Tackling Vacancy and Abandonment:

Strategies and Impacts after the Great Recession

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The Battle of the Belts:
Comparing Housing Vacancy in Larger Metros in the Sun Belt and the Rust Belt since the Mortgage Crisis, 2012 to 2019

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Introduction

For as long as America has had houses, it has had empty houses. Seasonal vacancies, vacancies created by new builds or homes for sale, or rental vacancies: Whatever the cause, the reason, or the duration, empty houses are inevitable. A certain quantity of vacant houses is even a characteristic of a healthy housing market to stimulate further market activity. A situation in which there are no vacancies at all may impede people from buying into an area. Beginning in the second half of the 20th century, specifically from 1980 onward, the number of empty houses in America slowly crept from healthy market levels to more dangerous levels in certain cities, especially in America's older post-industrial urban areas. Beginning in the late 1990s and early 2000s, urban experts began to notice the growing vacancies, where they were located, and what to do in neighborhoods with a high concentration of vacant homes (Mallach, 2018; Accordino and Johnson, 2000). Following the subprime mortgage crisis beginning in 2007, which resulted in unprecedented increases in the number of vacant homes, the empty house conversation became central to the American housing policy conversation. More than 10 years later, this paper applies a regional lens to changes in vacancy during the broader housing recovery since 2012.

In this paper, we examine neighborhood-level vacancy trends in Rust Belt and Sun Belt metropolitan areas from 2012 to 2019.[1] We pose the following research questions: How persistent was long-term vacancy during the national recovery in the large metropolitan areas of the Rust Belt and the Sun Belt? Did one region exhibit more resilience in seeing larger declines in the number of neighborhoods with very high levels of vacancy? To what extent was this explained by different housing cost levels and growth trajectories among the metro areas in these two regions? Did metro areas with similar cost levels and growth trajectories in the two regions experience similar levels of persistent long-term vacancy? What are the racial and poverty characteristics of neighborhoods with long-term vacancy, and do these characteristics differ between the Rust Belt and the Sun Belt?

We find that, in the Sun Belt, in contrast to the Rust Belt, the share of tracts that were hypervacant (those with vacancy rates of 8 percent or higher) declined. Meanwhile, in the Rust Belt metro areas, the share of hypervacant tracts remained roughly constant. Notably, the share of tracts that were hypervacant was still more than 50 percent higher in the Rust Belt in 2019 than in the Sun Belt in 2012, before the broader national recovery. And the Rust Belt's share in these two highest vacancy categories in 2019 was 2.3 times the Sun Belt's share in 2019. The Rust Belt did see a net decline in vacant tracts, but it was primarily from tracts in the moderate and high levels shifting to the moderate or low levels. Despite the greater persistence of hypervacant neighborhoods in the Rust Belt, such neighborhoods do exist in the Sun Belt to a significant degree. This is primarily because the Sun Belt also includes a substantial number of low-cost, low-growth metro areas. Only five larger Metropolitan Statistical Areas (MSAs) saw a large (25 percent) net increase in tracts at higher vacancy levels, while 35 MSAs saw a large net decrease toward lower vacancy levels. Moreover, while all five of the MSAs that saw increasing vacancy were in the Rust Belt, most of the ones with decreasing vacancy were in the Sun Belt. Critically, we find that neighborhoods with higher poverty rates and/or larger Black populations are more likely to suffer from hypervacancy, especially in Rust Belt metro areas.

The Problem of Long-Term Vacant Properties and Hypervacancy

We should identify a few key terms, including the term "vacant property." Mallach (2018) provides one of the most holistic definitions, defining vacancy as "any property that is not currently inhabited," making such properties synonymous with unoccupied. We focus here on vacant residential properties and particular vacant residential addresses, given that we rely on data from the U.S. Postal Service. Another term used in the literature that is relevant to this paper is "long-term vacancy." Long-term vacancy has been operationalized in various ways; we define it here as any property that has been unoccupied for six months or more (Immergluck, 2016). Finally, we use the term "hypervacancy" to refer to the presence of neighborhoods where the long-term vacancy rate is 8 percent or higher, which accounted for approximately 10 percent of neighborhoods in the 200 largest metropolitan areas in 2012. We discuss the vacancy categories more below.

Vacant and distressed properties pose many challenges for local communities. Long-term vacant properties can be a sign of disinvestment. In Philadelphia, researchers found an 18 percent increase in the risk of aggravated assault near spatial concentrations of vacant properties (Branas et al., 2012). Following this, Moyer et al. (2019) conducted a randomized controlled trial study of the impact of vacant land maintenance on violence. These interventions significantly reduced instances of shootings. Long-term vacancy may also affect health outcomes. In Memphis, Shin and Shaban-Nejad (2018) found a significant, positive relationship between "blight prevalence" and childhood asthma after controlling for socioeconomic factors. In a study of the 50 largest metropolitan areas, Wang and Immergluck (2018) concluded that long-term vacancy (six months or more), and especially very long-term vacancy (three years or more), have statistically significant relationships to a variety of health outcomes.

Vacant properties can also reduce nearby property values. A Philadelphia study found that home values were significantly lower within 450 feet of a vacant house, controlling for other neighborhood characteristics (Shlay and Whitman, 2006). Han (2014) found that the longer a property sits empty, the greater its impact on property values and on the spatial radii of such impact. Whitaker and Fitzpatrick (2013) found that a vacant and tax delinquent house reduces property values in a 500-foot radius by 1 to 2.7 percent.

Cities typically pursue some combination of three approaches for addressing vacant properties: demolition, land banking, or redevelopment. Our research provides critical context for planners and policymakers in different types of metropolitan areas for choosing their mix of strategies.

Demolition strategies have faced some important criticism. Hackworth (2019) argues that a demolition approach resembles the misguided urban triage strategies of the 1970s. He criticizes policies such as the federal Hardest Hit Fund (HHF) of the 2010s, because, in Rust Belt cities, such policies did not lead to affordable housing. Schuetz et al. (2016) find that, in Rust Belt cities, the majority of the second round of funding of the Neighborhood Stabilization Program was used for demolition, while Sun Belt cities saw more dollars go to financing and redevelopment. This is an example of how policies might vary across different types of metro areas.

Many demolition efforts are more targeted and aimed at reducing the negative externalities on otherwise viable blocks. Studies find positive effects of targeted demolition. A Detroit study found a significant negative relationship between demolitions and crime (Larson et al., 2019). Griswold et al. (2014) found a positive impact on property values in stable and functioning submarkets in Cleveland, while a Detroit study found increases in home values (Paredes and Skidmore, 2017).

Land banking is a tool for acquiring, maintaining, and repositioning vacant properties. Land bank advocates emphasize their ability to help land markets operate more efficiently (Alexander and Powell, 2011). Land banks give the public sector the ability to favor various end uses, including affordable housing. Fujii (2016) found that property transfers involving the land bank in Cleveland and the Slavic Village Community Development Corporation resulted in more responsible end uses than other properties. There are also critics of land banking. Hackworth and Nowakowski (2015) argue that land bank programs favor returning properties to higher tax-paying uses rather than the community development efforts that Fujii emphasizes.

This paper examines patterns and trends in neighborhood housing vacancy and hypervacancy within different metropolitan contexts. This examination will enable local policymakers and planners to understand these patterns and their racialized nature and, therefore, will assist them in formulating policy responses. There is an existing contemporary literature on patterns of long-term housing vacancy. Molloy (2016) argues that long-term vacancy at the national level is relatively uncommon. She finds that census tracts with the highest vacancy rates, as of 2013, tended to be in distressed neighborhoods or hotter-market, high-activity neighborhoods, creating a somewhat complicated picture of long-term vacancy. Immergluck (2016) examined neighborhood vacancy trends in the 50 largest metro areas and found that from 2011 to 2014, cities with high poverty rates and relatively low median incomes saw higher rates of long-term vacancy by 2014.

Because we might expect metropolitan factors to affect vacancy trends, it is helpful to examine such trends across different types of metropolitan areas. Mallach (2018) develops a typology of four types of cities: magnet cities, Sun Belt cities, large legacy cities, and small legacy cities. He finds that vacancy rates in legacy cities have remained substantially higher than those in the Sun Belt and magnet cities, with the latter types having benefitted more from the national housing market recovery following the mortgage crisis (Mallach, 2018). Wang and Immergluck (2019) also use a metropolitan typology to examine long-term vacancy trends from 2011 to 2014. In weak-growth metro areas especially, vacancy is most concentrated in largely African American neighborhoods with high shares of single-family homes.

