increase because of fewer supply constraints, slow income growth can reduce residual income (i.e., income leftover after paying for housing) for low-income households in all MSAs.

Residual income for low-income households dropped overall while the housing cost burden increased between 2000 and 2018. For high-income households, residual income in 2018 increased while housing cost burden remained similar to its 2000 level. As a result, inequality in residual income has increased more than income inequality itself. We also find that low-income renters, many of whom have likely been priced out of homeownership, are worse off as housing costs increased for most low-income renters while household income fell. Our analysis suggests that although low-income households have become worse off in almost all markets, the solution to addressing this issue may differ by locality. Policymakers need to focus on both the housing and labor markets as well as the interaction between the two, but relative attention and resource allocation would differ to address housing affordability.

Appendix

TABLE A.1

List of the MSAs in Three Clusters

Rising MSAs	Static MSAs	Super MSAs
Dallas-Plano-Irving, TX	Detroit-Dearborn-Livonia, MI	New York-Jersey City-White Plains, NY-NJ
Houston-The Woodlands-Sugar Land, TX	St. Louis, MO-IL	Los Angeles-Long Beach-Glendale, CA
Washington-Arlington-Alexandria, DC-VA-MD-WV	Pittsburgh, PA	Chicago-Naperville-Arlington Heights, IL
Philadelphia, PA	Cincinnati, OH-KY-IN	Miami-Miami Beach-Kendall, FL
Atlanta-Sandy Springs-Roswell, GA	Kansas City, MO-KS	Boston, MA
Phoenix-Mesa-Scottsdale, AZ	Indianapolis-Carmel-Anderson, IN	San Francisco-Redwood City-South San Francisco, CA
Minneapolis-St. Paul-Bloomington, MN-WI	Oklahoma City, OK	Riverside-San Bernardino-Ontario, CA
Denver-Aurora-Lakewood, CO	Richmond, VA	Seattle-Bellevue-Everett, WA
Baltimore-Columbia-Towson, MD	Louisville/Jefferson County, KY-IN	San Diego-Carlsbad, CA
Orlando-Kissimmee-Sanford, FL	Hartford-West Hartford-East Hartford, CT	Tampa-St. Petersburg-Clearwater, FL
Charlotte-Concord-Gastonia, NC-SC	Birmingham-Hoover, AL	Portland-Vancouver-Hillsboro, OR-WA
San Antonio-New Braunfels, TX	Buffalo-Cheektowaga-Niagara Falls, NY	Cleveland-Elyria, OH
Las Vegas-Henderson-Paradise, NV	Rochester, NY	San Jose-Sunnyvale-Santa Clara, CA
Austin-Round Rock, TX	Tulsa, OK	Virginia Beach-Norfolk-Newport News, VA-NC
Columbus, OH	Omaha-Council Bluffs, NE-IA	Milwaukee-Waukesha-West Allis, WI
Nashville-Davidson–Murfreesboro–Franklin, TN	Albany-Schenectady-Troy, NY	Jacksonville, FL
Providence-Warwick, RI-MA	Allentown-Bethlehem-Easton, PA-NJ	New Orleans-Metairie, LA
Raleigh, NC	Columbia, SC	Salt Lake City, UT
Memphis, TN-MS-AR	Dayton, OH	Bridgeport-Stamford-Norwalk, CT
Grand Rapids-Wyoming, MI	Greensboro-High Point, NC	Knoxville, TN
Tucson, AZ	Little Rock-North Little Rock-Conway, AR	New Haven-Milford, CT
Fresno, CA	Akron, OH	Oxnard-Thousand Oaks-Ventura, CA
Worcester, MA-CT	Des Moines-West Des Moines, IA	Baton Rouge, LA
Albuquerque, NM	Syracuse, NY	Charleston-North Charleston, SC
Greenville-Anderson-Mauldin, SC	Wichita, KS	Cape Coral-Fort Myers, FL
Bakersfield, CA	Springfield, MA	Boise City, ID
McAllen-Edinburg-Mission, TX	Augusta-Richmond County, GA-SC	Ogden-Clearfield, UT
El Paso, TX	Toledo, OH	Deltona-Daytona Beach-Ormond Beach, FL
Stockton-Lodi, CA	Jackson, MS	Provo-Orem, UT
Colorado Springs, CO	Chattanooga, TN-GA	Palm Bay-Melbourne-Titusville, FL
Lakeland-Winter Haven, FL	Scranton–Wilkes-Barre–Hazleton, PA	Portland-South Portland, ME

