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Data Shop, a department of Cityscape, presents short articles or notes on the uses of data in housing and urban research. Through this department, the Office of Policy Development and Research introduces readers to new and overlooked data sources and to improved techniques in using well-known data. The emphasis is on sources and methods that analysts can use in their own work. Researchers often run into knotty data problems involving data interpretation or manipulation that must be solved before a project can proceed, but they seldom get to focus in detail on the solutions to such problems. If you have an idea for an applied, data-centric note of no more than 3,000 words, please send a one-paragraph abstract to chalita.d.brandly@hud.gov for consideration.

Renters at the Tipping Point of Homeownership: Estimating the Impact of Telework

Treh Manhertz
Alexandra Lee
Zillow Group Economic Research

Abstract

The COVID-19 pandemic necessitated a large-scale shift toward working from home, leading to a sea change in the level of remote work likely to continue after the pandemic. Previous research has quantified the importance of home location relative to work location (for example, Kneebone and Holmes, 2015), but to date, little work has been done to show the potential impact of an unwinding of that relationship. This analysis quantifies how many renter households could potentially take advantage of teleworking to buy a home. These renter households at the "tipping point" of homeownership are identified using income, industries, and occupations from the 2018 American Community Survey (ACS) rates of teleworking potential from a Bureau of Labor Statistics (BLS) analysis of the American Time Use Survey 2017–2018 (ATUS) and the Zillow Home Value Index (ZHVI) for the lower third of home values in the for-sale market. This analysis finds that 1.92 million U.S. renter households are on the telework tipping point for homeownership. The highest rates of tipping point households are found in expensive west coast markets. For example, more than one-fourth (25.2 percent) of renter households in San Jose could theoretically afford to buy a home in a less pricey locale if they were able to take advantage of more permanent work-from-home policies. In a few metropolitan areas with an extra-expensive principal city,

Abstract (continued)

a sizable share of renter households would have an additional incentive to move to the suburbs—up to 10.4 percent of renter households in the city of San Francisco. Nationwide, Asian renter households have the highest share at the tipping point (9.0 percent), followed by Latinx (5.0 percent), White (4.1 percent), and Black (3.7 percent) renter households. This finding means that the Asian homeownership rate is most likely to have observable increases due to telework. Across metropolitan areas, Black renter households are typically more likely to be at the tipping point (29.0 percent more likely than other racial groups), and Latinx renter households are far less likely (26.2 percent less likely than other racial groups).

Introduction

This article estimates the number of renter households that are at the "telework tipping point" of homeownership—renter households with both high enough incomes to afford the typical starter home outside their city or metropolitan area and employed in "remotable jobs"—jobs that can be performed remotely, that would theoretically allow them to move outside their city or metropolitan area. This analysis examines the magnitude of this set of renter households across metropolitan areas and race categories to determine the potential impact this shift to telework may have on homeownership trends.

A household's choice in housing location has long been tied to employment—in fact, the boundaries of metropolitan areas, as delineated by the Office of Management and Budget (OMB), are determined by commuting patterns. According to OMB, metropolitan and micropolitan statistical areas constitute densely urbanized areas plus "adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties."[1] In a 2019 Zillow survey, renters, buyers, and sellers all said the longest (one-way) commute they would be willing to accept when considering a new home or job was 30 minutes.[2] The close ties between housing and employment could be observed in the negative housing price gradient with respect to city centers in many metropolitan areas—the closer to the urban core, the higher the price premium on homes (Arribas-Bel and Sanz-Gracia, 2014; Fujita, 1989). Close access to employment, proximity to services and amenities, and access to cultural and social opportunities have made urban cores attractive (and more expensive) areas to live in many metropolitan areas relative to outlying areas.

The COVID-19 pandemic suddenly and rapidly loosened those ties between home and work, however. Pew Research found that by October 2020, 71 percent of employed adults who worked in remotable jobs[3] were working from home, compared with only 20 percent before the COVID-19

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[1] For more information on metropolitan and micropolitan delineations see https://www.census.gov/topics/housing/housing-patterns/about/core-based-statistical-areas.html.

[2] Compare this with the mean travel time to work of 27.6 minutes from the 2019 American Community Survey. For more detail on Zillow's survey on commute preferences, see: https://www.zillow.com/research/commutes-remote-work-chtr-26506/.

[3] Defined as "workers who say their job responsibilities can mainly be done from home", totaling 38 percent of workers surveyed.

pandemic, with 54 percent saying they would still want to work from home after the pandemic ends (Parker, Horowitz, and Minkin, 2020). An April 2021 poll from Gallup, Inc. found that a majority (51 percent) of U.S. workers overall were still working remotely. The incidence of remote work was concentrated in white-collar workers (72 percent)— particularly those employed in computer/mathematical, media, life science, and financial/consulting fields, each of which had more than 80 percent of workers working remotely (Saad and Jones, 2021).

It is no surprise, then, that metropolitan areas with high concentrations of these white-collar workers experienced large shifts in housing demand throughout the pandemic. San Francisco and New York experienced some of the largest declines in demand for for-sale homes in their urban cores, and rents in urban areas fell steeply in these and other pricey metropolitan areas, including Seattle and Washington, D.C. (Casey, Lee, and Manhertz, 2021). The price premium for dense urban living in these areas evaporated as remote work rose and pandemic restrictions were imposed on many amenities (Gupta et al., 2021; Ramani and Bloom, 2021).

If work-from-home policies persist beyond the pandemic, scores of remote workers renting in the nation's priciest metropolitan areas would theoretically be able to make the jump into homeownership by moving to more affordable areas, taking advantage of the fact that they are no longer locationally tethered to a job. Not only could those renters move in theory, many of them seemingly did: during the past year, metropolitan areas, including Austin, Las Vegas, and Phoenix, that have long been prime destinations for movers from pricey coastal markets have experienced unprecedented home price and rent appreciation (Bachaud and Lee, 2021). There was also a jump in demand for suburban homes within metropolitan areas with pricey urban cores, along with heightened demand for urban homes in metropolitan areas with cheaper urban cores (Casey, Lee, and Manhertz, 2021)

Data

Our objective is to estimate the population of renter households that can afford to buy a starter home outside their metropolitan area but not within and who also work in occupations that are remotable, which theoretically allows them to move and become homeowners in more affordable areas. Our estimates rely on housing affordability data provided by Zillow, telework ability from the American Time Use Survey, and income, race, industry, and occupation data from the American Community Survey (ACS).

Renter incomes, race, industry, and occupation came from the 2018 ACS 1-Year microdata, accessed via Integrated Public Use Microdata Series (IPUMS)-USA (Ruggles et al., 2019). The ACS is an annual survey providing insight into demographics, household structures, housing characteristics, community features, and more, which enables analysis of populations within metropolitan areas and city boundaries.

Rates of teleworking potential came from a Bureau of Labor Statistics (BLS) analysis of the American Time Use Survey (ATUS), which measures the time people spend doing various activities (Dey et al., 2020); a supplement to the 2017–2018 ATUS asked workers whether they could work at home. The authors used ability-to-telework rates by both industry and occupation to classify renter households in ACS by their industry and occupation.