Comparing Long-Term Vacancy Rates between Sun Belt and Rust Belt Metro Areas

Creating the data set

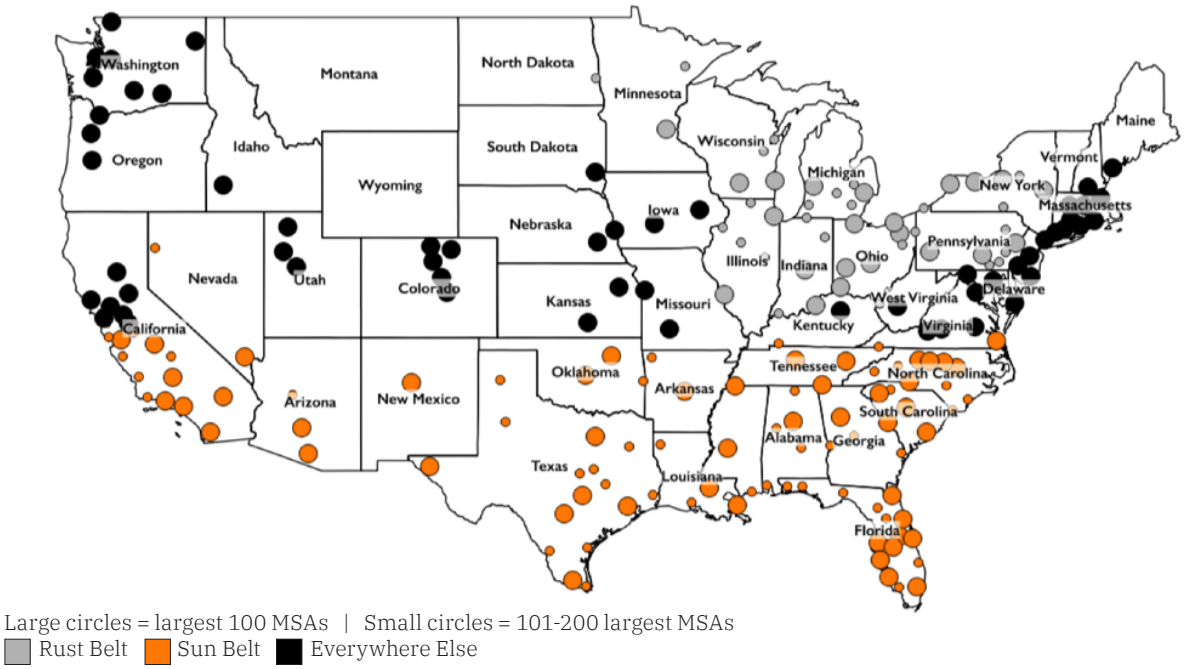
To compare long-term vacancy—again, defined as any housing unit vacant for six months or more—we use U.S. Postal Service (USPS) vacant housing data recorded by mail carriers and made publicly available at the census-tract level each quarter through the U.S. Department of Housing and Urban Development (HUD). We exclude "short-term" vacant addresses (those vacant for under six months) because those addresses will include many units that are for sale or for rent and are therefore of less concern in terms of having negative neighborhood spillovers. To examine the change in long-term vacancy since the subprime crisis, we use first quarter 2012 and first quarter 2019 USPS vacancy data.[2] Using the first quarter of each year controls for seasonality issues. The first quarter of 2019 was the most recent first quarter data available at the time of this study.

To prepare the USPS vacancy data for analysis, we first downloaded all tract-level data that included commercial, residential, and "no-stat" records. Residential addresses include addresses for all types of residential units, including those in single-family and multifamily properties. No-stats are addresses that are either properties in construction, completely abandoned, or somewhere in between, and it is difficult to determine which no-stats fall or do not fall into the vacancy category (HUD Frequently Asked Questions, 2018). Therefore, the second step was deleting all no-stats and excluding them from the calculation of a vacancy rate.[3] In the third step, we summed all vacant address totals at the tract level for each category from "Vacant 6 Mos. to 12 Mos. Count – Residential" up to "Vacant 36 Mos. or Longer Count – Residential." This total was divided by the total number of residential addresses, again excluding no-stats. This gives us a long-term vacancy rate at the tract level for both observation periods: the first quarter of 2012 and the first quarter of 2019.

Starting from the entire universe of all tracts with USPS vacant address data available (73,501 tracts), we eliminated tracts that did not fall within an MSA as defined by the U.S. Census Bureau. This yielded 60,456 tracts. Then, we limited the study to the largest 200 MSAs. MSAs vary greatly in size, and we are interested in medium to large metro areas. Limiting the analysis to the largest 100 MSAs would exclude meaningful medium-sized metros such as Youngstown, Ohio, or Macon, Georgia. Deleting MSAs below the largest 200 reduced the number of tracts to 54,460. The last step in selecting our sample accounted for another data anomaly in the USPS vacant address database. Between 2012 and 2019, a small number (38) of tracts had data recorded and reported for one year but not the other. Deleting those tracts left us with 54,422 tracts in the data set.

Our study focuses particularly on two important regions that were hit hard by the foreclosure crisis: the Rust Belt

Figure 1. 200 Largest Metropolitan Areas



Source: U.S. Census Bureau

and the Sun Belt. There are no hard and fast geographic definitions for either area, so we will rely on definitions provided in the previous literature. Beginning with the definition of the Sun Belt, we will use Strom (2017), who includes the states that are partially or entirely south of the 37th parallel: North Carolina, South Carolina, Georgia, Alabama, Mississippi, Tennessee, Louisiana, Arkansas, Oklahoma, Texas, New Mexico, Arizona, Florida, and Nevada; she also includes Southern California. For the Rust Belt, we use Hackworth's (2019) definition, which includes states adjacent to the Great Lakes: Indiana, Illinois, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin, as well as Louisville, Kentucky, and St. Louis, Missouri, because both metro areas spill over into one of these states. We excluded the New York City and Philadelphia metro areas from the Rust Belt, since these metro areas do not resemble most Rust Belt cities and are generally not considered part of the Rust Belt. If a metro area was partially in a state defined as being in the Rust Belt or Sun Belt, the entire metro area was included in the study. The Sun Belt region is relatively larger, with 93 MSAs and 23,363 tracts, compared with the Rust Belt, which contains 47 MSAs and 12,736 tracts. Figure 1 illustrates the locations of these MSAs.

A general typology of metropolitan areas

We are particularly interested in comparing certain types of metro areas across both regions, especially those that grew more slowly following the subprime crisis and were lower cost prior to the crisis. To be able to compare metro areas with similar market conditions across the Rust Belt and the Sun Belt, we devised a typology with six categories. The typology is based on two key metropolitan characteristics: (1) the median housing value, to identify low- versus high-cost metro areas, and (2) changes in housing prices and population over the recovery period.

To create this typology, we used the universe of all MSAs in the country (383) and not just those in the two regions or in the largest metro areas.

To categorize metro areas by housing-cost level, we used the median home value for owner-occupied homes from the American Community Survey (ACS) at the MSA level for 2018.[4] After examining the distribution of home values at the metro level, we chose $200,000 as the cutoff point between low- and high-cost metro areas. This was slightly higher than the mean value at the metro level, but the data are substantially skewed, and this figure corresponds to the top third of MSAs by median value.

To categorize metro areas by post-recession growth, we used two key variables: the change in the Federal Housing Finance Agency's (FHFA) housing price index (HPI)

Table 1. Cross-Tabulation of Cost and Growth Types for Sun Belt and Rust Belt

	Low-growth	Mixed-growth	High-growth	Totals
Low-cost	52 (51.5% of LC) (89.7% of LG)	26 (25.7% of LC) (81.3% of MG)	23 (22.8% of LC) (46.0% of HG)	Total LC = 101 (100%)
High-cost	6 (15.4% of HC) (10.3% of LG)	6 (15.4% of HC) (18.7% of MG)	27 (69.2% of HC) (54.0% of HG)	Total HC = 39 (100%)
Totals	Total LG= 58 (100%)	Total MG= 32 (100%)	Total HG= 50 (100%)	Total MSAs = 140 (100%)

between 2011 and 2018 and the U.S. Census Bureau's population estimate program (PEP) from 2011 to 2018; 2018 was the most recent year of available data from the U.S. Census Bureau.[5] After calculating home price and population changes, we used the following rules to categorize MSAs into three distinct groups. Group 1, low-growth MSAs, had a population percentage change below the average of all MSAs (4.59 percent) and a change in the HPI below the all-MSA average (27.58 percent). Group 2, mixed-growth metro areas, were MSAs that fell below the average on either population growth or housing price change, but not both. Group 3, high-growth metro areas, were MSAs that were above the all-MSA average for both variables. Combining these three categories with the low- and high-cost categories results in six metropolitan types, as shown in Table 1. The table indicates how many of the medium and large metro areas in the Rust Belt and Sun Belt fall into each of the six metro types. The use of these housing cost and growth classifications will allow us to compare long-term vacancy rates among metro areas with similar housing costs and growth trajectories.

Results for Vacancy Levels

Aggregate changes in tract vacancy levels from 2012 to 2019

To better understand the change in vacancy from 2012 to 2019, we define five levels of vacancy: low, moderate, high, very high, and extreme. The low category includes all census tracts that had a vacancy rate from 0 percent to 0.9 percent. The moderate frequency includes all census tracts with vacancy rates ranging from 1 percent to 3.9 percent. The high classification includes tracts with a 4 percent to 7.9 percent vacancy rate. The very high category ranges from 8 percent to 13.9 percent, and the extreme category is any tract over 14 percent. We refer to the very high and extreme categories together as "hypervacant" tracts. These tracts accounted for just under 10 percent of tracts in all 200 metro areas in 2012 and just over 7.5 percent of tracts in 2019 (see Table 2).

Table 2 shows that a large majority of all census tracts in the largest 200 metro areas fall into either the low or moderate categories, which account for 76.1 percent of all tracts in 2012 and 82.5 percent of all tracts in 2019. A categorical approach allows us to focus on tracts with high, very high, or extreme levels of vacancy, especially the latter two categories, and how the numbers of such tracts changed over the 2012 to 2019 period. The top section of the table shows that for the 200 largest metro areas, the share of very high and extreme vacancy tracts declined, but not dramatically, decreasing from 9.4 percent to 7.5 percent of all tracts in these metro areas. These tracts are those where long-term vacancies are most likely to lead to substantial problems.