Rising MSAs	Static MSAs	Super MSAs
Winston-Salem, NC	Lancaster, PA	Santa Rosa, CA
Madison, WI	Youngstown-Warren-Boardman, OH-PA	Pensacola-Ferry Pass-Brent, FL
Durham-Chapel Hill, NC	Lansing-East Lansing, MI	Port St. Lucie, FL
Harrisburg-Carlisle, PA	Springfield, MO	Myrtle Beach-Conway-North Myrtle Beach, SC-NC
Spokane-Spokane Valley, WA	Huntsville, AL	Reno, NV
Modesto, CA	Fort Wayne, IN	Asheville, NC
Fayetteville-Springdale-Rogers, AR-MO	Mobile, AL	Corpus Christi, TX
Lexington-Fayette, KY	Beaumont-Port Arthur, TX	Vallejo-Fairfield, CA
Lafayette, LA	Flint, MI	Salinas, CA
Visalia-Porterville, CA	Canton-Massillon, OH	Salem, OR
Killeen-Temple, TX	Fayetteville, NC	Manchester-Nashua, NH
York-Hanover, PA	Davenport-Moline-Rock Island, IA-IL	Gulfport-Biloxi-Pascagoula, MS
Brownsville-Harlingen, TX	Montgomery, AL	Savannah, GA
Reading, PA	Ann Arbor, MI	Eugene, OR
Trenton, NJ	Hickory-Lenoir-Morganton, NC	Naples-Immokalee-Marco Island, FL
Ocala, FL	Peoria, IL	Huntington-Ashland, WV-KY-OH
Fort Collins, CO	Spartanburg, SC	Boulder, CO
Lincoln, NE	Kalamazoo-Portage, MI	Roanoke, VA
Green Bay, WI	Rockford, IL	Kingsport-Bristol-Bristol, TN-VA
Greeley, CO	South Bend-Mishawaka, IN-MI	Olympia-Tumwater, WA
Kennewick-Richland, WA	Lubbock, TX	San Luis Obispo-Paso Robles-Arroyo Grande, CA
Gainesville, FL	Evansville, IN-KY	Duluth, MN-WI
Merced, CA	Columbus, GA-AL	Santa Cruz-Watsonville, CA
Hagerstown-Martinsburg, MD-WV	Utica-Rome, NY	Erie, PA
College Station-Bryan, TX	Fort Smith, AR-OK	Bremerton-Silverdale, WA
Tyler, TX	Cedar Rapids, IA	Norwich-New London, CT
Yuma, AZ	Amarillo, TX	Atlantic City-Hammonton, NJ
Warner Robins, GA	Sioux Falls, SD	Chico, CA
Greenville, NC	Lynchburg, VA	Burlington-South Burlington, VT
Yuba City, CA	Fargo, ND-MN	Medford, OR
State College, PA	Binghamton, NY	Barnstable Town, MA
Madera, CA	Champaign-Urbana, IL	Charleston, WV
Lebanon, PA	Appleton, WI	Lake Charles, LA
Bismarck, ND	Charlottesville, VA	Johnson City, TN
Lewiston-Auburn, ME	Topeka, KS	Racine, WI
	Macon, GA	Redding, CA
	Longview, TX	Dover, DE
	Elkhart-Goshen, IN	Niles-Benton Harbor, MI
	Florence, SC	Grand Junction, CO

Rising MSAs	Static MSAs	Super MSAs
	St. Cloud, MN	Vineland-Bridgeton, NJ
	Saginaw, MI	Santa Fe, NM
	Columbia, MO	Wheeling, WV-OH
	Joplin, MO	Napa, CA
	Monroe, LA	La Crosse-Onalaska, WI-MN
	Muskegon, MI	Johnstown, PA
	Iowa City, IA	Pittsfield, MA
	Billings, MT	Glens Falls, NY
	Abilene, TX	Altoona, PA
	Oshkosh-Neenah, WI	Ocean City, NJ
	Terre Haute, IN	Corvallis, OR
	Waterloo-Cedar Falls, IA	Parkersburg-Vienna, WV
	Sioux City, IA-NE-SD	
	Bloomington, IN	
	Burlington, NC	
	Auburn-Opelika, AL	
	Janesville-Beloit, WI	
	Alexandria, LA	
	Albany, GA	
	Decatur, AL	
	Wichita Falls, TX	
	Bangor, ME	
	Monroe, MI	
	Texarkana, TX-AR	
	Rapid City, SD	
	Dothan, AL	
	Rocky Mount, NC	
	Flagstaff, AZ	
	Wausau, WI	
	Springfield, OH	
	Battle Creek, MI	
	Sherman-Denison, TX	
	Jackson, TN	
	Jamestown-Dunkirk-Fredonia, NY	
	St. Joseph, MO-KS	
	Goldsboro, NC	
	Lawrence, KS	
	Mansfield, OH	
	Weirton-Steubenville, WV-OH	

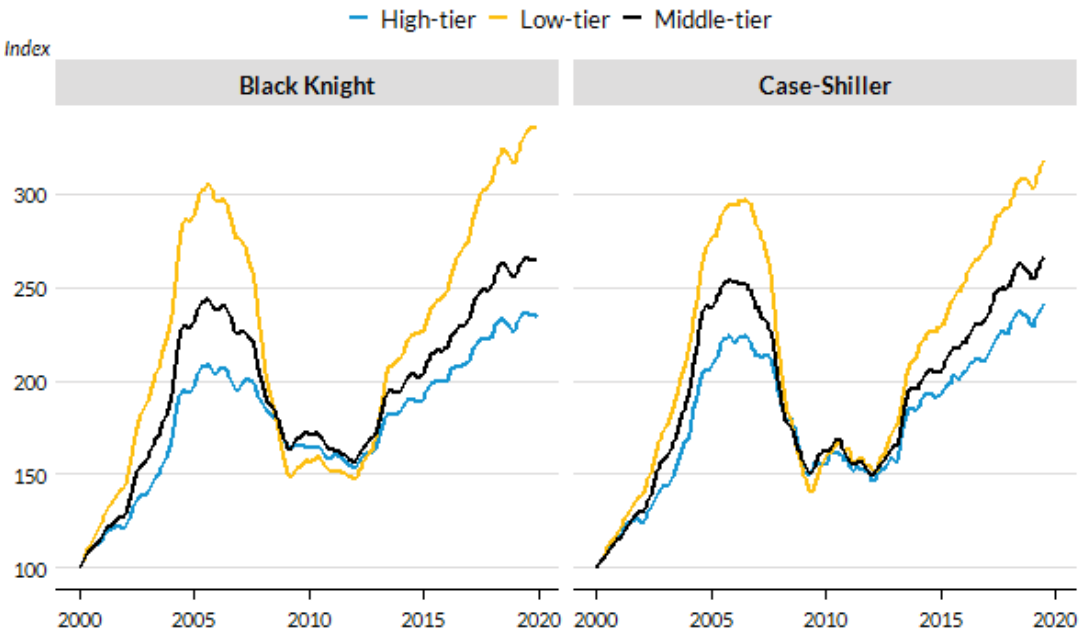
Rising MSAs	Static MSAs	Super MSAs
	Kankakee, IL Sumter, SC Decatur, IL Bay City, MI Lima, OH Gadsden, AL Dubuque, IA Pine Bluff, AR Pocatello, ID Elmira, NY Kokomo, IN Great Falls, MT Casper, WY Enid, OK	