Housing costs were provided by the Zillow Home Value Index (ZHVI),[4] built from millions of property-level estimates of home values—known as Zestimates[5] —to provide a comprehensive measure of home values across various regions and price tiers. This analysis focuses on metropolitan statistical area (MSA) and city-level, bottom-tier ZHVI, the typical value for homes that fall within the 5th to 35th percentile of the empirical distribution for Zestimates in a given region—in other words, the median home value among homes with Zestimates in the 5th to 35th percentile range. This bottom-tier measure was used to approximate the "starter home" segment of housing, which is likely the accessible price tier of homes for first-time homebuyers. The monthly payment necessary to afford this bottom-tier ZHVI value is estimated assuming a 30-year, fixed-rate mortgage with a 3.0-percent interest rate and a 20-percent downpayment, plus estimated taxes, insurance, and homeowners association (HOA) dues. This estimation assumes property taxes of 0.8 percent, insurance costs of $1,000 per year, and HOA as 1/1200th of the home's value per month.

Methodology

Household Telework Ability

The ability to work from home in a given job was reported by the BLS at the individual level and by broad industry classification and occupation classification separately. To estimate a given household's ability to move, first an estimate of each earner's individual probability of telework ability is needed, based jointly on their industry and occupation. Using the distribution of jobs in the ACS, the share of workers in each industry-occupation that could telework is estimated. First, the number of workers with remotable jobs in each industry was derived from the BLS estimated industry-level share who were able to telework and the count of workers in the ACS. That number of jobs was then attributed to occupations within that industry based on the occupation-level share able to telework, assuming conditional independence. By that method, those few working desk jobs in mostly onsite industries are still assigned a higher probability of being able to telework.

A household's ability to telework is assumed to be the income-weighted average of all earners' ability to telework, considering that a household may decide to move given only one member's changing work situation and that the transition would likely be easier if the primary earner maintained his or her job. In aggregate, those probabilities should sum to the total number of households that could feasibly move if allowed to telework. For example, consider earners in a two-earner renter household making $30,000 and $20,000 per year. The first earner is in a job classification (broad industry and occupation category) in which 50 percent of workers can work remotely, whereas the second earner is in a job classification in which only 10 percent can. This analysis estimates that the household has a 34-percent chance of being able to take up telework to move and potentially buy—not that the less remotable earner is expected to be more able to work remotely, but the remotability of the higher earner would facilitate the move if the desire to move were present. Although elements of household structure other than joint remotability of the earners' jobs may have bearing on a household's likelihood of moving, they are not factored in here.

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[4] See https://www.zillow.com/research/zhvi-methodology-2019-deep-26226/ for detailed ZHVI methodology.

[5] See https://www.zillow.com/z/zestimate/ for more information on Zestimates.

Affordability

The population of interest in this study was renter households who, by virtue of income, are unable to buy a home in their current metropolitan area but could buy a home elsewhere. Households were categorized by their ability to afford a "starter home"—the average home value between the 5th and 35th percentiles—in their metropolitan area and in the country at large. By that definition, the typical starter home nationally was worth about $131,700 in July 2020, and a starter home was priced higher than that in 37 of the largest 50 metropolitan areas. In those metropolitan areas, a segment of renters exists who may be looking to buy but are precluded from buying in their metropolitan area, although they could buy elsewhere. For example, a hypothetical renter household in the Boston metropolitan area making $50,000 per year would be far short of the almost $72,000 per year required to afford payments on the typical $352,000 starter home in the metropolitan area. The purchase of a starter home outside Boston would tend to cost the same household only about 17 percent of its income, compared with 43 percent in the metropolitan area. A starter home at the city level was also considered to determine the degree of ownership-based outward movement that would be possible in America's most expensive and concentrated cities. A household was considered able to afford a home if the monthly payments on that home's estimated mortgage, insurance, taxes, and HOA or condo fees (given a 20-percent downpayment and a 3-percent interest rate) totaled less than 30 percent of that household's monthly income (the threshold beyond which a household is considered "housing cost burdened"). Combining job remotability and the affordability of buying a home, this analysis derives a number of households on the telework tipping point of homeownership.

Race

Although the ability to telework is doubtlessly intertwined with race, race was not used to estimate ability to telework for the purposes of this study. The only channel for telework determination here was a worker's industry and occupation; thus, differences by race in the ability to telework should be interpreted as differences in the propensity to be in remotable industries and occupations. Four races were considered in this evaluation, defined using general ACS race and ethnicity categories: Latinx/Hispanic and non-Hispanic Asian, Black, and White. Each household was assigned the race of the household head. Renter households of different races were compared on the share of renter households on the telework tipping point for homeownership. Comparisons were made nationally and at the metropolitan statistical area level.

Results

Household Telework Ability

In the United States, the authors estimate that 32.6 percent of *households* are able to telework—a substantially lower proportion than the 43.6 percent of *individuals* able to telework (Dey et al., 2020); a given individual's ability to telework is counterbalanced at the household level by other earners' telework ability and income. Those households able to telework are theoretically freed to move if their remotable jobs continue to be remote indefinitely. Exhibit 1 illustrates that the share of homeowners able to telework is uniformly higher than the share of renter households

able to telework—across all racial groups. The rate is also higher among Asian and White renter households than among Black and Latinx renter households.

Exhibit 1

Households Able to Move if Allowed to Telework, by Renters and Homeowners

	Renter Households Able to Telework		Homeowner Households Able to Telework	
	Count (#)	Share (%)	Count (#)	Share (%)
National	12,131,687	28.5	26,941,341	34.9
Asian	1,006,652	43.4	1,661,796	47.0
Black	2,138,080	25.7	1,969,965	32.4
Latinx	1,784,280	21.2	2,196,234	28.5
White	6,759,171	30.5	20,554,482	35.3

Sources: American Community Survey; American Time Use Survey

The ability to telework, income, and renter/homeownership status are all correlated, and the differences evident in exhibit 1 may be partly explained by differences in income for homeowners and renters. Among all households, only 14.4 percent earning less than $25,000 can telework, compared with a majority (51.1 percent) of households making more than $100,000 (exhibit 2).

Exhibit 2

Share of Renter Households that Could Telework, by Race and Income
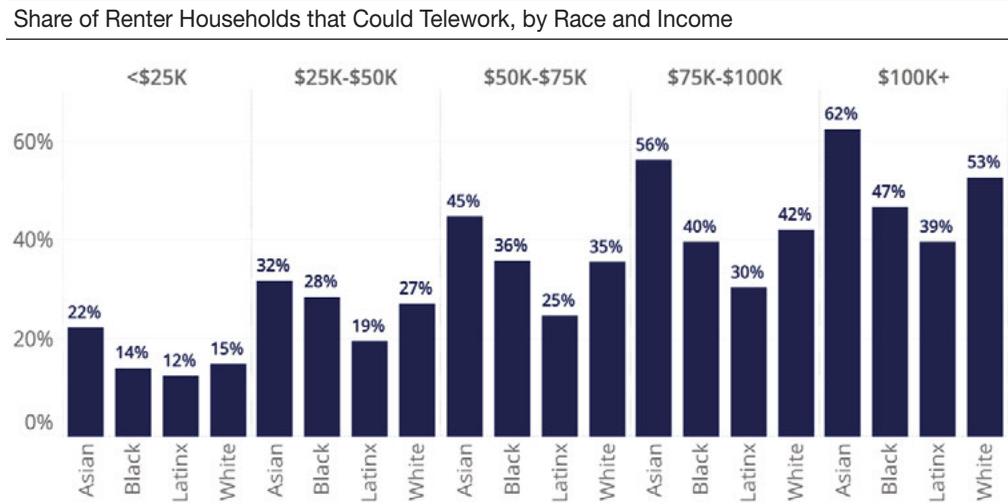
Sources: American Community Survey; American Time Use Survey

Affordability

Among renters, 18.2 percent of households are unable to afford a monthly payment on a typical local starter home in their current metropolitan area but *could* afford the typical starter home priced at or less than the national standard. For those households, the ability to telework might make the difference between buying and continuing to rent. As shown in exhibit 3, many renter households can already afford the monthly payments on a home, but do not currently own. Possible reasons that renter households do not own a home although they can already afford to make the payments

include insufficient down payment savings, a desire to enter at a higher price point, preference for renting, or any number of other reasons.