Table 2 also shows that, in Sun Belt metro areas, the share of tracts that had very high or extreme levels of vacancy declined over the recovery period, with the combined share dropping from about 10.2 percent in 2012 to about 6.6 percent in 2019. There was also a substantial net shift from higher vacancy levels to the low level, with the latter increasing from 36.4 percent to 51.6 percent. Although it appears that the greatest net reduction in vacancy occurred through a shift from moderate to high levels downward, there was also some shift from very high and extreme categories to lower levels. It is important to note, however, that this table only represents a comparison of gross patterns across all tracts and does not speak to the number of tracts that transition from higher to lower categories (or vice versa). This will be discussed more below.

Table 2. Census Tracts by Vacancy Level, 2012 and 2019, 200 Largest MSAs

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 200 MSAs & 54,422 tracts)	2012 (Q1)	19,632 (36.07%)	21,747 (39.98%)	7,896 (14.51%)	3,367 (6.19%)	1,770 (3.25%)
	2019 (Q1)	26,764 (49.18%)	18,115 (33.29%)	5,438 (9.99%)	2,511 (4.61%)	1,594 (2.93%)
Sun Belt (n = 93 MSAs & 23,363 tracts)	2012 (Q1)	8,513 (36.44%)	8,537 (36.54%)	3,939 (16.86%)	1,731 (7.41%)	643 (2.75%)
	2019 (Q1)	12,060 (51.62%)	7,222 (30.91%)	2,548 (10.91%)	1,060 (4.54%)	473 (2.02%)
Rust Belt (n = 47 MSAs & 12,736 tracts)	2012 (Q1)	3,302 (25.93%)	5,289 (41.53%)	2,159 (16.95%)	1,080 (8.48%)	906 (7.11%)
	2019 (Q1)	4,256 (33.42%)	4,811 (37.77%)	1,711 (13.43%)	1,024 (8.04%)	934 (7.33%)

The bottom row of Table 2 shows that, in Rust Belt metro areas, the share of tracts that had very high or extreme levels of vacancy did not decline substantially over the recovery period, with the combined share dropping only from about 15.6 percent in 2012 to about 15.4 percent in 2019. It is noteworthy that the share of tracts in the Rust Belt in these very high and extreme categories at the late stages of the recovery was more than 50 percent higher than the comparable share in the Sun Belt at the beginning of the recovery period. By the end of the study period, the share of tracts in these two categories was 2.3 times as large in the Rust Belt as in the Sun Belt. In the case of the Rust Belt, the net reduction in vacancy occurred almost entirely through a decline from moderate to high levels, and not from the very high and extreme categories. Hypervacancy appears to have been significantly more persistent in the Rust Belt than in the Sun Belt. Nonetheless, a nontrivial number of such tracts persist in the Sun Belt despite the region's stronger recovery.

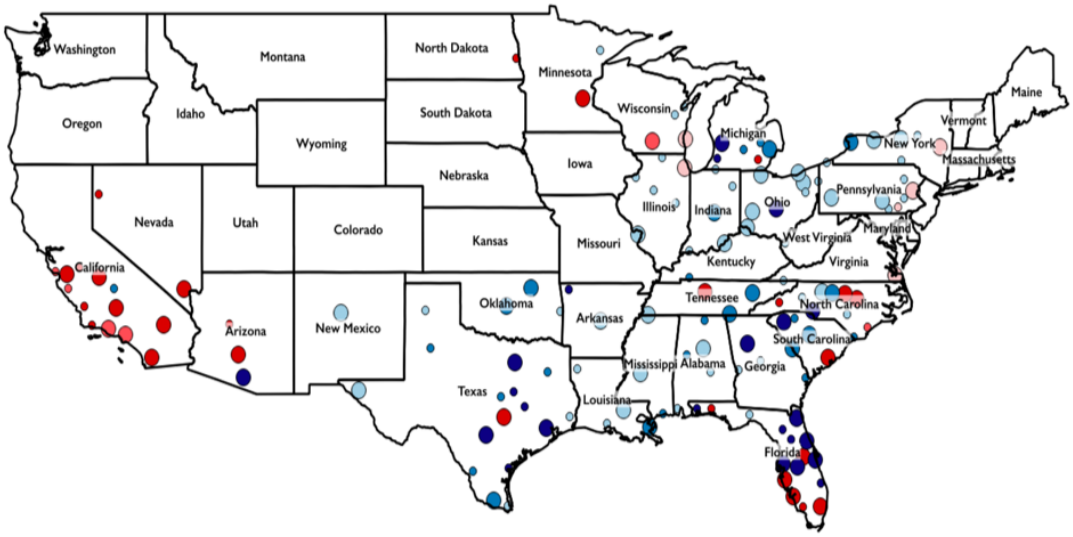
Changes in tract vacancy levels by MSA housing cost and growth type

The section above compared changes in tract vacancy levels for larger Sun Belt and Rust Belt metro areas, without breaking out different types of metro areas within these two regions. While Rust Belt metro areas did not tend to grow as fast as those in the Sun Belt during the recovery period, there are different types of metro areas in both regions. The Sun Belt region is particularly heterogeneous, in part because it contains more metro areas but also because it covers a substantially larger geographic area. To at least partially address such heterogeneity among metro areas within these two regions, we break out vacancy levels for the 2012 and 2019 periods across the six different metro types we identified earlier. These categories include low-cost, low-growth; low-cost, mixed-growth; low-cost, high-growth; high-cost, low-growth; high-cost, mixed-growth; and high-cost, high-growth. Figure 2 indicates which categories the larger metro areas in the Sun Belt and Rust Belt regions fall into. (For a full list of metro areas see the Appendix, Table A1.)

Figure 2 shows that, as expected, lower-growth metro areas tend to be more common in the Rust Belt than in the Sun Belt. At the same time, neither region–especially the Sun Belt–is homogeneous in this respect. There are some high-growth metro areas in the Rust Belt, including Grand Rapids, Columbus, and Minneapolis. Conversely, there are low-growth metro areas in the Sun Belt, including Birmingham, Memphis, and Jackson, among others.

The first cost-growth type we analyze is low-cost, low-growth metro areas. This category includes 58 of the

Figure 2. Large Sun Belt and Rust Belt Metro Areas by Cost and Growth Type



Large circles = largest 100 MSAs | Small circles = 101-200 largest MSAs

High Cost & Low Growth | High Cost & Mixed Growth | High Cost & High Growth

Low Cost & Low Growth | Low Cost & Mixed Growth | Low Cost & High Growth

Source: U.S. Census Bureau

200 largest MSAs, with 30 in the Rust Belt and 22 in the Sun Belt. These are metro areas with a median home value of less than $200,000 and are below average in both population and HPI change from 2011 to 2018. At the national level, these metro areas showed less movement to the lowest category compared with other metro areas, with small decreases in the moderate and high categories.[6] There was little change in the share of tracts in the very high and extreme categories. This share remained remarkably stable, increasing very slightly, suggesting that in low-cost, low-growth metro areas, the problems of hypervacancy have persisted despite the national recovery.

Table 3 provides a breakout of tract-level vacancy levels for larger low-cost, low-growth metro areas. The first thing to note is that while low-cost, low-growth metro areas are often assumed to be primarily located in the Rust Belt, only slightly over half of such MSAs are, in fact, Rust Belt metro areas. Moreover, 22 Sun Belt metro areas fall into this category, accounting for 38 percent of such metro areas among the 200 largest MSAs. However, 52 percent of Rust Belt metro areas fall into this category. As a result, overall, there are more tracts at these high vacancy levels in the Rust Belt, and this pattern persisted over the recovery period. When comparing low-cost, low-growth metro areas in the Rust Belt and the Sun Belt, the table shows that these metro areas saw similarly modest declines toward lower vacancy levels, despite the national housing market recovery. Moreover, low-cost, low-growth metro areas in both regions saw very little change in the share of tracts at very high or extreme vacancy levels. Thus, these sorts of metro areas tend to exhibit persistent hypervacancy regardless of region.

The low-cost, mixed-growth category includes 32 MSAs among the largest 200, with 21 in the Sun Belt and 5 in the Rust Belt. As shown in Table 4, in the Sun Belt there was a substantial increase (9.3 percentage points) over the recovery period in the share of tracts falling into the low-vacancy category, while the corresponding shift in the Rust Belt was trivial. Moreover, while the share of tracts at very high and extreme vacancy levels dropped some in Sun Belt metro areas (from 13.9 percent to 11.3 percent), the share in Rust Belt metro areas did not appreciably change. So, within this metropolitan type, we begin seeing somewhat more recovery in the Sun Belt compared with the Rust Belt.