Source: Data from Black Knight, the Saiz Land Unavailable Index, the 2008 Wharton Residential Land Use Regulation Index, CoreLogic, the 2000 Census, and the 2018 American Community Survey.
Note: MSA = metropolitan statistical area.

FIGURE A.1

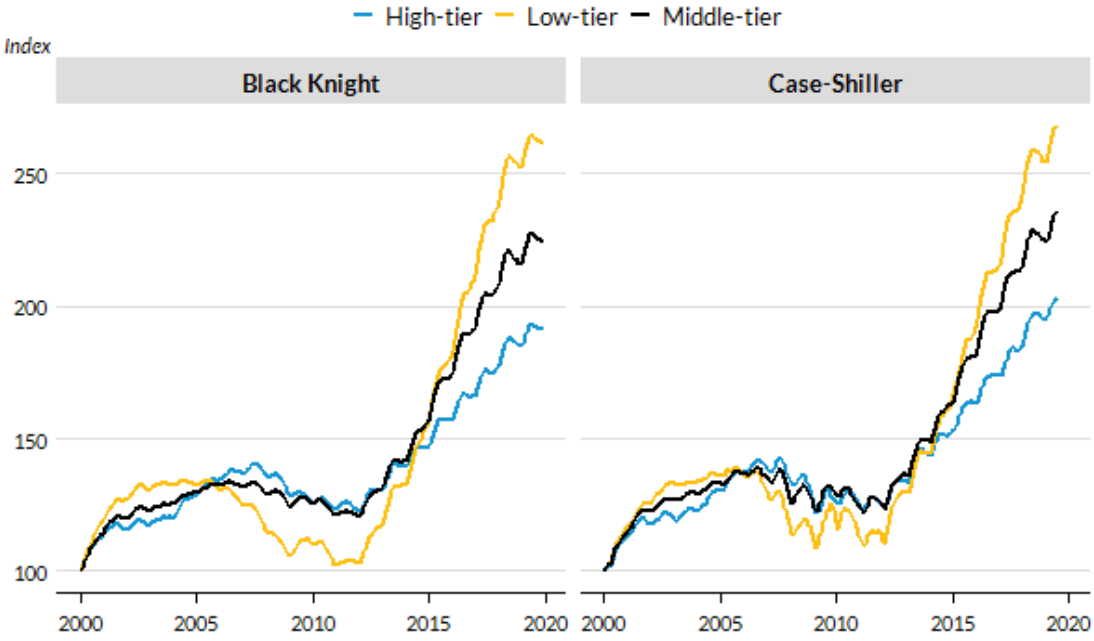
Black Knight versus Case-Shiller Home Price Comparisons, Select MSAs

1. San Diego-Carlsbad, CA (super MSA)



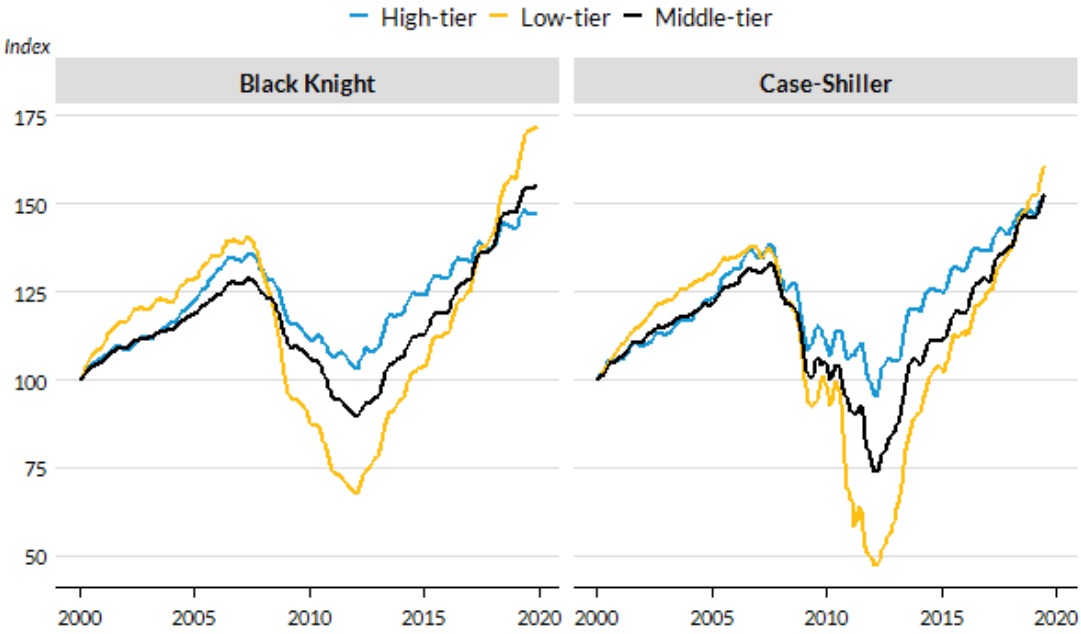
Note: Base year = 2000.