Exhibit 3

Renter Households Able to Afford a Starter Home, Nationally and by Race

	Renter Households Able to Afford Buying in Current Metropolitan Area		Renter Households Able to Afford Buying Nationally but Not in Current Metropolitan Area		Renter Households Unable to Afford Buying in Metropolitan Area or Nationally	
	Count (#)	Share (%)	Count (#)	Share (%)	Count (#)	Share (%)
National[1]	17,550,476	50.5	6,311,597	18.2	10,905,500	31.4
Asian	1,109,529	50.7	541,709	24.8	535,365	24.5
Black	3,335,479	46.6	942,795	13.2	2,875,130	40.2
Latinx	3,064,267	39.8	2,004,448	26.1	2,622,663	34.1
White	9,506,884	57.1	2,596,963	15.6	4,538,581	27.3

[1]*National figures exclude renter households in non-metropolitan areas.*
Sources: American Community Survey; Zillow

In the race breakout, a much higher share of Asian and Latinx renter households have incomes that put them between the price points of their local starter homes and starter homes nationally. The share of renter households that can afford to buy a home nationally but not in their current metropolitan area is 24.8 percent and 26.1 percent among Asian and Latinx households, respectively, compared with only 18.2 percent among all renter households. This finding has a large geographical component. More of these populations live in areas where local home prices are well above national standards, thus there is more room to be in the middle (Manhertz, 2020)— that is to say, more of these populations live in areas where the bar to entry for homeownership is extremely high. For those households, the ability to telework has the largest potential impact.

The Tipping Point[6]

Looking at the intersection of renters that are (1) able to afford buying nationally but not in their current metropolitan area and (2) able to telework, the authors find that a switch to more telework could give 4.5 percent of renter households (1.92 million U.S. renters) the option to leave the metropolitan areas where they currently live and buy a starter home in a cheaper locale. That 18.2 percent of renters—whose income would allow them to buy a starter home in the national market but not in their metropolitan area—have a lower rate of being able to telework than the national average, about 24.7 percent, yielding 4.5 percent on the telework tipping point.

$$Share\ of\ Renter\ Households\ on\ the\ Telework\ Tipping\ Point\ of\ Homeownership\ =$$
$$\frac{\sum_{i=1}^{n} TeleworkProbability_i \times \begin{cases} 1, if\ p_1 \leq MaxPrice(HHIncome_i) < p_2 \\ 0, Otherwise \end{cases}}{n},$$

where p_1 is the national starter home value and p_2 is the metropolitan area starter home value for renter i.

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[6] See appendix A for full results of all metropolitan areas analyzed.

Exhibit 4 shows that this share is higher, nationally, among Asian renter households (9.0 percent), followed by Latinx renter households (5.0 percent). Black renter households have the lowest share on the tipping point nationally, at 3.7 percent. As discussed previously, geography plays a role. The high share of Asian and Latinx renter households is attributable in large part to more members of these communities living in more expensive markets, notably many California metropolitan areas. More than one third (35 percent) of the nation's Asian households live in the New York, San Francisco, San Jose, or Los Angeles metropolitan areas—four markets that are home to only about 12 percent of the nation's total households (Lee, 2021). These groups are disproportionately unable to buy a home due to geography, which has historically been closely tied to work.

At the metropolitan area level, Black renter households tend to have the highest share on the telework tipping point for homeownership. This finding was true in 28 of the largest 50 metropolitan areas that had any tipping point at all, and 8 of the largest 10.

Exhibit 4

Share of Renter Households at the Telework Tipping Point of Homeownership, by Race, Nationally and for the 10 Largest Metropolitan Areas

	All	Asian	Black	Latinx	White
United States	4.5%	9.0%	3.7%	5.0%	4.1%
New York, NY	7.4%	7.5%	8.9%	6.2%	7.4%
Los Angeles-Long Beach-Anaheim, CA	17.2%	19.8%	19.5%	13.2%	20.0%
Chicago, IL	1.1%	0.5%	1.2%	0.8%	1.3%
Dallas-Fort Worth, TX	3.2%	1.7%	5.5%	2.4%	2.5%
Philadelphia, PA	1.2%	1.3%	1.6%	0.7%	1.2%
Houston, TX	1.6%	1.2%	2.5%	0.9%	1.7%
Washington, D.C.	8.6%	7.0%	10.0%	6.7%	8.3%
Miami-Fort Lauderdale, FL	3.1%	3.0%	3.7%	2.7%	3.2%
Atlanta, GA	2.2%	1.4%	2.5%	2.0%	2.1%
Boston, MA	10.3%	11.1%	12.5%	7.3%	10.6%

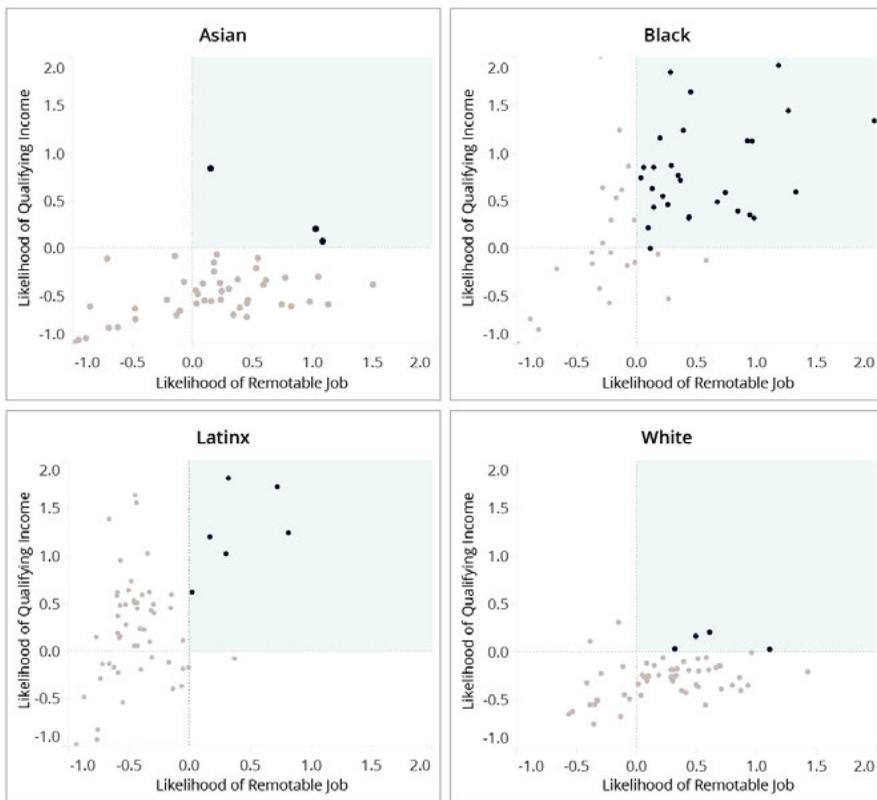*Sources: American Community Survey; American Time Use Survey; Zillow*