The low-cost, high-growth category includes 26 MSAs among the largest 200, with 20 in the Sun Belt and 3 in the Rust Belt. Moreover, the Sun Belt accounts for 83 percent of the tracts in this type of metro area nationally; therefore, the Sun Belt and national results look similar. Across both regions, this metro type has seen large changes, including large increases in the share of

Table 3. Low-Cost, Low-Growth MSAs: Census Tracts by Vacancy Level, 2012, 2019

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 58 MSAs & 8,740 tracts)	2012 (Q1)	2,454 (28.08%)	3,122 (35.72%)	1,655 (18.94%)	883 (10.10%)	626 (7.16%)
	2019 (Q1)	2,988 (34.19%)	2,821 (32.28%)	1,398 (16.00%)	891 (10.19%)	642 (7.35%)
Sun Belt (n = 22 MSAs & 2,687 tracts)	2012 (Q1)	951 (35.39%)	793 (29.51%)	466 (17.34%)	280 (10.42%)	197 (7.33%)
	2019 (Q1)	1,074 (39.97%)	731 (27.21%)	412 (15.33%)	262 (9.75%)	208 (7.74%)
Rust Belt (n = 30 MSAs & 5,595 tracts)	2012 (Q1)	1,344 (24.02%)	2,187 (39.09%)	1,088 (19.45%)	560 (10.01%)	416 (7.44%)
	2019 (Q1)	1,755 (31.37%)	1,958 (35.00%)	893 (15.96%)	574 (10.26%)	415 (7.42%)

Table 4. Low-Cost, Mixed-Growth MSAs: Census Tracts by Vacancy Level, 2012, 2019

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 32 MSAs & 5,801 tracts)	2012 (Q1)	1,823 (31.43%)	1,976 (34.06%)	1,029 (17.74%)	530 (9.14%)	443 (7.64%)
	2019 (Q1)	2,107 (36.32%)	1,970 (33.96%)	821 (14.15%)	455 (7.84%)	448 (7.72%)
Sun Belt (n = 21 MSAs & 2,840 tracts	2012 (Q1)	894 (31.48%)	969 (34.12%)	583 (20.53%)	288 (10.14%)	106 (3.73%)
	2019 (Q1)	1,158 (40.77%)	912 (32.11%)	450 (15.85%)	229 (8.06%)	91 (3.20%)
Rust Belt (n = 5 MSAs & 2,258 tracts)	2012 (Q1)	608 (26.93%)	785 (34.77%)	328 (14.53%)	203 (8.99%)	334 (14.79%)
	2019 (Q1)	621 (27.50%)	816 (36.14%)	280 (12.40%)	188 (8.33%)	353 (15.63%)

Table 5. Low-Cost, High-Growth MSAs: Census Tracts by Vacancy Level, 2012, 2019

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 26 MSAs & 8,096 tracts)	2012 (Q1)	2,529 (31.24%)	2,966 (36.64%)	1,618 (19.99%)	737 (9.10%)	246 (3.04%)
	2019 (Q1)	3,862 (47.70%)	2,722 (33.62%)	972 (12.01%)	391 (4.83%)	149 (1.84%)
Sun Belt (n = 20 MSAs & 6,743 tracts)	2012 (Q1)	2,504 (37.13%)	2,504 (37.13%)	1,424 (21.12%)	629 (9.33%)	175 (2.60%)
	2019 (Q1)	3,185 (47.23%)	2,312 (34.29%)	840 (12.46%)	308 (4.57%)	98 (1.45%)
Rust Belt (n = 3 MSAs & 690 tracts)	2012 (Q1)	274 (39.71%)	256 (37.10%)	88 (12.75%)	42 (6.09%)	30 (4.35%)
	2019 (Q1)	372 (53.91%)	209 (30.29%)	58 (8.41%)	33 (4.78%)	18 (2.61%)

tracts falling into the low-vacancy category. As indicated in Table 5, in both regions, the share of tracts in high, very high, and extreme categories dropped substantially; the decline in such metro areas was 14.7 percentage points in the Sun Belt and 7.4 percentage points in the Rust Belt. This is one metro type where the ending share of higher-vacancy tracts is somewhat higher in the Sun Belt than in the Rust Belt (18.5 percent versus 15.8 percent), which could raise questions around how growth in the Sun Belt differed from Rust Belt growth.

Tables 6, 7, and 8 explore the various high-cost metro types, beginning with low-growth MSAs. Because there are fewer high-cost metro areas, in some categories, the number of MSAs gets quite small. In this category, the Sun Belt and the Rust Belt constitute only a little over a quarter of all tracts. Five Rust Belt metro areas fall into this category. In this type of metro area, there was a significant increase in low-vacancy tracts and some decline in high-vacancy tracts, but the share of very high and extreme vacancy tracts remained roughly similar over time. Because there was only one such metro area in the Sun Belt, we do not attempt to analyze differences across regions within this metro type.

The fifth category is high-cost, mixed-growth metro areas. Madison, Wisconsin, is the only metro area in the Rust Belt in this category, so generalizations about the region here are limited. Five Sun Belt metro areas fall into this category. Table 7 shows that there was a marked increase in the share of tracts in such metro areas in the low-vacancy category, and this was larger in the Sun Belt than nationally. Across both regions and nationally, only a small share of tracts fell into the highest levels of long-term vacancy, with fewer than 100 tracts falling into the two highest levels in 2012 nationally and fewer than 60 in 2019.

The last category of metro areas is high-cost, high-growth MSAs. There are significantly more metros in the Sun Belt in this category (24) compared to just 3 in the Rust Belt. In both the Sun Belt and the Rust Belt, Table 8 indicates that these metro areas saw very large increases in the share of tracts that were low vacancy, increasing by 16.9 percentage points in the Sun Belt and 18.6 percentage points in the Rust Belt. Similar to the results for mixed-growth areas, there were relatively small shares of tracts at very high and extreme vacancy levels, even in 2012, although the shares did decline over the seven-year period. Notably, the 2019 shares of tracts at very high and extreme vacancy levels in such metro areas in the Rust Belt (2.5 percent) were actually slightly lower than in the Sun Belt (3.9 percent), but both shares were small.

Table 6. High-Cost, Low-Growth MSAs: Census Tracts by Vacancy Level, 2012, 2019

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 21 MSAs & 12,109 tracts)	2012 (Q1)	4,583 (37.85%)	5,341 (44.11%)	1,397 (11.54%)	541 (4.47%)	247 (2.04%)
	2019 (Q1)	6,070 (50.13%)	4,385 (36.21%)	978 (8.08%)	429 (3.54%)	247 (2.04%)
Sun Belt (n = 1 MSA & 423 tracts*)	2012 (Q1)	211 (49.88%)	146 (34.52%)	47 (11.11%)	15 (3.55%)	4 (0.95%)
	2019 (Q1)	232 (54.85%)	134 (31.68%)	41 (9.69%)	13 (3.07%)	3 (0.71%)
Rust Belt (n = 5 MSAs & 3,123 tracts)	2012 (Q1)	757 (24.17%)	1,476 (47.13%)	538 (17.18%)	243 (7.76%)	118 (3.77%)
	2019 (Q1)	992 (31.67%)	1,399 (44.67%)	389 (12.42%)	210 (6.70%)	142 (4.53%)

*Virginia Beach, Virginia-North Carolina, is the only Sun Belt MSA that is high cost, low growth.

Table 7. High-Cost, Mixed-Growth MSAs: Census Tracts by Vacancy Level, 2012, 2019

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 11 MSAs & 5,331 tracts)	2012 (Q1)	3,205 (60.12%)	1,849 (34.68%)	184 (3.45%)	64 (1.20%)	29 (0.54%)
	2019 (Q1)	4,065 (76.25%)	1,082 (20.30%)	125 (2.34%)	35 (0.66%)	24 (0.45%)
Sun Belt (n = 5 MSAs & 3,296 tracts	2012 (Q1)	1,934 (58.58%)	1,234 (37.44%)	91 (2.76%)	25 (0.76%)	12 (0.36%)
	2019 (Q1)	2,642 (80.16%)	594 (18.02%)	37 (1.12%)	9 (0.27%)	14 (0.42%)
Rust Belt* (n = 1 MSA & 131 tracts)	2012 (Q1)	64 (48.85%)	60 (45.80%)	6 (4.58%)	1 (0.76%)	0 (0.00%)
	2019 (Q1)	88 (67.18%)	39 (29.77%)	2 (1.53%)	2 (1.53%)	0 (0.00%)

*Madison, Wisconsin, is the only Rust Belt metro that is high cost, mixed growth.

Table 8. High-Cost, High-Growth MSAs: Census Tracts by Vacancy Level, 2012, 2019

	Year (Quarter)	Low	Moderate	High	Very High	Extreme
All (n = 52 MSAs & 14,345 tracts)	2012 (Q1)	5,038 (35.12%)	6,503 (45.33%)	2,013 (14.03%)	612 (4.27%)	179 (1.25%)
	2019 (Q1)	7,672 (53.48%)	5,135 (35.80%)	1,144 (7.97%)	310 (2.16%)	84 (0.59%)
Sun Belt (n = 24 MSAs & 7,374 tracts)	2012 (Q1)	2,512 (34.07%)	2,891 (39.21%)	1,328 (18.01%)	494 (6.70%)	149 (1.98%)
	2019 (Q1)	3,769 (50.95%)	2,539 (34.74%)	768 (10.42%)	239 (3.14%)	59 (0.75%)
Rust Belt (n = 3 MSAs & 930 tracts	2012 (Q1)	255 (27.42%)	525 (56.45%)	111 (11.94%)	31 (3.33%)	8 (0.86%)
	2019 (Q1)	428 (46.02%)	390 (41.94%)	89 (9.57%)	17 (1.83%)	6 (0.65%)

The results above suggest that the greater increase in low-vacancy tracts and the greater decline in very high and extreme vacancy tracts in the Sun Belt as compared with the Rust Belt are primarily associated with the fact that a larger share of Sun Belt metro areas fall into higher-growth categories. Once the cost level and growth trajectory of metro areas are accounted for, differences between the Rust Belt and the Sun Belt diminish. It appears to be the case that the stronger recovery of most Sun Belt metropolitan housing markets is associated with sharper declines in hypervacancy, as measured here by the number of very high and extreme vacancy tracts.

Nonetheless, it remains the case that a significant share of low-cost, low-growth metro areas are located in the Sun Belt, and these generally had vacancy trajectories during 2012-2019 similar to those of low-cost, low-growth metro areas in the Rust Belt.

Analysis of Tracts Experiencing Changes in Vacancy Level

We next look at the number and share of neighborhoods that shift from higher to lower levels of vacancy. This part of the analysis answers two related questions. How many neighborhoods (tracts) saw a decline in their level of vacancy from 2012 to 2019 and to what degree? Alternatively, we calculate how many tracts experienced increases in their vacancy levels and the extent of such increases.