2. Denver-Aurora-Lakewood, CO (rising MSA)



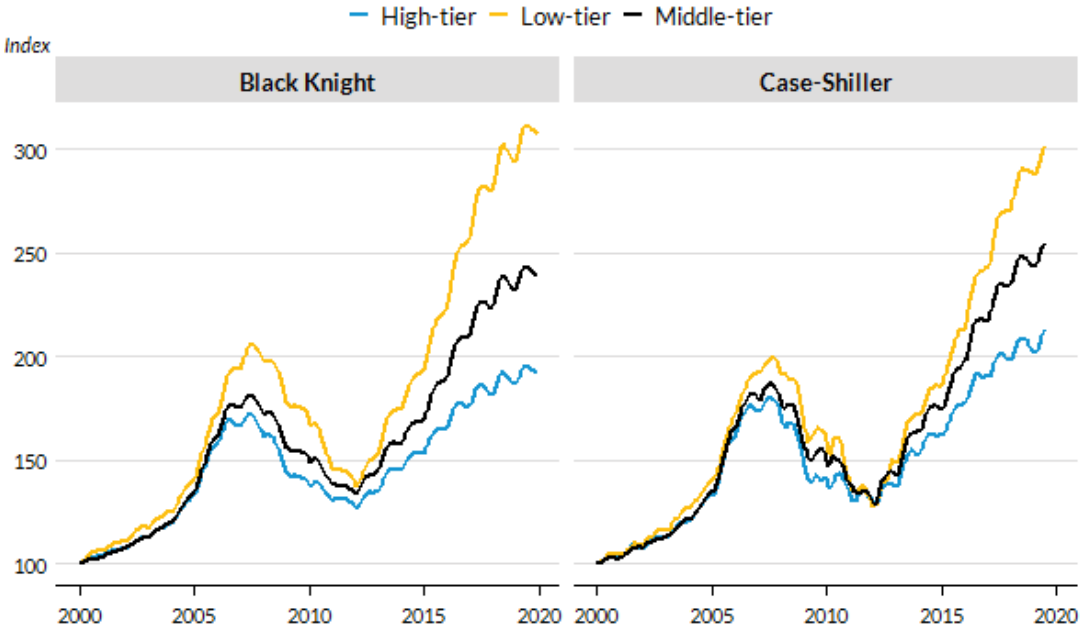
Note: Base year = 2000.

3. Atlanta-Sandy Springs-Roswell, GA (rising MSA)



Note: Base year = 2000.

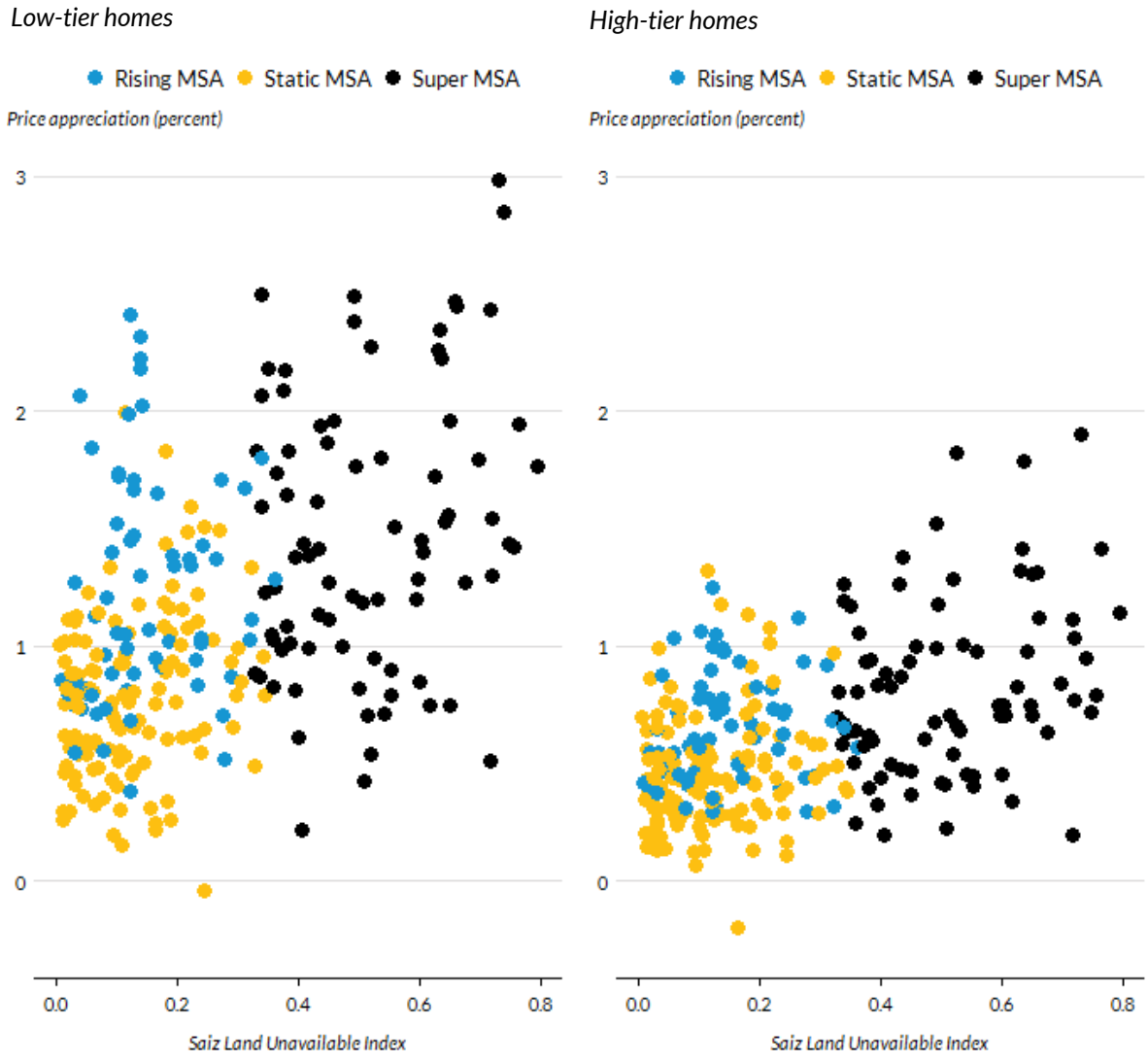
4. Portland-Vancouver-Hillsboro, OR-WA (super MSA)