The share of a given group that is on the tipping point depends on both the job classification and the incomes of renters; those renter households at the tipping point tend to hold lower- and middle-income desk jobs. Exhibit 5 shows that, more than any other race across metropolitan areas, Black renter households are the most likely to both earn an income that would allow them to achieve homeownership elsewhere and to earn that income in a job that is remotable. For each race, the plots separate the components of being on the tipping point in each metropolitan area. On the x-axis is the odds ratio of a worker of that race, relative to other races, being in the right income range to be at the tipping point, given that they are in a remotable job. On the y-axis is the reverse, the odds ratio of a worker of that race, relative to other races, being in a remotable job given that they are in the right income range to be at the tipping point. The graph shows why certain races are more or less likely to be on the tipping point. White and Asian renters in remotable jobs clearly are less likely to be in the income range to have to move to buy a home—

that is, they have higher incomes. Also clear is that Latinx renters in the right income range are less likely to be working in remotable jobs and so less likely to be on the telework tipping point.

Among large metropolitan areas, in fairly few did any group other than Black renter households have both a relatively high likelihood of telework given qualifying incomes and a high likelihood of qualifying incomes given the ability to telework. At the median among the largest 50 metropolitan areas, Black renter households are 29 percent more likely than other renters to be able to buy their first home in a less expensive area from which they could potentially telecommute to their current job. Asian, Latinx, and White renter households are 19 percent, 26.2 percent, and 0.6 percent less likely, respectively, than other renters to be able to telecommute and buy.

Exhibit 5

Likelihood of Qualifying Income (Remotable Jobs Only) and Likelihood of Remotable Job (Qualifying Incomes Only), Relative to Other Races

Sources: American Community Survey; American Time Use Survey; Zillow

Not all large metropolitan areas have entry-level price points higher than the United States. In those metropolitan areas (for example, Detroit, Kansas City, Memphis, Buffalo), no tipping point exists as defined in the study. Renter households there are generally no more likely to find an affordable first home to buy outside the metropolitan area than they are within it. Some of the densest metropolitan areas, however, very clearly have two tipping points: one across the barrier to buy

a home in the metropolitan area overall and another across the barrier to buy a home specifically within the main job center of the metropolitan area (the reason for its density). A starter home is worth more in a metropolitan area's namesake city than it is in the metropolitan area as a whole in 20 of the nation's 50 largest metropolitan areas (and in 11 of the 27 metropolitan areas where income data were available on occupations at the city level). The degree of this principal city price premium varies greatly, and it is the relatively affordable starter homes (within the context of the metropolitan area) that separate Los Angeles and San Jose from San Francisco and Portland from Seattle. Exhibit 6 shows the additional share of renter households in the city that are on the tipping point in their city, with a clear price incentive to move elsewhere in their metropolitan area. In San Francisco and Seattle, a large share of renter households currently living in the city could telework and buy a starter home outside the city but still within the metropolitan area (10.4 percent and 8.4 percent, respectively). In Los Angeles and Portland, the share is much smaller (0.8 percent and 1.6 percent, respectively). This steep gradient to homeownership can leave many more on the telework tipping point in the most expensive cities; however, in many other cities—including Minneapolis, Phoenix, and Denver—a starter home within city limits is more affordable than in the larger metropolitan area, leaving city residents with no price incentive to leave for the suburbs.

Exhibit 6

Share of Renter Households at the Telework Tipping Point for a Typical Starter Home, by Metropolitan Area and City[7]

Sources: American Community Survey; American Time Use Survey; Zillow

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[7] Exhibit 6 includes all of the largest 100 metropolitan areas for which city-level data were available for the principal city. Groupings of metropolitan areas are based on tipping point outcomes and serve as an aid in intuition rather than a stringent classification.

Limitations and Potential for Expansion

This study estimates the size of the subpopulation that is at a homeownership tipping point—able to take advantage of geographic flexibility from telework to pursue more affordable homeownership opportunities. COVID-19 necessitated workplace flexibility, which will potentially decouple employment and housing decisions. Remote work opens the possibility of homeownership to a substantial number of households. Renters, who have fewer barriers to moving, could theoretically react faster to that change. Those on the cusp of buying a home have also been given a new sense of urgency by the combination of historically low interest rates (which help keep monthly payments manageable, assuming an adequate downpayment has been saved) and rising prices (which, for those saving for a downpayment, can feel like a moving target; today's savings may be inadequate at tomorrow's prices). In recent years, many people may have decided to postpone homeownership to stay in or near a job center—a consideration that may be less important today. This slice of data at the intersection of affordability and the new work environment is emblematic of the times, but it cannot reveal the whole picture, especially in this highly controlled framework. The present research serves to identify the scale and direction of incentives out of highly concentrated job and housing markets, but avenues to refine and expand on this work remain.

One direction for future research is more complete use of the data. Both of the surveys used in this research can be leveraged more fully to get a clearer picture of telework ability at the local level. The cited BLS article was the sole source used for identification of job remotability. More granular mapping of estimates from the ATUS to the ACS 5-year microdata would give a more precise picture of local effects. The industry-occupation category mapping of remotability is insensitive to age, income, geography, and race, which could all be informative. Job remotability was also considered to be binary, whether the individual worker "worked entirely at home on some days," meaning that whether the employee could completely relocate or would still need or be required to be physically present in an office with some regularity is uncertain. Further study could determine the threshold of telework hours that implies fully remote work is possible at a finer level. In addition, as remote work and its adoption continue to evolve, the remotability of certain industries and occupations may end up differing from the findings from the 2017–2018 ATUS supplement used; the pandemic likely spurred some industries and occupations in the direction of remotability.

A second direction for future research is modeling the complexity of a household's decision to move. The issue of a household's propensity to change homes in response to remote work carries additional complexity not addressed here. Moving is dependent on personal investment in a community as well as numerous individual factors, including savings, marital status, presence and age of children, and so on. In this analysis, the telework ability of a household was taken to be a weighted average among earners in the household, but predicting who is most likely to move on the incentive of homeownership is an open question. Also open is the inverse question of who could obtain a better paid remote job and newly afford a home without leaving their metropolitan area.

A third direction for future research is to expand the scope of the analysis to include housing decisions beyond the transition from renting to homeownership. This study focuses on a homeownership tipping point, which, by definition, means that the effects explored here only

describe a population on the margin, a small subset of potential first-time buyers. The preexisting economic and demographic factors driving demand for housing, combined with the particular economic circumstances of the COVID-19 pandemic, have meant that the question of whether to relocate has been raised more than ever. Many of the same issues that affect renters on the telework tipping point of homeownership affect other groups: renters seeking cheaper rents or parting from roommates, homeowners deciding whether to sell and buy again or refinance. All telework-capable members of those groups are evaluating whether their current location and home are still appropriate. The incentives for each group are different, and although the direction of movement out of relatively expensive areas is likely to be the same, the destination and scale will be different in each case. As larger groups, their movements will do more to affect the market at large than the limited set examined here. Investigating those housing decisions through a formal decision-theoretic framework could provide additional insight into the relative tradeoffs and costs considered by households.