Net number of tracts shifting to higher or lower vacancy levels

We first calculate the net number of tracts in each metropolitan area that shifted from higher to lower levels of vacancy, the general trend expected during the 2012 to 2019 recovery. We then subtract the number of tracts that moved in the opposite direction, from lower to higher levels of vacancy. The result is the net number of tracts shifting to lower vacancy levels over the period. Then, for each metro, we identified when the net number of tracts shifting in one direction or the other amounted to more than 25 percent of all tracts. Table 9 identifies the five MSAs that saw 25 percent or more of tracts increasing toward higher vacancy levels. Four of these five are Rust Belt metro areas.

Table 10 identifies 35 metro areas that saw a net shift of 25 percent or more of tracts toward lower vacancy levels. Far more metro areas (29) saw large shares of their neighborhoods decrease to lower vacancy levels over the recovery period as compared with those seeing substantial increases toward higher vacancy levels. Moreover, while most of the metro areas seeing large increases to higher levels of vacancy were Rust Belt metro areas, the bulk of metro areas experiencing

Table 9. Net Number of Tracts Seeing Increases from Lower to Higher Vacancy Levels (2012 to 2019), Where Number of Tracts Experiencing Such Increases >25% of All Tracts in MSA

Metro	Net # Tracts Shifting Higher to Lower Vacancy	Total Tracts	Percent	Cost	Growth	Region
Huntington-Ashland, WV-KY-OH	37	92	40.2%	Low	Low	Rust Belt
Flint, MI	48	131	36.6%	Low	Mixed	Rust Belt
Binghamton, NY	18	65	27.7%	Low	Low	Rust Belt
Peoria, IL	25	97	25.8%	Low	Low	Rust Belt
Clarksville, TN-KY	16	63	25.4%	Low	Mixed	Sun Belt

Table 10. Net Number of Tracts Experiencing Reduction in Vacancy Higher to Lower Level (2012 to 2019), Where Number of Tracts >25% of All Tracts in MSA

Metro	Net # Tracts Shifting Higher to Lower Vacancy	Total Tracts	Percent	Cost	Growth	Region
Ocala, FL	50	61	82.0%	Low	High	Sun Belt
Gainesville, FL	46	69	66.7%	Low	High	Sun Belt
Port St. Lucie, FL	51	78	65.4%	Low	High	Sun Belt
Augusta-Richmond County, GA-SC	67	119	56.3%	Low	Mixed	Sun Belt
Pensacola-Ferry Pass-Brent, FL	54	96	56.3%	Low	High	Sun Belt
Jacksonville, FL	144	258	55.8%	Low	High	Sun Belt
Crestview-Fort Walton Beach-Destin, FL	28	52	53.8%	High	High	Sun Belt
Cincinnati, OH-KY-IN	262	500	52.4%	Low	Low	Rust Belt
Savannah, GA	46	88	52.3%	Low	Mixed	Sun Belt
McAllen-Edinburg-Mission, TX	58	113	51.3%	Low	Mixed	Sun Belt
College Station-Bryan, TX	26	52	50.0%	Low	High	Sun Belt
Las Vegas-Henderson-Paradise, NV	221	487	45.4%	High	High	Sun Belt
Riverside-San Bernardino-Ontario, CA	361	817	44.2%	High	High	Sun Belt
Tallahassee, FL	35	84	41.7%	Low	Low	Sun Belt

Metro	Net # Tracts Shifting Higher to Lower Vacancy	Total Tracts	Percent	Cost	Growth	Region
Atlanta-Sandy Springs-Alpharetta, GA	372	951	39.1%	Low	High	Sun Belt
San Antonio-New Braunfels, TX	172	456	37.7%	Low	High	Sun Belt
Miami-Fort Lauderdale-Pompano Beach, FL	450	1212	37.1%	High	High	Sun Belt
Macon-Bibb County, GA	22	60	36.7%	Low	Low	Sun Belt
Santa Maria-Santa Barbara, CA	32	88	36.4%	High	High	Sun Belt
Waco, TX	20	57	35.1%	Low	High	Sun Belt
Orlando-Kissimmee-Sanford, FL	136	389	35.0%	High	High	Sun Belt
Houston-The Woodlands-Sugar Land, TX	369	1067	34.6%	Low	High	Sun Belt
Corpus Christi, TX	33	97	34.0%	Low	High	Sun Belt
Phoenix-Mesa-Chandler, AZ	335	987	33.9%	High	High	Sun Belt
Austin-Round Rock-Georgetown, TX	118	350	33.7%	High	High	Sun Belt
Erie, PA	23	71	32.4%	Low	Low	Rust Belt
Tyler, TX	13	41	31.7%	Low	Mixed	Sun Belt
Reno, NV	33	110	30.0%	High	High	Sun Belt
San Diego-Chula Vista-Carlsbad, CA	187	626	29.9%	High	High	Sun Belt
Grand Rapids-Kentwood, MI	56	200	28.0%	Low	High	Rust Belt
Brownsville-Harlingen, TX	24	86	27.9%	Low	Low	Sun Belt
Louisville/Jefferson County, KY-IN	81	299	27.1%	Low	Low	Rust Belt
Tampa-St. Petersburg-Clearwater, FL	187	738	25.3%	Low	High	Sun Belt
Minneapolis-St. Paul-Bloomington, MN-WI	198	784	25.3%	High	High	Rust Belt
Ann Arbor, MI	25	100	25.0%	High	High	Rust Belt

Table 11. Net Number of Tracts Experiencing Increase in Vacancy from Low-Mod to Very High-Extreme Level (2012 to 2019), Where Number of Tracts >10% of All Tracts in MSA

Metro	Net Change	Total Tracts	Percent	Cost	Growth	Region
Youngstown-Warren-Boardman, OH-PA	25	155	16.1%	Low	Low	Rust Belt
Huntington-Ashland, WV-KY-OH	13	92	14.1%	Low	Low	Rust Belt
Duluth, MN-WI	11	86	12.8%	Low	Low	Rust Belt
Clarksville, TN-KY	8	63	12.7%	Low	Mixed	Sun Belt
Kingsport-Bristol, TN-VA	8	75	10.7%	Low	Low	Sun Belt

large net downward decreases in vacancy were Sun Belt metro areas.

To identify very large vacancy changes at the tract level, Tables 11 and 12 examine the net change in tracts shifting categories, but this time these tables only consider tracts that increased (decreased) from one of the lower (higher) levels to one of the higher (lower) levels. Both tables list those metropolitan areas where the net number of tracts increasing from lower to very high (or decreased from very high to lower) levels amounted to over 10 percent of the tracts in the metro area. Table 11 indicates that there are five metro areas where over 10 percent of the tracts increased from lower to very high vacancy levels, with the three highest being in the Rust Belt.

In Table 12, which lists metro areas where over 10 percent of tracts saw very large declines in vacancy levels, all 10 metro areas are in the Sun Belt. Moreover, 6 of the 10 metro areas are in Florida, one of the "sand states" hit hardest by the foreclosure crisis.

Racial and Economic Characteristics of Hypervacant Neighborhoods

We next turn to the racial and economic characteristics of neighborhoods at different vacancy levels in the Sun Belt and the Rust Belt, at the beginning and end of the study period. We are particularly interested in the characteristics of hypervacant tracts, that is, those at very high or extreme vacancy levels. Table 13 compares the racial compositions and poverty rates of tracts at different vacancy levels using the 2011 and 2018 five-year American Community Survey. The 2011 ACS data are used to describe the first quarter 2012 tracts and the 2018 ACS data are used to describe the first quarter 2019 tracts.

Low-vacancy tracts in the Rust Belt tend to have substantially lower Black and, especially, Latinx populations than low-vacancy tracts in the Sun Belt.[7] The poverty rates of low-vacancy tracts in the Sun Belt are also substantially higher. Over the recovery period, the mean percent Black and Latinx population rose among low-poverty tracts in both regions, as did mean poverty rates.

High-vacancy tracts tend to look similar across the Rust Belt and Sun Belt, both at the beginning of the period and at the end. They tend to have substantial Black and Latinx populations, with those percentages increasing by 2019, especially in the Sun Belt. The mean poverty rate of high-vacancy tracts also increased a bit, from 20.6 percent to 22.5 percent in the Sun Belt and from 20.3 percent to 21.7 percent in the Rust Belt. Owing to smaller Latinx populations overall, high-vacancy tracts in the Rust Belt had substantially lower Latinx populations than those in the Sun Belt, and they declined slightly over the recovery period, while high-vacancy tracts in the Sun Belt saw a small increase in their mean share of the Latinx population.

We focus especially on hypervacant neighborhoods, which include those in the very high and extreme vacancy categories. Very high-vacancy tracts tend to have substantially larger Black populations in the Rust Belt than in the Sun Belt, although that difference had declined by 2019. In 2019, the Black population in the very high-vacancy tracts in the Sun Belt had increased from 31.7 percent to 35.5 percent Black while declining from 42.3 percent to 38.5 percent in the Rust Belt. Again, there

Table 12. Net Number of Tracts Changing from Very High-Extreme to Low-Mod Vacancy (2012 to 2019), Where Number of Tracts >10% of All Tracts in MSA

Metro	Net Change	Total Tracts	Percent	Cost	Growth	Region
Ocala, FL	15	61	24.6%	Low	High	Sun Belt
Augusta-Richmond County, GA-SC	25	119	21.0%	Low	Mixed	Sun Belt
Gainesville, FL	12	69	17.4%	Low	High	Sun Belt
Crestview-Fort Walton Beach-Destin, FL	9	52	17.3%	High	High	Sun Belt
College Station-Bryan, TX	9	52	17.3%	Low	High	Sun Belt
Port St. Lucie, FL	12	78	15.4%	Low	High	Sun Belt
Pensacola-Ferry Pass-Brent, FL	12	96	12.5%	Low	High	Sun Belt
Waco, TX	7	57	12.3%	Low	High	Sun Belt
Corpus Christi, TX	11	97	11.3%	Low	High	Sun Belt
Spartanburg, SC	7	69	10.1%	Low	Mixed	Sun Belt

was a large difference in shares of the Latinx population between the regions, owing to the overall smaller Latinx population among Rust Belt metro areas. The poverty rates of very high-vacancy tracts remained high at the end of the period: 27.2 percent in Sun Belt very high-vacancy tracts and 29.6 percent in corresponding Rust Belt tracts.