Source: Black Knight and Case-Shiller House Price Indexes.
Notes: Base year = 2000. MSA = metropolitan statistical area.

FIGURE A.2

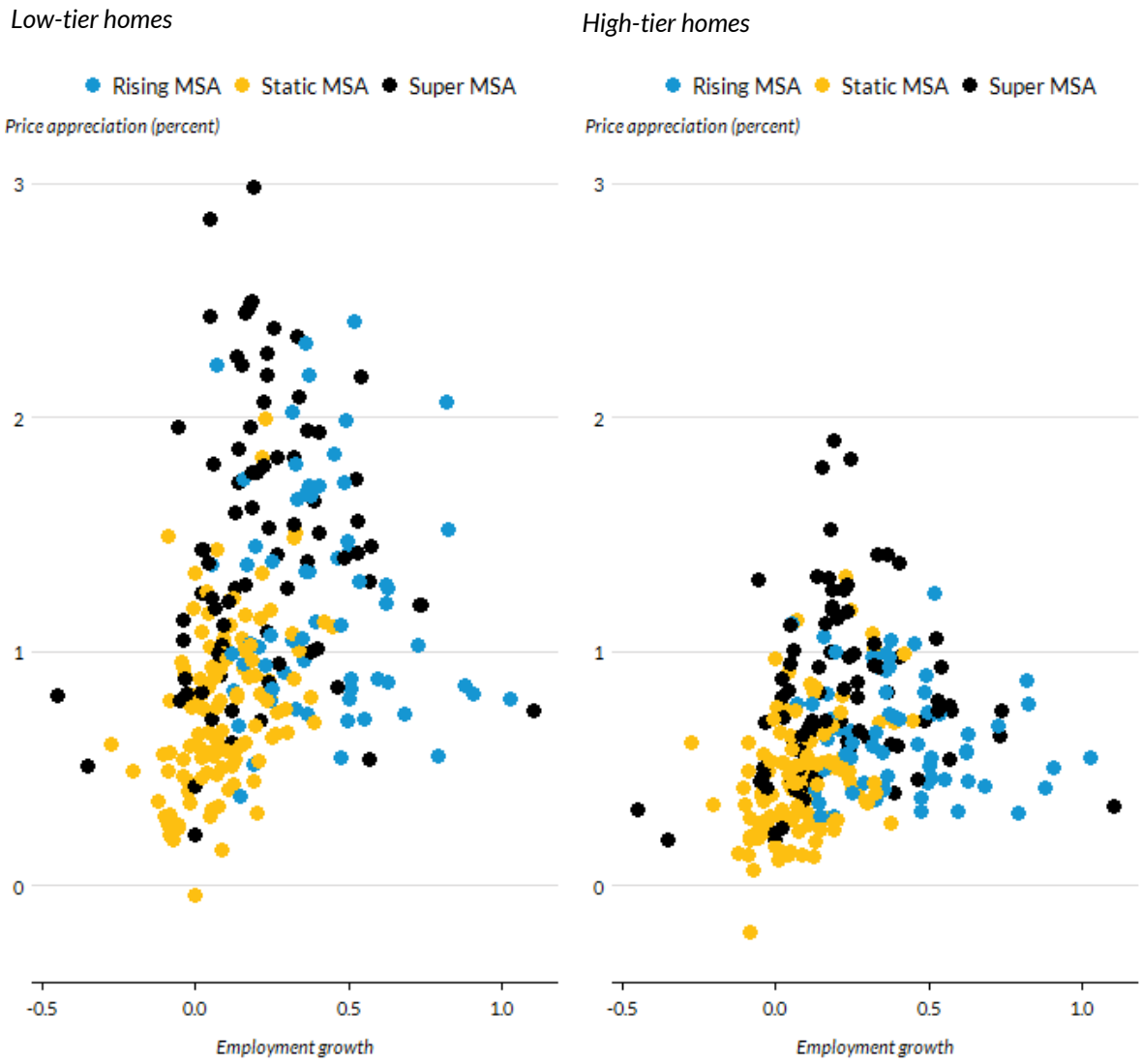
MSA Clusters by Scaled Average of Cluster Variables: Unavailable Land