Assumptions

Many assumptions in this study were designed to identify source locations of moves and yield comparable scales of potential moves between source locations and between races. All these assumptions bear further study. The ability to afford a typical starter home is not enough reason to think someone will actually buy a home. The use of a national typical starter home as the bar for homeownership excludes about one-sixth of homes, which could be viable entry points into the for-sale market, particularly when accounting for the needs of different household types and sizes; for example, a starter home for a couple household could be smaller and cheaper than a starter home for a multigenerational household. This threshold, however, was chosen to be a reasonable entry level that was not so low as to be absent from most of the country. Further research could identify the price points and most likely destinations sought out by the first-time buyers most able to telework.

In addition, our threshold for affordability of 30 percent of income is relatively high. The typical homeowner nationally and in most metropolitan areas spends less than 30 percent of their income on housing. Nationally, the median share of income spent on housing among homeowners with a mortgage is 20.8 percent, according to the 2019 ACS. Renter households considering homeownership might not want to exceed the typical homeowner housing cost burden in an area or exceed their current renting cost burden. This affordability threshold also assumes that households have the ability to pay for a 20 percent downpayment, however, and have no other large debts (such as student loans) or other financial hurdles that would preclude them from qualifying for a mortgage. Further analysis could include sensitivities to differentiated thresholds for affordability.

Whether a household can move in response to telework may be complicated. The share of household members' earned incomes is a large piece, but so are many other factors, including other costs of living and lifestyle preferences. Identifying and accounting for those factors would refine the estimate of the response to telework for renters and homeowners. In addition, many workers in remotable jobs may be subject to location-based pay scale changes; workers moving

from an expensive labor market to a cheaper one may see a pay cut that dampens the housing affordability benefits to moving.

Implications and Policy Considerations

Although not all workers who teleworked during the pandemic will continue to do so indefinitely, a shift in work expectation and business practices has occurred such that more acceptance and take-up of telework among workers with that option in the coming years can be anticipated (Barrero, Bloom, and Davis, 2021). Previous research has shown the impact of job location on where a home is bought and that job market concentration has a close correspondence with high home prices and home price growth. Thus, for renters seeking homeownership while maintaining a job, the cost of entry is set ever higher. Many who could afford a house elsewhere have not been able to buy a home in their metropolitan area because they work in an expensive job center where prices have stayed ahead of them. The advent of remote work presents an opportunity for homeownership for renter households that have otherwise been priced out of owning in their metropolitan area, and our findings suggest that this opportunity is particularly common in Black households who have, as a group, long experienced disparities in homeownership rates and corresponding wealth creation (Ray et al., 2021).

The disparity in home values across the country has not occurred by chance, however—strict land use regulations have created the conditions for outsized home price appreciation in the nation's most expensive markets. Historically, job growth and home value growth go hand in hand, but the more restrictive a metropolitan area's land use regulations, the faster home values appreciate with that same level of job growth (Tucker, 2018). Metropolitan areas with restrictive land use are least able to increase housing supply to meet demand. Those same expensive, restrictive metropolitan areas have seen increased out-migration to lower cost and lower population areas during the pandemic (Whitaker, 2021)—a continuation and acceleration of a decade-long trend. As those destinations experience sudden and large levels of in-migration, particularly of relatively higher wage movers from higher cost areas, they will continue to face many of the same challenges that have historically plagued expensive metropolitan areas. Metropolitan areas experiencing high in-migration will need to ensure that their housing supply keeps up with demand and, more generally, that infrastructure can support a growing population—or else face the consequences of rapidly rising home prices and unaffordability still apparent in high-cost metropolitan areas.

Those lower-cost, smaller destination metropolitan areas also stand to gain from this increased demand; a larger tax base, higher consumption, and larger share of knowledge workers may revitalize or help maintain the economic standing of those areas. Lowered demand pressures for housing in high-cost metropolitan areas may also, over the long term, lead to a moderation in prices.

Still, most moves are local, not across metropolitan areas. Available data on 2020 migration points to similar trends as before—the vast majority (84 percent) of moves occur within the same metropolitan area, with a marked shift away from urban cores to more affordable suburban regions (Patino, Kessler, and Holder, 2021). Particularly in expensive, coastal metropolitan areas, this demand shift was drastic enough to reverse the price premium traditionally commanded by proximity to job centers. A substantial reallocation of demand away from city centers toward

city suburbs has occurred for the largest metropolitan areas in the United States such that central business districts and dense areas have experienced relative price decreases compared with less dense areas (Ramani and Bloom, 2021). Many renters at the telework tipping point of homeownership in the center cities of those metropolitan areas have the choice of moving near or far in search of relative housing affordability—across the country or simply to the suburbs. The advent of remote work and out-migration does not absolve local governments in high-cost metropolitan areas with severe housing shortages from seeking solutions that expand the local housing stock.[8] Continuing price appreciation and rising unaffordability in the nation's most costly metropolitan areas means that housing scarcity has not been appreciably counterbalanced by reduced demand, although relative demand within those metropolitan areas might have shifted outward to the suburbs during the pandemic, at least for the short term.

Although the pandemic has had a drastic impact on the housing market, it has not rewritten the script; the most expensive and unaffordable markets of the country have largely remained unchanged. Shifts in demand have supercharged housing markets in certain pockets of the country, but long-term effects on price and affordability remain to be seen. Remote work is unlocking homeownership opportunities for a segment of renters, but longstanding drivers of housing scarcity, and in turn unaffordability, remain challenges for communities nationwide.

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[8] See, for example, the Q2 2021 Zillow Home Price Expectations Survey, surveying a panel of housing experts on the most practical and effective actions to increase the U.S. housing supply. Fifty-six percent of panelists chose "relaxing zoning rules" as one of up to three main factors to help increase housing supply, and it was scored as the most effective single strategy. https://www.zillow.com/research/zhpe-zoning-housing-supply-q22021-29600/.