Extreme-vacancy tracts in both regions tended to have large Black populations, with means ranging from 46.9 percent in the Sun Belt to 65.4 percent in the Rust Belt in 2012. While the mean Black population for such tracts increased in the Sun Belt, it actually declined significantly in the Rust Belt, although it remained high, at 61.9 percent. The 2019 poverty rates of extreme-vacancy tracts are high, and higher in the Rust Belt, which had a mean of 38.2 percent, with a mean of 31.0 percent in the Sun Belt. These figures held fairly steady over the recovery period.

Figures 3 and 4 illustrate the strong relationships between high levels of vacancy and the racial and poverty characteristics of census tracts in both the Sun Belt and the Rust Belt. Figure 3 shows that very high- and extreme-vacancy tracts, whether in the Sun Belt or the Rust Belt, tend to have substantial Black populations, although Rust Belt tracts in these categories have substantially larger mean percentages of Black residents. It is also notable that, in the Rust Belt, the low- and moderate-vacancy tracts have lower Black populations. Overall, Figure 3 suggests that, while the relationship between vacancy level and the percentage of the population that is Black is strong in both regions, it is stronger in the Rust Belt. This might be somewhat expected given the generally higher levels of Black segregation in the Rust Belt (Frey, 2018). Figure 4 shows that hypervacant tracts, again both in the Sun Belt and in the Rust Belt, tend to have higher poverty rates than tracts at lower vacancy levels. Once again, this relationship is somewhat stronger in Rust Belt than in Sun Belt metro areas.

Conclusion

The U.S. housing market recovery that began around 2012 brought with it increased housing demand and generally lower levels of housing vacancy. This recovery, however, was highly uneven, with population and home values growing much more in some regions than in others. In this paper, we have focused on medium-sized and large metropolitan areas in two regions of the country–the Sun Belt and the Rust Belt–that were gen-

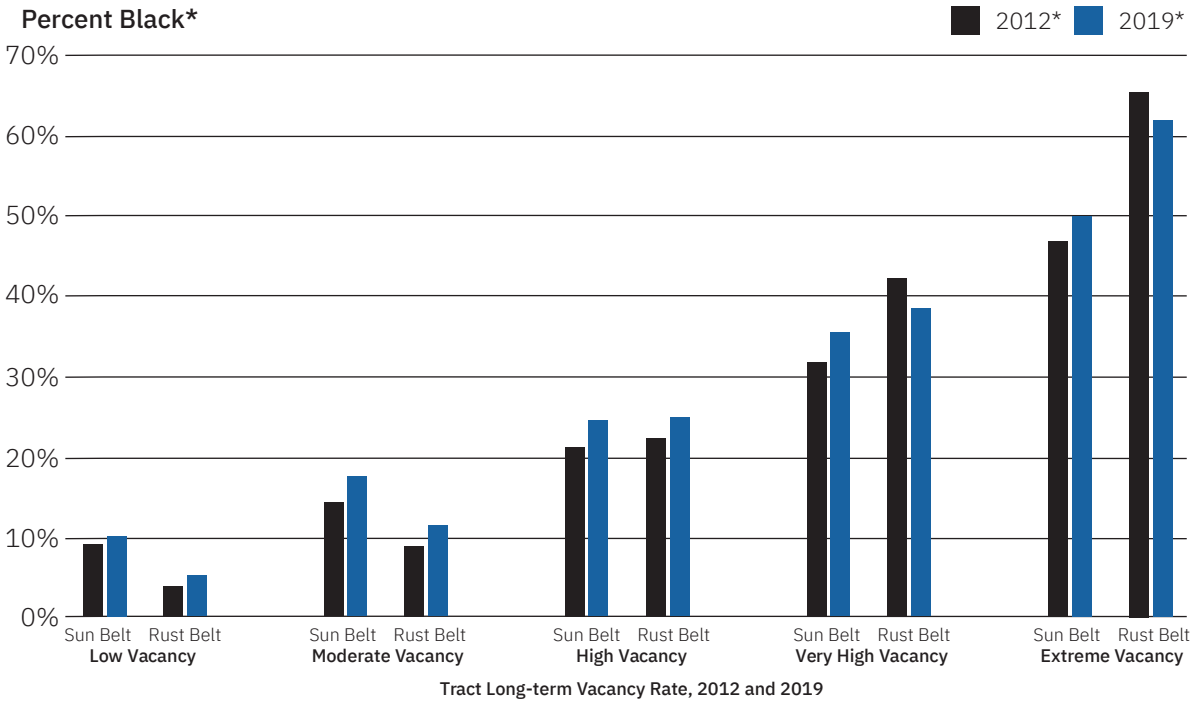
Table 13. Mean Racial, Ethnic, and Poverty Characteristics of Tracts by Vacancy Level

	2012*				2019*			
	% Black	% Latinx	% White	% in Poverty	% Black	% Latinx	% White	% in Poverty
Total Tracts								
200 MSAs	15.2%	17.4%	70.1%	14.8%	15.4%	19.0%	68.8%	14.7%
Sun Belt	15.8%	25.2%	68.1%	16.2%	16.0%	27.1%	67.3%	16.0%
Rust Belt	16.7%	7.4%	75.0%	15.7%	17.1%	8.5%	73.5%	15.6%
Low Vacancy								
200 MSAs	8.5%	15.7%	75.2%	9.7%	9.7%	19.2%	72.0%	10.6%
Sun Belt	9.0%	23.9%	71.8%	11.6%	10.1%	28.2%	69.7%	12.4%
Rust Belt	3.9%	3.8%	89.9%	7.4%	5.3%	5.3%	86.2%	8.0%
Moderate Vacancy								
200 MSAs	12.5%	19.2%	72.1%	13.6%	14.7%	20.1%	70.4%	14.9%
Sun Belt	14.3%	29.3%	68.5%	15.7%	17.6%	28.4%	67.7%	17.2%
Rust Belt	8.9%	7.7%	82.3%	11.5%	11.4%	10.0%	78.4%	12.6%
High Vacancy								
200 MSAs	21.4%	18.5%	66.7%	20.5%	23.9%	18.7%	64.3%	21.7%
Sun Belt	21.2%	23.0%	67.2%	20.6%	24.6%	24.4%	64.4%	22.5%
Rust Belt	22.4%	11.1%	67.9%	20.3%	25.0%	10.7%	65.1%	21.7%
Very High Vacancy								
200 MSAs	35.6%	16.5%	53.9%	27.6%	36.3%	15.1%	53.7%	28.0%
Sun Belt	31.7%	20.1%	58.4%	25.7%	35.5%	18.6%	55.4%	27.2%
Rust Belt	42.3%	10.0%	48.4%	30.9%	38.5%	10.6%	51.7%	29.6%
Extreme Vacancy								
200 MSAs	56.6%	10.6%	35.1%	35.1%	56.8%	10.9%	34.5%	35.0%
Sun Belt	46.9%	14.8%	44.5%	30.9%	49.9%	13.4%	42.3%	31.0%
Rust Belt	65.4%	7.1%	25.6%	39.4%	61.9%	8.9%	29.3%	38.2%

*Note: 2012 demographic characteristics are calculated using 2011 five-year ACS data; 2019 demographic characteristics are calculated using 2018 five-year ACS data.