Sources: Data from Black Knight and the 2010 Saiz Land Unavailable Index.
Note: MSA = metropolitan statistical area.

FIGURE A.3

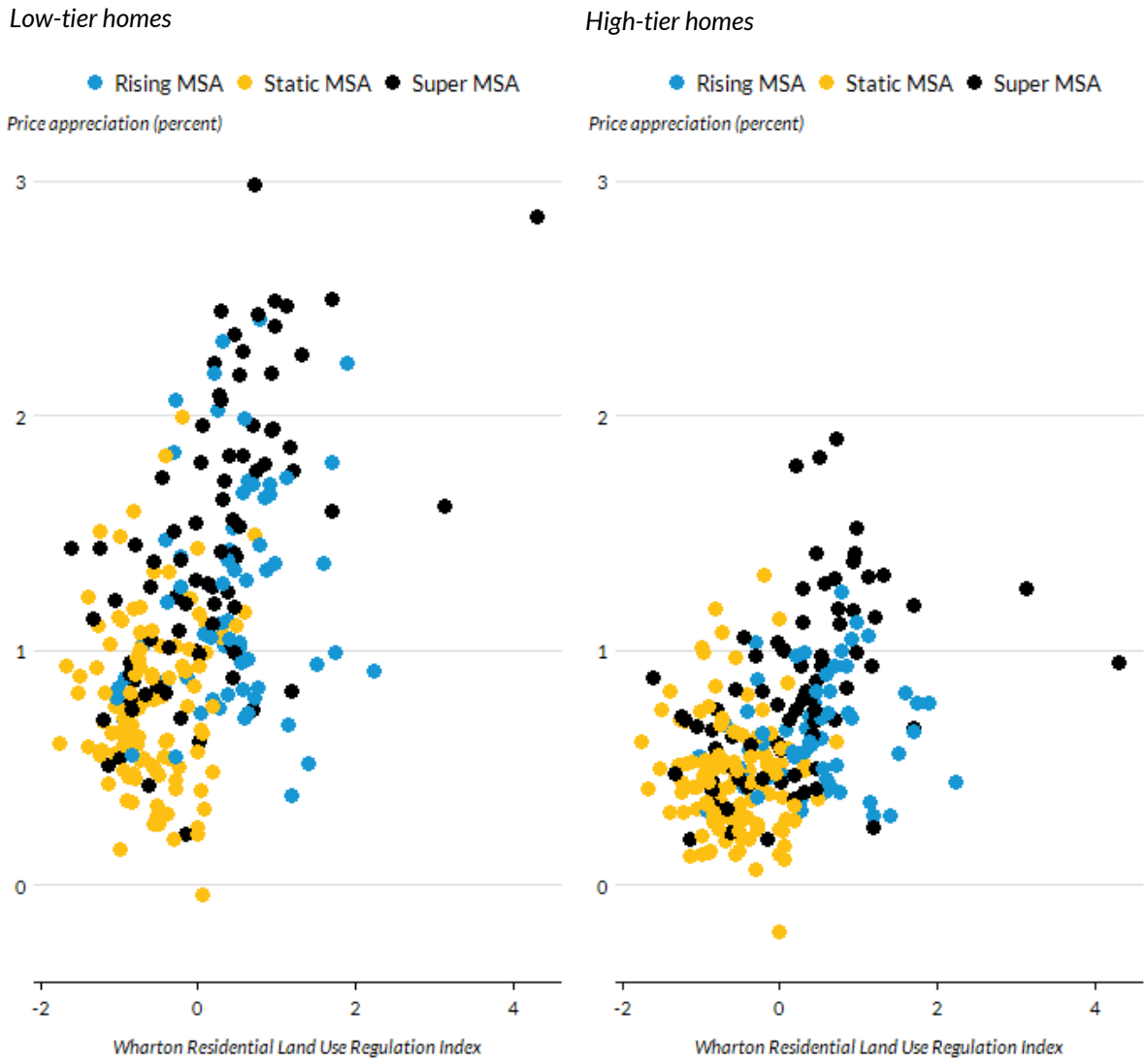
MSA Clusters by Scaled Average of Cluster Variables: Employment Growth



Sources: Data from Black Knight, the 2000 Census, and the 2018 American Community Survey.
Note: MSA = metropolitan statistical area.