Appendix A

CBSA Name	Size Rank	Renter Households on the METROPOLITAN AREA Telework Tipping Point for Homeownership						Renter Households on the CITY Telework Tipping Point for Homeownership	
		Count	Share					Count	Share
			All Races	Asian	Black	Latinx	White		
United States	0	1921862	4.5%	9.0%	3.7%	5.0%	4.1%		
New York-Newark-Jersey City, NY-NJ-PA	1	253400	7.4%	7.5%	8.9%	6.2%	7.4%	68988	3.3%
Los Angeles-Long Beach-Anaheim, CA	2	377014	17.2%	19.8%	19.5%	13.2%	20.0%	7035	0.8%
Chicago-Naperville-Elgin, IL-IN-WI	3	13721	1.1%	0.5%	1.2%	0.8%	1.3%	0	0.0%
Dallas-Fort Worth-Arlington, TX	4	33333	3.2%	1.7%	5.5%	2.4%	2.5%	0	
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	5	9225	1.2%	1.3%	1.6%	0.7%	1.2%	0	0.0%
Houston-The Woodlands-Sugar Land, TX	6	14360	1.6%	1.2%	2.5%	0.9%	1.7%	0	
Washington-Arlington-Alexandria, D.C.-VA-MD-WV	7	68245	8.6%	7.0%	10.0%	6.7%	8.3%	10235	6.5%
Miami-Fort Lauderdale-West Palm Beach, FL	8	25582	3.1%	3.0%	3.7%	2.7%	3.2%	4471	3.6%
Atlanta-Sandy Springs-Roswell, GA	9	16893	2.2%	1.4%	2.5%	2.0%	2.1%	0	
Boston-Cambridge-Newton, MA-NH	10	72599	10.3%	11.1%	12.5%	7.3%	10.6%	8811	5.1%
San Francisco-Oakland-Hayward, CA	11	164571	22.0%	22.8%	18.0%	16.8%	24.5%	23081	10.4%
Detroit-Warren-Dearborn, MI	12	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Riverside-San Bernardino-Ontario, CA	13	30345	6.4%	7.5%	7.4%	6.0%	5.9%	0	
Phoenix-Mesa-Scottsdale, AZ	14	43191	7.1%	7.0%	8.9%	6.0%	7.0%	0	0.0%
Seattle-Tacoma-Bellevue, WA	15	75660	12.5%	10.6%	14.3%	10.5%	12.9%	15322	8.4%
Minneapolis-St. Paul-Bloomington, MN-WI	16	27571	6.6%	4.7%	6.5%	10.1%	6.3%	0	0.0%
San Diego-Carlsbad, CA	17	79369	15.4%	14.5%	21.3%	12.8%	16.3%	0	
St. Louis, MO-IL	18	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Tampa-St. Petersburg-Clearwater, FL	19	9058	2.2%	0.0%	1.9%	2.9%	2.1%	0	
Baltimore-Columbia-Towson, MD	20	8344	2.5%	2.0%	3.1%	0.5%	2.2%	0	0.0%

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| | | Count | Share | | | | | Count | Share |
			All Races	Asian	Black	Latinx	White		
Denver-Aurora-Lakewood, CO	21	61321	14.6%	12.7%	18.3%	10.4%	15.9%	0	0.0%
Pittsburgh, PA	22	0	0.0%	0.0%	0.0%	0.0%	0.0%	1104	1.5%
Portland-Vancouver-Hillsboro, OR-WA	23	41857	11.7%	10.3%	7.5%	10.7%	12.1%	2005	1.6%
Charlotte-Concord-Gastonia, NC-SC	24	5389	1.6%	1.4%	2.4%	0.9%	1.2%	0	
Sacramento--Roseville--Arden-Arcade, CA	25	33573	10.5%	8.2%	9.5%	8.6%	11.6%	0	
San Antonio-New Braunfels, TX	26	3042	1.0%	0.6%	2.7%	0.9%	0.7%	0	
Orlando-Kissimmee-Sanford, FL	27	11447	3.5%	1.7%	3.6%	3.4%	3.4%	0	
Cincinnati, OH-KY-IN	28	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Cleveland-Elyria, OH	29	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Kansas City, MO-KS	30	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Las Vegas-Henderson-Paradise, NV	31	18873	5.3%	5.3%	4.7%	4.6%	5.8%	0	
Columbus, OH	32	15	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Indianapolis-Carmel-Anderson, IN	33	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
San Jose-Sunnyvale-Santa Clara, CA	34	71410	25.2%	27.8%	27.1%	18.7%	26.3%	0	
Austin-Round Rock, TX	35	30625	9.5%	7.2%	10.8%	7.6%	10.4%	0	
Virginia Beach-Norfolk-Newport News, VA-NC	36	7191	2.9%	0.7%	2.8%	3.0%	2.8%	2148	3.5%
Nashville-Davidson--Murfreesboro--Franklin, TN	37	14201	5.4%	8.6%	8.1%	1.5%	4.9%	0	
Providence-Warwick, RI-MA	38	12892	5.5%	5.7%	5.1%	5.8%	5.6%	0	0.0%
Milwaukee-Waukesha-West Allis, WI	39	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Jacksonville, FL	40	2529	1.2%	0.0%	2.3%	0.7%	0.7%	0	0.0%
Memphis, TN-MS-AR	41	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Oklahoma City, OK	42	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Louisville/Jefferson County, KY-IN	43	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Hartford-West Hartford-East Hartford, CT	44	2270	1.5%	1.4%	2.2%	1.5%	1.4%	0	0.0%

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		Count	Share					Count	Share
			All Races	Asian	Black	Latinx	White		
Richmond, VA	45	3714	2.2%	2.2%	2.7%	1.1%	2.1%	0	0.0%
New Orleans-Metairie, LA	46	1333	0.8%	0.1%	1.1%	0.0%	0.6%	25	0.0%
Buffalo-Cheektowaga-Niagara Falls, NY	47	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Raleigh, NC	48	10698	5.9%	4.6%	7.1%	3.3%	5.6%	0	
Birmingham-Hoover, AL	49	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Salt Lake City, UT	50	18775	14.1%	7.5%	6.1%	12.1%	15.8%	0	
Rochester, NY	51	0	0.0%	0.0%	0.0%	0.0%	0.0%	775	1.5%
Grand Rapids-Wyoming, MI	52	2694	2.9%	12.4%	5.4%	2.2%	2.1%	0	0.0%
Tucson, AZ	53	3715	2.5%	1.1%	3.8%	2.1%	2.7%	0	
Urban Honolulu, HI	54	14999	11.0%	9.6%	17.1%	9.3%	12.4%	0	
Fresno, CA	56	4995	3.4%	2.9%	4.4%	2.6%	3.9%	0	
Worcester, MA-CT	57	6572	5.7%	14.0%	4.2%	4.7%	5.3%	0	0.0%
Bridgeport-Stamford-Norwalk, CT	58	6514	5.6%	4.4%	4.6%	5.1%	6.8%	0	0.0%
Albuquerque, NM	59	3813	3.1%	0.0%	1.0%	2.9%	3.6%	0	
Albany-Schenectady-Troy, NY	60	1512	1.2%	0.1%	1.9%	0.0%	1.2%	0	0.0%
Omaha-Council Bluffs, NE-IA	61	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
New Haven-Milford, CT	62	1754	1.4%	3.0%	1.4%	1.5%	0.8%	0	0.0%
Bakersfield, CA	63	1809	1.6%	5.9%	1.4%	1.1%	2.1%	0	
Knoxville, TN	64	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Greenville-Anderson-Mauldin, SC	65	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Oxnard-Thousand Oaks-Ventura, CA	66	14412	14.3%	21.9%	14.6%	12.8%	14.6%	0	
Allentown-Bethlehem-Easton, PA-NJ	67	1274	1.3%	0.0%	0.0%	1.9%	1.2%	0	0.0%
El Paso, TX	68	0	0.0%	0.0%	0.0%	0.0%	0.0%	205	0.2%
Baton Rouge, LA	69	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Dayton, OH	70	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	