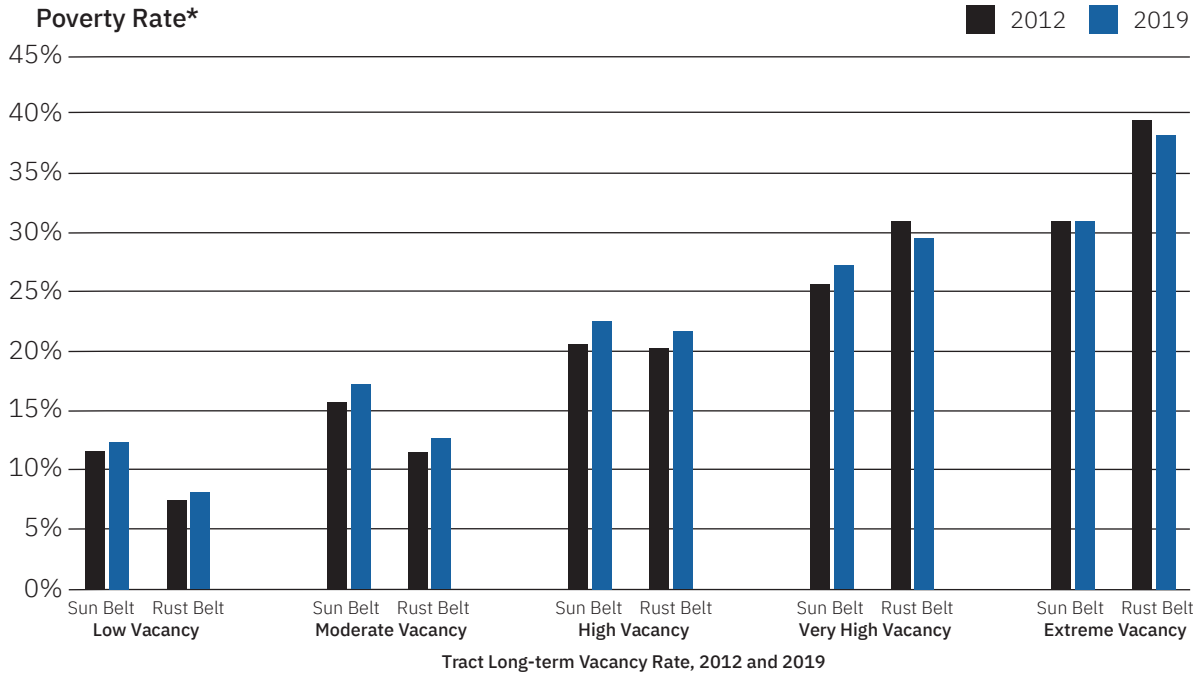
erally hit particularly hard by the foreclosure crisis and experienced high levels of long-term housing vacancy at the beginning of the 2010s. In particular, we have focused on the extent to which the number of hypervacant neighborhoods in these metro areas had declined by 2019. We have also examined the racial and poverty characteristics of such neighborhoods. It is in these neighborhoods where the cumulative negative impacts of vacancy are expected to be the most severe and where the problem of vacancy is often the hardest to solve. Overall, we found that in the Sun Belt, in contrast to the Rust Belt, the share of tracts that were hypervacant declined over the 2012 to 2019 period, from about 10.2 percent to 6.6 percent. There was also a sizable increase in the share of tracts that fell into the low-vacancy (under 1 percent) category, from 36.4 percent to 51.6 percent.

Figure 3. Mean Percent Black of Census Tracts of Different Vacancy Levels, 2012 and 2019



*Note: 2012 racial data are from ACS 2011; 2019 racial data are from ACS 2018

Figure 4. Mean Poverty Rate of Census Tracts of Different Vacancy Levels, 2012 and 2019



*Note: 2012 poverty data are from ACS 2011; 2019 poverty data are from ACS 2018

Meanwhile, in the Rust Belt metro areas, hypervacant tracts remained roughly constant, falling only from 15.6 percent to 15.4 percent. Notably, the share of hypervacant tracts was still more than 50 percent higher in the Rust Belt in 2019 than in the Sun Belt in 2012, before the broader national recovery. And the share of hypervacant tracts in the Rust Belt in 2019 was 2.3 times the share in the Sun Belt in 2019. The Rust Belt did see a net decrease in vacancy, but it was primarily from tracts in the moderate and high levels shifting to the moderate or low levels while the share of tracts at the more extreme levels remained roughly constant.

Despite the greater persistence of hypervacant neighborhoods in the Rust Belt, the results above also show that such neighborhoods do exist in the Sun Belt to a significant degree. This is primarily because the Sun Belt also includes a substantial number of low-cost, low-growth metro areas, the type that tend to have the highest numbers of very high- and extreme-vacancy census tracts. Of the 58 larger metro areas in this category, 22 (38 percent) are located in the Sun Belt, while 30 (52 percent) are located in the Rust Belt. In both regions, these types of metro areas saw their shares of tracts with very high or extreme vacancy levels remain about constant over the 2012 to 2019 period, at about 17.5 percent. This potentially supports the idea that larger regional factors are not as significant for hypervacancy as metro-level market factors are, such as cost or growth.

Low-growth metro areas do comprise a substantially smaller share of the Sun Belt metro areas than of the Rust Belt metro areas. For example, there are 41 high-growth metro areas in the Sun Belt, but only 6 in the Rust Belt. Since Sun Belt metro areas tend to be higher growth, they tended to see larger declines in vacancy, including declines in the number of very high- and extreme-vacancy tracts.

We identified the net number of census tracts that shifted vacancy levels—either upward or downward—and found that, while only 5 larger MSAs saw a large (25 percent) net shift of tracts toward higher vacancy levels during the 2012 to 2019 period, 35 MSAs saw a large net shift toward lower vacancy levels. Moreover, while all 5 of the MSAs with increasing vacancy were located in the Rust Belt, 29 of the 35 with decreasing vacancy were located in the Sun Belt. Florida metro areas, in particular, tended to experience some of the largest net shifts from higher to lower vacancy levels.

Finally, we found that neighborhoods with higher poverty rates and/or larger Black populations were more likely to suffer from hypervacancy, especially in Rust Belt metro areas. In the Rust Belt metro areas in 2019, the mean Black population was 38.5 percent in very high-vacancy tracts and 61.9 percent in extreme-vacancy tracts. The shares were somewhat lower, but still high, in Sun Belt metro areas, at 35.5 percent and 49.9 percent, respectively. The poverty rate for extreme-vacancy tracts exceeded 38 percent in the Rust Belt in 2019 and was 31 percent in the Sun Belt. At the same time, the low-vacancy tracts in the Rust Belt tended to have very small Black populations (a mean of 5.3 percent) and low poverty rates (a mean of 8 percent), while the corresponding means were somewhat higher in the Sun Belt low-vacancy tracts (a mean of 10.1 percent Black and 12.4 percent poverty). Overall, the association between the share of Black population and the poverty rate, on the one hand, and the vacancy level, on the other, was stronger in Rust Belt than in Sun Belt metro areas.

The fact that neighborhoods with greater Black populations are more likely to suffer from hypervacancy and that this relationship is stronger in Rust Belt metro areas suggests that historical and current forces of segregation and discrimination may explain the existence and persistence of hypervacancy. Disinvestment remains an especially potent force, both in Rust Belt metro areas and in lower-growth metro areas elsewhere, and remains heavily racialized (Hackworth, 2019). Black neighborhoods continue to be generally undervalued compared with other neighborhoods by appraisers, lenders, and other actors in the real estate market (Perry et al., 2018). Without stronger policy interventions, including the increased enforcement and expansion of the Fair Housing Act and the Community Reinvestment Act, the forces of discrimination and segregation are likely to reinforce and perpetuate the racialized nature of hypervacancy.

This study demonstrates that metropolitan housing market trends are strongly related to the resilience of neighborhoods when it comes to long-term vacancy rates. Whether in the Rust Belt or the Sun Belt, metropolitan growth and cost structures during the 2012 to 2019 period appear to have had a strong influence on whether, and to what degree, the very high and extreme levels of neighborhood vacancy persisted. Moreover, the findings here challenge any oversimplified notion that weak market regions are predominantly located in the Rust Belt and show that, in weaker-growth Sun Belt metro areas, high levels of persistent hypervacancy remained a problem throughout the broader national recovery.

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shrinking cities. In addition to his research, Harrison has consulted with various entities across the country to implement programs and policies aimed at inclusively revitalizing neighborhoods, developing quality affordable housing, and stabilizing systemically disinvested communities. He also serves as a research fellow for Innovate Memphis, a data intermediary in Memphis, Tennessee, focused on applied data analysis and research to spur advocacy for a variety of neighborhood-level challenges in the Memphis area.

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Endnotes

[1] The Rust Belt is defined here as it is by Hackworth (2019), who includes the states bordering the Great Lakes, including Indiana, Illinois, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin, as well as two large metropolitan areas that spill over into one of these states: St. Louis and Louisville. The New York City and Philadelphia metro areas are excluded from the Rust Belt. The Sun Belt is defined as it has been by Strom (2017), which includes the states south of the 37th parallel: North Carolina, South Carolina, Georgia, Alabama, Mississippi, Tennessee, Louisiana, Arkansas, Oklahoma, Texas, New Mexico, Arizona, Florida, Nevada, and Southern California.

[2] In the third quarter data release of 2011, there was a significant change in methodology and reporting, making it problematic to compare data before and after the third quarter of 2011. The data also began to be reported in 2010 census tracts in 2012, eliminating the need to estimate changes across differing census geographies.

[3] In other words, the calculation omitted no-stats from both the numerator and the denominator when determining long-term vacancy rates.

[4] The median home value figures were taken from the 2018 five-year American Community Survey estimates.

[5] From 2011 to 2018, delineations of MSAs by the U.S. Office of Management and Budget (OMB) changed. Therefore, we manually cross-walked the 2011 data using the 2018 definition and county data to create spatially comparable 2011 data for calculating the change variable. The MSA definitions are based on the 2018 OMB definition.

[6] As explained above, low vacancy tracts are those with a vacancy rate from 0 percent to 0.9 percent; moderate vacancy tracts have vacancy rates ranging from 1 percent to 3.9 percent; high vacancy tracts have a 4 percent to 7.9 percent vacancy rate; the very high category ranges from 8 percent to 13.9 percent; and the extreme category includes any tract with a vacancy rate over 14 percent.

[7] Rust Belt metro areas tend to have much smaller Latinx populations than Sun Belt metro areas. Of all tracts among the 200 largest metro areas, the mean Latinx share was 27.9 percent in 2018 in the Sun Belt versus 8.5 percent in the Rust Belt.