FIGURE A.4

MSA Clusters by Scaled Average of Cluster Variables: Land Use

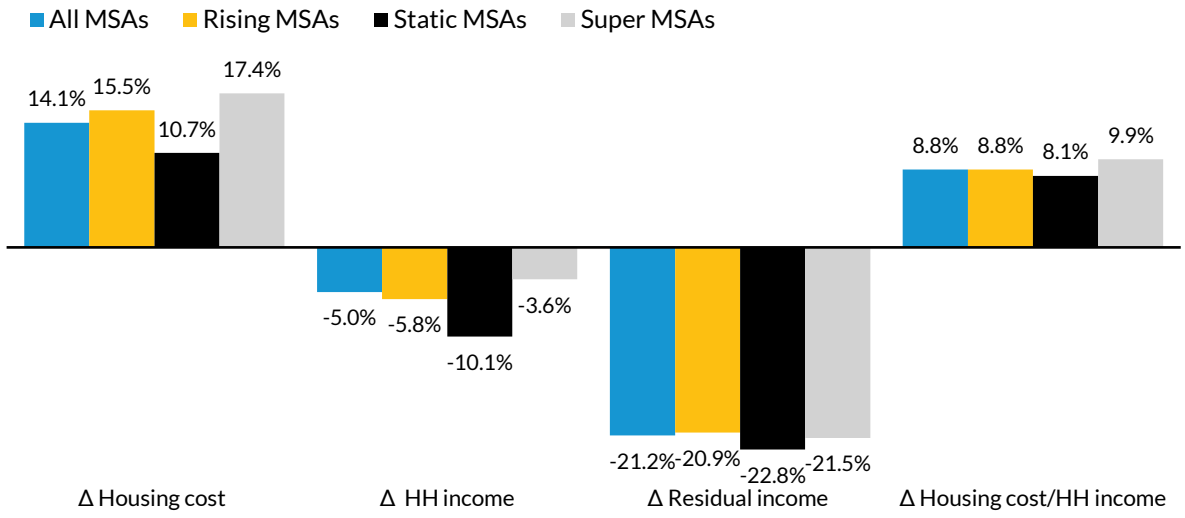


Sources: Data from Black Knight and the 2008 Wharton Residential Land Use Regulation Index.

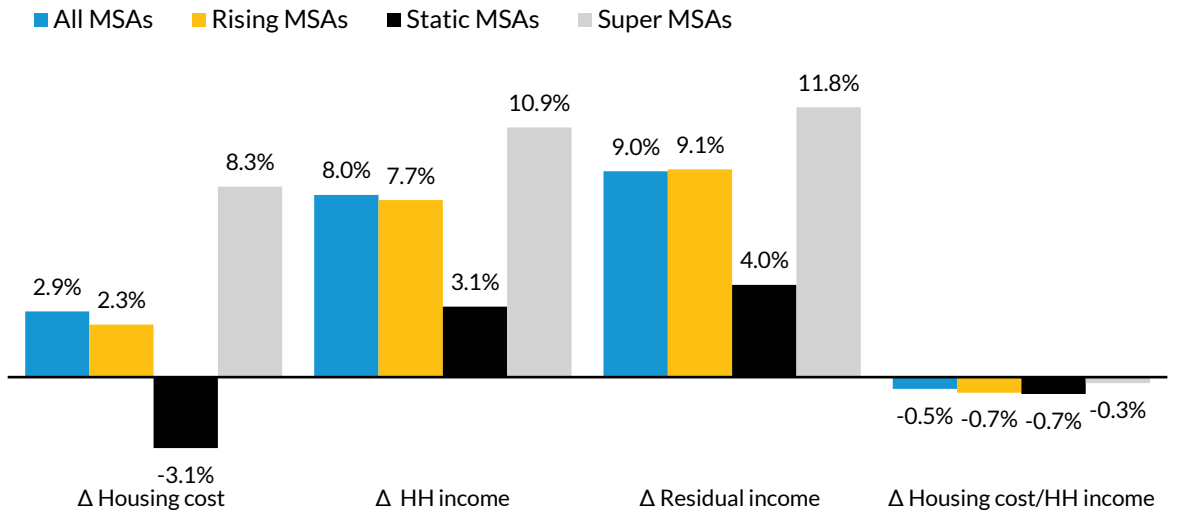
FIGURE A.5

Changes in Housing Costs and Household Income among all Households

Low-income households



High-income households



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Source: The 2000 Census and the 2018 American Community Survey.
Note: HH = household; MSA = metropolitan statistical area.

Notes

[1] Jung Hyun Choi, Laurie Goodman, and Bing Bai, "Four Ways Today's High Home Prices Affect the Larger Economy," *Urban Wire* (blog), Urban Institute, October 11, 2018, https://www.urban.org/urban-wire/four-ways-todays-high-home-prices-affect-larger-economy; and Michael Neal and Laurie Goodman, "Labor Conditions Are a Big Factor in Our Current Supply Challenges," *Urban Wire* (blog), Urban Institute, January 22, 2020, https://www.urban.org/urban-wire/labor-conditions-are-big-factor-our-current-housing-supply-challenges.

[2] Among the 378 cities in the Black Knight data with populations greater than 100,000, only 12 MSAs experienced a greater increase in high-tier home prices than in low-tier home prices. On average, low-tier home prices have increased 44 percent more than high-tier home prices.