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			All Races	Asian	Black	Latinx	White		
McAllen-Edinburg-Mission, TX	71	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Columbia, SC	72	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Greensboro-High Point, NC	73	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Akron, OH	74	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
North Port-Sarasota-Bradenton, FL	75	2353	2.8%	2.0%	5.4%	4.3%	2.1%	0	
Little Rock-North Little Rock-Conway, AR	76	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Stockton-Lodi, CA	77	5566	5.3%	4.0%	10.3%	3.9%	5.6%	0	
Charleston-North Charleston, SC	78	2375	2.5%	0.0%	2.5%	1.4%	2.6%	0	
Syracuse, NY	79	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Colorado Springs, CO	80	7883	8.8%	4.2%	11.8%	9.5%	8.6%	0	
Winston-Salem, NC	81	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Wichita, KS	82	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Springfield, MA	83	2057	2.4%	0.0%	4.5%	2.5%	2.0%	0	0.0%
Cape Coral-Fort Myers, FL	84	1916	2.6%	0.0%	1.4%	2.9%	2.7%	0	
Boise City, ID	85	8168	10.6%	4.2%	37.6%	7.2%	11.1%	0	
Toledo, OH	86	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Lakeland-Winter Haven, FL	88	9	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Ogden-Clearfield, UT	89	3964	8.4%	0.1%	61.1%	5.4%	8.3%	0	
Deltona-Daytona Beach-Ormond Beach, FL	90	1827	2.7%	0.0%	2.7%	5.1%	2.3%	0	
Des Moines-West Des Moines, IA	91	32	0.0%	0.0%	0.1%	0.0%	0.0%	0	0.0%
Jackson, MS	92	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Youngstown-Warren-Boardman, OH-PA	93	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Augusta-Richmond County, GA-SC	94	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Scranton-Wilkes-Barre--Hazleton, PA	95	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	

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			All Races	Asian	Black	Latinx	White		
Harrisburg-Carlisle, PA	96	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Palm Bay-Melbourne-Titusville, FL	97	689	1.3%	0.8%	0.2%	1.2%	1.5%	0	
Chattanooga, TN-GA	98	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Spokane-Spokane Valley, WA	99	4034	4.7%	3.7%	11.7%	2.2%	4.9%	0	
Provo-Orem, UT	100	8346	16.0%	18.1%	0.0%	12.8%	16.5%	0	0.0%
Lancaster, PA	101	1520	2.4%	10.8%	0.0%	0.9%	2.6%	0	
Modesto, CA	102	3734	5.2%	9.7%	10.3%	4.3%	5.0%	0	
Portland-South Portland, ME	103	5226	7.9%	10.0%	37.1%	11.0%	6.2%	0	
Santa Rosa, CA	105	10610	14.8%	19.0%	8.5%	10.1%	17.3%	0	
Lafayette, LA	107	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Lansing-East Lansing, MI	108	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Fayetteville-Springdale-Rogers, AR-MO	109	591	0.8%	0.0%	0.0%	0.6%	1.0%	0	
Pensacola-Ferry Pass-Brent, FL	110	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Visalia-Porterville, CA	111	1041	1.8%	0.3%	0.0%	2.3%	1.1%	161	0.9%
Shreveport-Bossier City, LA	112	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Springfield, MO	113	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
York-Hanover, PA	114	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Corpus Christi, TX	115	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Reno, NV	117	7800	10.1%	10.4%	1.4%	5.7%	11.4%	0	
Asheville, NC	118	2743	4.1%	0.0%	3.8%	1.3%	4.5%	0	
Port St. Lucie, FL	119	630	1.4%	0.0%	0.9%	4.0%	1.1%	0	
Santa Maria-Santa Barbara, CA	120	5825	8.5%	4.7%	0.0%	6.0%	12.2%	0	
Huntsville, AL	121	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Fort Wayne, IN	122	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Salinas, CA	123	6506	9.6%	9.7%	17.2%	6.9%	14.1%	0	0.0%

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| | | Count | Share | | | | | Count | Share |
			All Races	Asian	Black	Latinx	White		
Vallejo-Fairfield, CA	124	7755	14.0%	4.4%	21.4%	7.7%	14.7%	0	
Mobile, AL	125	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Reading, PA	126	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Brownsville-Harlingen, TX	127	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Canton-Massillon, OH	129	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Beaumont-Port Arthur, TX	130	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Manchester-Nashua, NH	131	3186	6.2%	0.0%	2.7%	5.8%	6.9%	0	0.0%
Anchorage, AK	133	1662	3.3%	11.9%	0.0%	2.1%	3.2%	289	0.8%
Myrtle Beach-Conway-North Myrtle Beach, SC-NC	136	2	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Montgomery, AL	137	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Salisbury, MD-DE	138	1129	2.8%	0.0%	3.1%	0.2%	2.2%	0	
Gulfport-Biloxi-Pascagoula, MS	139	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Trenton, NJ	141	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Fayetteville, NC	142	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Hickory-Lenoir-Morganton, NC	143	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Eugene, OR	145	5877	9.4%	11.2%	17.2%	8.2%	9.2%	0	
Rockford, IL	146	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Ann Arbor, MI	148	1853	3.4%	5.4%	5.2%	1.5%	2.3%	1667	6.4%
Ocala, FL	149	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Kalamazoo-Portage, MI	150	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Naples-Immokalee-Marco Island, FL	151	919	2.5%	2.7%	2.0%	2.1%	2.8%	0	
Spartanburg, SC	153	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Roanoke, VA	156	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Lincoln, NE	158	1092	2.3%	0.0%	0.2%	0.2%	2.8%	0	0.0%

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		Count	Share					Count	Share
			All Races	Asian	Black	Latinx	White		
Fort Collins, CO	159	6163	12.2%	16.2%	21.1%	8.9%	12.5%	0	
Utica-Rome, NY	160	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Lubbock, TX	163	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Erie, PA	164	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%
Atlantic City-Hammonton, NJ	167	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Norwich-New London, CT	168	494	1.4%	2.3%	0.0%	0.8%	1.6%	0	
San Luis Obispo-Paso Robles-Arroyo Grande, CA	169	6255	15.7%	41.6%	86.5%	8.2%	16.9%	0	
Gainesville, FL	170	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Santa Cruz-Watsonville, CA	171	6483	17.5%	3.3%	28.7%	13.0%	21.5%	0	
Clarksville, TN-KY	172	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Merced, CA	174	590	1.7%	0.3%	1.6%	1.4%	2.7%	0	
Wilmington, NC	175	987	2.1%	0.0%	3.0%	0.1%	2.1%	0	
Waco, TX	178	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Olympia-Tumwater, WA	179	3671	9.3%	11.3%	9.9%	2.8%	9.5%	0	
Amarillo, TX	180	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Binghamton, NY	181	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Bremerton-Silverdale, WA	183	2576	8.3%	4.8%	11.1%	7.1%	8.5%	0	
Laredo, TX	184	0	0.0%	0.0%	0.0%	0.0%	0.0%	28	0.1%
Lynchburg, VA	185	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Yakima, WA	186	175	0.6%	0.0%	0.0%	0.6%	0.4%	0	
Topeka, KS	188	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Champaign-Urbana, IL	190	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Tuscaloosa, AL	191	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
College Station-Bryan, TX	192	14	0.0%	0.0%	0.0%	0.1%	0.0%	0	