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Appendix

Table A1. Sun Belt and Rust Belt Metro Areas Categorized by Cost and Growth (Corresponds to Figure 2)

Sun Belt		
Montgomery, AL	Low Cost	Low Growth
Birmingham-Hoover, AL	Low Cost	Low Growth
Mobile, AL	Low Cost	Low Growth
Columbus, GA-AL	Low Cost	Low Growth
Fort Smith, AR-OK	Low Cost	Low Growth
Memphis, TN-MS-AR	Low Cost	Low Growth
Little Rock-North Little Rock-Conway, AR	Low Cost	Low Growth
Tallahassee, FL	Low Cost	Low Growth
Macon-Bibb County, GA	Low Cost	Low Growth
Lafayette, LA	Low Cost	Low Growth
Baton Rouge, LA	Low Cost	Low Growth
Shreveport-Bossier City, LA	Low Cost	Low Growth
Jackson, MS	Low Cost	Low Growth
Albuquerque, NM	Low Cost	Low Growth
Hickory-Lenoir-Morganton, NC	Low Cost	Low Growth
Fayetteville, NC	Low Cost	Low Growth
Winston-Salem, NC	Low Cost	Low Growth
Kingsport-Bristol, TN-VA	Low Cost	Low Growth
Amarillo, TX	Low Cost	Low Growth
Brownsville-Harlingen, TX	Low Cost	Low Growth
El Paso, TX	Low Cost	Low Growth
Beaumont-Port Arthur, TX	Low Cost	Low Growth
Tuscaloosa, AL	Low Cost	Mixed Growth
Huntsville, AL	Low Cost	Mixed Growth
Visalia, CA	Low Cost	Mixed Growth
Savannah, GA	Low Cost	Mixed Growth
Augusta-Richmond County, GA-SC	Low Cost	Mixed Growth
Chattanooga, TN-GA	Low Cost	Mixed Growth
Clarksville, TN-KY	Low Cost	Mixed Growth
New Orleans-Metairie, LA	Low Cost	Mixed Growth
Gulfport-Biloxi, MS	Low Cost	Mixed Growth
Myrtle Beach-Conway-North Myrtle Beach, SC-NC	Low Cost	Mixed Growth
Greensboro-High Point, NC	Low Cost	Mixed Growth
Oklahoma City, OK	Low Cost	Mixed Growth
Tulsa, OK	Low Cost	Mixed Growth
Columbia, SC	Low Cost	Mixed Growth
Spartanburg, SC	Low Cost	Mixed Growth
Knoxville, TN	Low Cost	Mixed Growth
Killeen-Temple, TX	Low Cost	Mixed Growth
Lubbock, TX	Low Cost	Mixed Growth
McAllen-Edinburg-Mission, TX	Low Cost	Mixed Growth
Tyler, TX	Low Cost	Mixed Growth
Laredo, TX	Low Cost	Mixed Growth
Tucson, AZ	Low Cost	High Growth
Fayetteville-Springdale-Rogers, AR	Low Cost	High Growth
Gainesville, FL	Low Cost	High Growth
Jacksonville, FL	Low Cost	High Growth
Palm Bay-Melbourne-Titusville, FL	Low Cost	High Growth
Pensacola-Ferry Pass-Brent, FL	Low Cost	High Growth
Deltona-Daytona Beach-Ormond Beach, FL	Low Cost	High Growth
Tampa-St. Petersburg-Clearwater, FL	Low Cost	High Growth
Ocala, FL	Low Cost	High Growth
Port St. Lucie, FL	Low Cost	High Growth
Lakeland-Winter Haven, FL	Low Cost	High Growth
Atlanta-Sandy Springs-Alpharetta, GA	Low Cost	High Growth
Charlotte-Concord-Gastonia, NC-SC	Low Cost	High Growth
Greenville-Anderson, SC	Low Cost	High Growth
San Antonio-New Braunfels, TX	Low Cost	High Growth
Houston-The Woodlands-Sugar Land, TX	Low Cost	High Growth
College Station-Bryan, TX	Low Cost	High Growth
Dallas-Fort Worth-Arlington, TX	Low Cost	High Growth
Waco, TX	Low Cost	High Growth
Corpus Christi, TX	Low Cost	High Growth
Virginia Beach-Norfolk-Newport News, VA-NC	High Cost	Low Growth
Los Angeles-Long Beach-Anaheim, CA	High Cost	Mixed Growth
Salinas, CA	High Cost	Mixed Growth
Santa Cruz-Watsonville, CA	High Cost	Mixed Growth
Oxnard-Thousand Oaks-Ventura, CA	High Cost	Mixed Growth
Wilmington, NC	High Cost	Mixed Growth
Phoenix-Mesa-Chandler, AZ	High Cost	High Growth
Prescott Valley-Prescott, AZ	High Cost	High Growth
Fresno, CA	High Cost	High Growth
Bakersfield, CA	High Cost	High Growth
Merced, CA	High Cost	High Growth
Riverside-San Bernardino-Ontario, CA	High Cost	High Growth
San Jose-Sunnyvale-Santa Clara, CA	High Cost	High Growth
San Diego-Chula Vista-Carlsbad, CA	High Cost	High Growth
San Luis Obispo-Paso Robles, CA	High Cost	High Growth
Santa Maria-Santa Barbara, CA	High Cost	High Growth

Sun Belt					
Miami-Fort Lauderdale-Pompano Beach, FL	High Cost	High Growth	Reno, NV	High Cost	High Growth
Naples-Marco Island, FL	High Cost	High Growth	Asheville, NC	High Cost	High Growth
Orlando-Kissimmee-Sanford, FL	High Cost	High Growth	Durham-Chapel Hill, NC	High Cost	High Growth
Cape Coral-Fort Myers, FL	High Cost	High Growth	Raleigh-Cary, NC	High Cost	High Growth
North Port-Sarasota-Bradenton, FL	High Cost	High Growth	Charleston-North Charleston, SC	High Cost	High Growth
Crestview-Fort Walton Beach-Destin, FL	High Cost	High Growth	Nashville-Davidson-Murfrees-boro-Franklin, TN	High Cost	High Growth
Las Vegas-Henderson-Paradise, NV	High Cost	High Growth	Austin-Round Rock-Georgetown, TX	High Cost	High Growth

Rust Belt					
St. Louis, MO-IL	Low Cost	Low Growth	Harrisburg-Carlisle, PA	Low Cost	Low Growth
Rockford, IL	Low Cost	Low Growth	Erie, PA	Low Cost	Low Growth
Champaign-Urbana, IL	Low Cost	Low Growth	Scranton-Wilkes-Barre, PA	Low Cost	Low Growth
Peoria, IL	Low Cost	Low Growth	York-Hanover, PA	Low Cost	Low Growth
Davenport-Moline-Rock Island, IA-IL	Low Cost	Low Growth	Green Bay, WI	Low Cost	Low Growth
Fort Wayne, IN	Low Cost	Low Growth	Appleton, WI	Low Cost	Low Growth
Louisville/Jefferson County, KY-IN	Low Cost	Low Growth	Indianapolis-Carmel-Anderson, IN	Low Cost	Mixed Growth
Cincinnati, OH-KY-IN	Low Cost	Low Growth	Lansing-East Lansing, MI	Low Cost	Mixed Growth
Evansville, IN-KY	Low Cost	Low Growth	Flint, MI	Low Cost	Mixed Growth
South Bend-Mishawaka, IN-MI	Low Cost	Low Growth	Detroit-Warren-Dearborn, MI	Low Cost	Mixed Growth
Huntington-Ashland, WV-KY-OH	Low Cost	Low Growth	Buffalo-Cheektowaga, NY	Low Cost	Mixed Growth
Duluth, MN-WI	Low Cost	Low Growth	Grand Rapids-Kentwood, MI	Low Cost	High Growth
Binghamton, NY	Low Cost	Low Growth	Kalamazoo-Portage, MI	Low Cost	High Growth
Utica-Rome, NY	Low Cost	Low Growth	Columbus, OH	Low Cost	High Growth
Rochester, NY	Low Cost	Low Growth	Chicago-Naperville-Elgin, IL-IN-WI	High Cost	Low Growth
Syracuse, NY	Low Cost	Low Growth	Allentown-Bethlehem-Easton, PA-NJ	High Cost	Low Growth
Canton-Massillon, OH	Low Cost	Low Growth	Albany-Schenectady-Troy, NY	High Cost	Low Growth
Cleveland-Elyria, OH	Low Cost	Low Growth	Lancaster, PA	High Cost	Low Growth
Toledo, OH	Low Cost	Low Growth	Milwaukee-Waukesha, WI	High Cost	Low Growth
Dayton-Kettering, OH	Low Cost	Low Growth	Madison, WI	High Cost	Mixed Growth
Youngstown-Warren-Boardman, OH-PA	Low Cost	Low Growth	Ann Arbor, MI	High Cost	High Growth
Akron, OH	Low Cost	Low Growth	Minneapolis-St. Paul-Bloomington, MN-WI	High Cost	High Growth
Pittsburgh, PA	Low Cost	Low Growth	Fargo, ND-MN	High Cost	High Growth
Reading, PA	Low Cost	Low Growth			

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About the Center for Community Progress
The mission of Center for Community Progress is to foster strong, equitable communities where vacant, abandoned, and deteriorated properties are transformed into assets for neighbors and neighborhoods. Founded in 2010, Community Progress is the leading national, nonprofit resource for urban, suburban, and rural communities seeking to address the full cycle of property revitalization. The organization fulfills its mission by nurturing strong leadership and supporting systemic reforms. Community Progress works to ensure that public, private, and community leaders have the knowledge and capacity to create and sustain change. It also works to ensure that all communities have the policies, tools, and resources they need to support the effective, equitable reuse of vacant, abandoned, and deteriorated properties.

About the Federal Reserve System
The Federal Reserve System (the Fed) is made up of 12 Reserve Banks that, together with the Board of Governors in Washington, DC, serves as the central bank of the United States. As the US central bank, the Federal Reserve conducts monetary policy, promotes financial stability, provides payment services to financial institutions, supervises banks, and promotes community and economic development.

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