[3] See Choi, Goodman, and Bai, "Four Ways." In addition to regulatory and geographic supply constraints, construction costs also contribute to home price appreciation. According to Neal, Goodman, and Young (2020), national per-unit construction spending has continued to rise since the 2008 housing market crisis. In fact, single-family construction costs have, on average, outpaced broader consumer inflation since then (Neal, Goodman, and Young 2020). Construction costs vary significantly between cities, in part because of differences in land-use regulation and land availability. Nationally, a shortage of construction workers and rising labor costs are elevating construction costs (these factors also vary regionally). Thus, we expect that construction costs also explain the different patterns in home price growth across MSAs—specifically, home price appreciation will be greater in MSAs with more steeply rising residential construction costs.

[4] Mark Treskon, "Cities Losing Population Could Still Be Gaining Households," *Urban Wire* (blog), Urban Institute, January 15, 2020, https://www.urban.org/urban-wire/cities-losing-population-could-still-be-gaining-households.

[5] Ralph McLaughlin, "Don't Call It a Comeback: Housing Investors Have Been Here for Years," *CoreLogic Insights* (blog), CoreLogic, June 20, 2019, https://www.corelogic.com/blog/2019/06/special-report-investor-home-buying.aspx.

[6] McLaughlin, "Don't Call It a Comeback."

[7] Homeownership rates differ across the three clusters. In 2018, the homeownership rate was 63.2 percent in rising MSAs (cluster 1), 66.3 percent in static MSAs (cluster 2), and 59.3 percent in super MSAs (cluster 3). Static MSAs had the highest homeownership rate in 2018, but they also experienced the greatest homeownership rate decline since 2000 (–2.7 percentage points). The rate fell 2.3 percentage points in rising MSAs and 0.7 percentage points in super MSAs. In static MSAs, homeownership rate decline was greater for low-income households, while in rising MSAs, both low- and high-income households experienced a similar rate of decline. In super MSAs, the homeownership rate decline occurred only among high-income households.

[8] We chose quartiles rather than 20th percentiles. We gave a 5 percentage-point buffer, as the households looking for and living in low- and high-tier homes would be larger than those in the bottom 20th percentile and the top 20th percentile of the income distribution.

[9] The Census Bureau explains that this variable is "the derived sum of payments for mortgages, deeds of trust, contracts to purchase, or similar debts on the property (including payments for the first mortgage, second mortgages, home equity loans, and other junior mortgages); real estate taxes; fire, hazard, and flood insurance on the property; utilities (electricity, gas, and water and sewer); and fuels (oil, coal, kerosene, wood, etc.). It also includes, where appropriate, the monthly condominium fee for condominiums and mobile home costs (installment loan payments, personal property taxes, site rent, registration fees, and license fees)." See "OWNCOST: Description," IPUMS USA, accessed April 28, 2020, https://usa.ipums.org/usa-action/variables/OWNCOST#description_section.

[10] Appendix figure A.4 presents the results for both owners and renters.

References

Aladangady, Aditya. 2017. "Housing Wealth and Consumption: Evidence from Geographically-Linked Microdata." *American Economic Review* 107 (11): 3415–46.

Chakraborty, Indraneel, Itay Goldstein, and Andrew MacKinlay. 2018. "Housing Price Booms and Crowding-Out Effects in Bank Lending." *Review of Financial Studies* 31 (1): 2806–53.

Ganduri, Rohan, Steven Chong Xiao, and Serena Wenjing Xiao. 2019. "Tracing the Source of Liquidity for Distressed Housing Markets." Atlanta: Emory University.

Glaeser, Edward L., Joseph Gyourko, and Raven Saks. 2005. "Why Is Manhattan So Expensive? Regulation and the Rise in Housing Prices." *Journal of Law and Economics* 48 (2): 331–69.

Gyourko, Joseph, Albert Saiz, and Anita Summers. 2008. "A New Measure of the Local Regulatory Environment for Housing Markets: The Wharton Residential Land Use Regulatory Index." *Urban Studies* 45 (3): 693–729.

Hartigan, John Anthony, and M. A. Wong. 1979. "Algorithm AS 136: A K-Means Clustering Algorithm." *Journal of the Royal Statistical Society* 28 (1): 100–08.

Ihlanfeldt, Keith R. 2007. "The Effect of Land Use Regulation on Housing and Land Prices." *Journal of Urban Economics* 61 (3): 420–35.

Joint Center for Housing Studies of Harvard University. 2020. *America's Rental Housing 2020*. Cambridge, MA: Joint Center for Housing Studies of Harvard University.

Lambie-Hanson, Lauren, Wenli Li, and Micheal Slonkosky. 2019. *Leaving Households Behind: Institutional Investors and the U.S. Housing Recovery*. Working Paper 19-01. Philadelphia: Federal Reserve.

Mayer, Christopher, and C.Tsuriel Somerville. 2000. "Land Use Regulation and New Construction." *Regional Science and Urban Economics* 30 (6): 639–62.

Mian, Atif, and Amir Sufi. 2009. "The Consequences of Mortgage Credit Expansion: Evidence from the U.S. Mortgage Default Crisis." *Quarterly Journal of Economics* 107 (1): 35–78.

Neal, Michael, Laurie Goodman, and Caitlin Young. 2020. *Housing Supply Chartbook*. Washington, DC: Urban Institute.

Saiz, Albert. 2010. "The Geographic Determinants of Housing Supply." *Quarterly Journal of Economics* 125 (3): 1253–96.

Zhu, Linna, and Doug McManus. 2019. "While Seniors Age in Place, Millennials Wait Longer and May Pay More for their First Homes." Tyson's Corner, VA: Freddie Mac.

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