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		Count	Share						Count	Share
			All Races	Asian	Black	Latinx	White			
Charleston, WV	194	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Chico, CA	196	1457	4.0%	0.0%	9.9%	2.9%	4.3%		0	
Barnstable Town, MA	199	1164	6.4%	5.9%	7.8%	10.6%	6.1%		0	
Burlington-South Burlington, VT	201	1382	4.6%	4.9%	7.9%	13.5%	4.0%		0	
Prescott, AZ	202	1423	5.3%	26.6%	0.0%	11.1%	3.7%		0	
Springfield, IL	203	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Tyler, TX	204	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Las Cruces, NM	205	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Houma-Thibodaux, LA	207	0	0.0%		0.0%	0.0%	0.0%		0	
Florence, SC	209	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Medford, OR	210	1823	6.2%	9.9%	0.0%	11.3%	5.3%		0	
Lafayette-West Lafayette, IN	211	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Bellingham, WA	212	4283	12.8%	0.0%	1.6%	11.5%	14.6%		0	
Lake Havasu City-Kingman, AZ	213	1168	4.3%	1.1%	8.7%	3.6%	4.4%		0	
Saginaw, MI	214	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Elkhart-Goshen, IN	217	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Yuma, AZ	218	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Racine, WI	219	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Hilton Head Island-Bluffton-Beaufort, SC	223	1034	4.8%	0.0%	5.4%	2.1%	5.2%		0	
Bloomington, IL	224	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Daphne-Fairhope-Foley, AL	228	436	2.1%	0.0%	0.0%	1.7%	2.5%		0	
Gainesville, GA	229	439	2.2%	1.4%	8.9%	0.7%	0.5%		0	
Blacksburg-Christiansburg-Radford, VA	231	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Redding, CA	233	617	2.8%	0.0%	7.7%	4.4%	1.9%		0	
Monroe, LA	234	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	

CBSA Name	Size Rank	Renter Households on the METROPOLITAN AREA Telework Tipping Point for Homeownership						Renter Households on the CITY Telework Tipping Point for Homeownership	
		Count	Share					Count	Share
			All Races	Asian	Black	Latinx	White		
Joplin, MO	235	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
El Centro, CA	236	317	2.4%	20.5%	0.0%	2.3%	0.0%	0	
Muskegon, MI	238	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
East Stroudsburg, PA	239	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Greenville, NC	241	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Oshkosh-Neenah, WI	243	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Yuba City, CA	244	930	4.0%	12.3%	0.0%	2.2%	4.9%	0	
Columbia, MO	246	553	1.7%	5.0%	0.0%	0.0%	1.8%	0	
Dover, DE	247	227	1.1%	0.0%	2.0%	0.0%	0.5%	0	
Eau Claire, WI	248	42	0.2%	0.0%		0.0%	0.2%	0	
Janesville-Beloit, WI	249	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Jackson, MI	250	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Punta Gorda, FL	251	164	1.4%	0.0%	3.6%	0.0%	1.3%	0	
Bloomington, IN	252	714	2.8%	2.0%	0.0%	0.0%	1.4%	0	
Pueblo, CO	253	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Bend-Redmond, OR	256	2377	9.1%	0.0%	82.2%	7.8%	8.6%	0	
Niles-Benton Harbor, MI	259	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
State College, PA	262	741	3.4%	3.5%	0.0%	0.0%	3.9%	0	
Bangor, ME	263	0	0.0%	0.0%		0.0%	0.0%	0	
Decatur, AL	265	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Hanford-Corcoran, CA	266	252	1.3%	0.3%	7.7%	0.5%	1.0%	0	
Iowa City, IA	267	334	1.3%	0.0%	4.9%	6.5%	0.3%	0	
Rocky Mount, NC	268	0	0.0%		0.0%	0.0%	0.0%	0	
Monroe, MI	269	0	0.0%		0.0%	0.0%	0.0%	0	
Wichita Falls, TX	270	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	

| CBSA Name | Size Rank | Renter Households on the METROPOLITAN AREA Telework Tipping Point for Homeownership | | | | | | Renter Households on the CITY Telework Tipping Point for Homeownership | |
| | | Count | Share | | | | | Count | Share |
			All Races	Asian	Black	Latinx	White		
Burlington, NC	271	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Madera, CA	272	1098	6.9%	0.0%	0.0%	5.2%	13.3%	0	
Jefferson City, MO	273	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Grand Junction, CO	280	955	5.2%	7.9%		1.7%	6.4%	0	
Santa Fe, NM	283	1603	8.8%	0.0%	15.3%	9.0%	9.0%	0	
Johnstown, PA	284	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Midland, TX	288	305	1.6%	8.5%	0.0%	2.1%	1.3%	0	
Homosassa Springs, FL	289	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Auburn-Opelika, AL	290	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Coeur d'Alene, ID	292	1455	7.8%	6.8%	0.3%	11.8%	7.2%	0	
Springfield, OH	293	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
St. George, UT	294	1097	6.7%	0.0%		0.6%	7.5%	0	
Sebastian-Vero Beach, FL	295	30	0.3%		0.0%	0.9%	0.3%	0	
Odessa, TX	296	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Napa, CA	297	2585	15.1%	3.2%	45.3%	7.5%	19.3%	0	
Flagstaff, AZ	303	1717	10.0%	9.3%	5.1%	4.0%	13.7%	0	
Wausau, WI	305	0	0.0%	0.0%		0.0%	0.0%	0	
La Crosse-Onalaska, WI-MN	306	975	5.3%	49.3%	0.0%	0.0%	2.1%	0	
Lebanon, PA	307	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Pittsfield, MA	310	216	1.3%	0.0%	0.0%	0.0%	1.5%	0	
Jackson, TN	313	0	0.0%		0.0%	0.0%	0.0%	0	
Morgantown, WV	314	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Glens Falls, NY	315	0	0.0%		0.0%		0.0%	0	
St. Joseph, MO-KS	317	0	0.0%	0.0%	0.0%	0.0%	0.0%	0	
Harrisonburg, VA	323	236	1.3%	0.0%	2.9%	0.1%	1.4%	0	

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		Count	Share						Count	Share
			All Races	Asian	Black	Latinx	White			
Mansfield, OH	325	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Goldsboro, NC	327	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Anniston-Oxford-Jacksonville, AL	332	0	0.0%		0.0%	0.0%	0.0%		0	
Muncie, IN	334	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Sheboygan, WI	340	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Bismarck, ND	341	1112	6.2%	37.7%	0.0%	15.7%	3.6%		0	
Owensboro, KY	342	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Kankakee, IL	346	0	0.0%		0.0%	0.0%	0.0%		0	
San Angelo, TX	349	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Michigan City-La Porte, IN	350	0	0.0%		0.0%	0.0%	0.0%		0	
Wenatchee, WA	352	720	4.4%	0.0%		3.8%	5.2%		0	
Lawrence, KS	353	377	1.7%	0.0%	0.0%	0.0%	2.1%		0	
Decatur, IL	354	0	0.0%	0.0%	0.0%		0.0%		0	
Lewiston-Auburn, ME	358	338	1.9%	0.0%	0.0%	70.9%	1.0%		0	
Lima, OH	365	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Gadsden, AL	368	0	0.0%	0.0%	0.0%	0.0%	0.0%		0	
Ithaca, NY	373	884	5.2%	5.2%	0.0%	0.2%	5.9%		0	
Ocean City, NJ	388	262	2.8%	0.0%	0.0%	0.0%	3.5%		0	
Parkersburg-Vienna, WV	402	0	0.0%		0.0%	0.0%	0.0%		0	

CBSA = Core-Based Statistical Area.

Sources: American Community Survey; American Time Use Survey; Zillow

Acknowledgments

Authors

Treh Manhertz is an economist at Zillow Group Economic Research. Alexandra Lee is an economist at Zillow Group Economic Research.

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