



PENN IUR SPECIAL REPORT

# Ten Ways Covid-19 Changed America's Cities—Or Maybe Not

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*Photo via University of Pennsylvania*

As with every other aspect of American life, the Covid-19 pandemic upended how we think about cities. Nowhere is this clearer than in the titles of two books on cities authored by Harvard economist Ed Glaeser, one of America's pre-eminent urban thinkers. In his 2011 book, *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*, Glaeser called cities “man's greatest invention,” and explained how density promotes prosperity, innovation and collaborative problem-solving. Exactly ten years later, Glaeser, along with his Harvard colleague David Cutler, revisited the topic in *Survival of the City: Living and Thriving in an Age of Isolation*, writing of the “demons of density” and other urban problems brought to the fore by the Covid-19 pandemic.

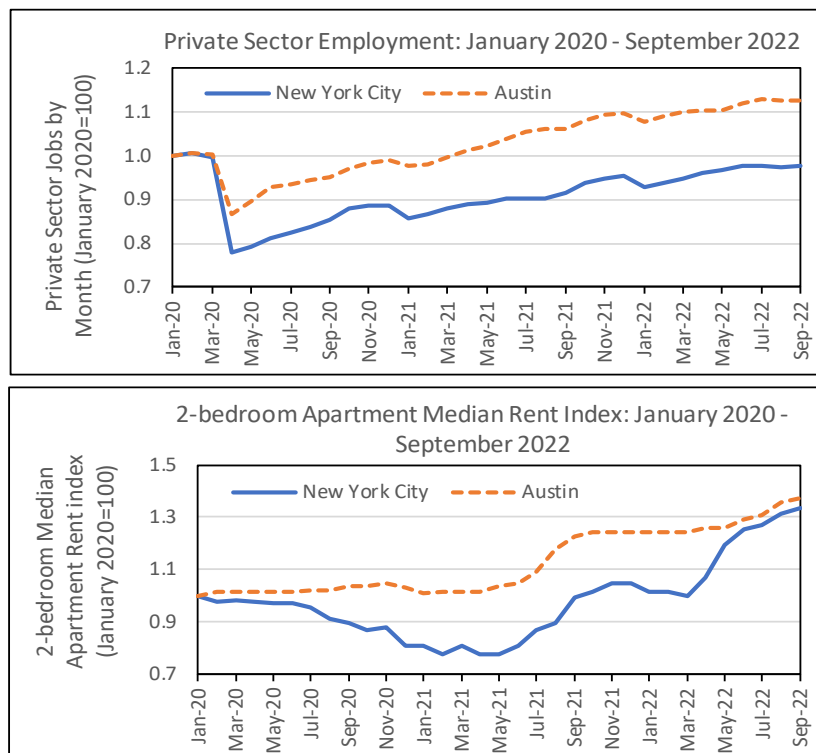
While it is true that Covid's impacts were initially concentrated in cities—first in Wuhan, China in December 2019, then in February 2020 with outbreaks in Northern Italian cities, and finally in March-May 2020, when more than 200,000 Covid-19 cases were reported to public health authorities in New York City leading to 18,600 deaths—it is also true that once effective methods for limiting Covid's transmission and for treating it were discovered, the same information networks that make cities productive also helped contain and mitigate Covid's effects. Still, the impression that Covid disproportionately impacted cities, and worries that cities would have a harder time recovering from the Covid pandemic never quite dissipated (Batty 2022; Batty et al. 2022; Brail 2021; Florida et al. 2021; Martinez and Short 2021). This impression has been reinforced by the slowness with which the economies in two of America's most prominent and innovative urban media centers, New York City and San Francisco, are returning to their pre-pandemic vitality.<sup>2, 3</sup>

In fact, both Covid-19's incidence and the pace of recovery have varied widely among U.S. cities and metropolitan areas. Consider the job and rent comparisons shown in Figure 1 between two “creative class” cities<sup>4</sup>, New York City and Austin. In October 2020, six months into the Covid-19 pandemic, the number of private sector jobs in the New York City economy had fallen 12% from its February 2020 high, according to the U.S. Bureau of Labor Statistics. Private sector employment in the Austin economy in October 2020 was also below its pre-pandemic high, but by just 5%. One year later, in October 2021, New York City employment was still down by 6% (compared to February 2020) while the number of jobs in the Austin metro areas was up by 8%. Two-and-a-half years into the pandemic, private employment in New York City was still two percent off its pre-pandemic high, whereas in Austin, it was up 13% .

Apartment rent trajectories also differed between the two cities. One year into the Covid-19 pandemic, the median rent for a two-bedroom apartment in New York City had declined by 22% according to the rental research website Zumper.com. Two years later, rents in New York City had already recovered to the point that they were 20% higher than in January 2020. In Austin, by contrast, two bedroom apartment rents never declined, and by September 2022, were 35% higher than at the start of the pandemic. The point of these comparisons is not to praise Austin's resiliency or criticize New York City's, but rather to point out the wide range of local employment and apartment market responses to the same disruption, as well as to the fact that that local housing and job markets do not always respond in tandem.

Written three years after Covid-19's arrival in the U.S. in January 2020, this paper expands on this theme of difference between places and Covid-19 pandemic recovery trajectories. Using the most recent (as of April 2023) data available from a variety of government and industry association sources, it does three things. The first is to chronicle the diversity of the pandemic's effects on U.S. cities and metropolitan areas across a range of urban issue areas, including population growth, job centralization, housing, crime, auto and public transit use, gentrification, and office and retail market health. While several studies comparing places across a single dimension have been published, as has research profiling the range of effects for a single place, to our knowledge this is the first, to look at multiple issue areas across a range of U.S. cities, counties, and metropolitan areas. Sometimes, the greatest value comes from simply compiling all the relevant data in a single document.

**Figure 1:** Comparison of New York City and Austin Monthly Job Change (top panel) and 2-bedroom Rent Change (bottom panel), January 2020 - September 2022 (Sources: Bureau of Labor Statistics and Zumper.com)



The second thing this paper does is investigate whether and how pandemic-induced changes in each of the issue areas identified above are likely to be fundamental and long-lasting. We do so in two ways. The first is by comparing pre-Covid trends to those for the pandemic era period between 2020 and 2022. The second is by projecting both trendlines forward to 2030 to see whether they converge or remain distinct. This involves constructing two scenarios across multiple forecasting realms. The first, Scenario A, assumes an *interrupted continuation of pre-pandemic trends*, suitably updated to 2023. The second, Scenario B, assumes a *linear continuation of 2020-2022 pandemic-era trends*. In situations where no such trends are evident, or where city recovery trajectories have been idiosyncratic, we attempt to identify the sources of such idiosyncrasies. The purpose of this exercise is not to predict the world as it is likely to be—that is always a fraught task—but to explore how the dynamics embedded in different trend lines are likely to play out. As experienced forecasters know, the job of developing consistent projections requires paying careful attention to both explicit and embedded assumptions, and in a manner that emphasizes identifying critical uncertainties.

Finally, building on the prior two efforts, we identify some of the key challenges and opportunities likely to confront urban planners and policy-makers over the next few years. Some of these challenges, such as how to deal with recent increases in crime, are new for planners, and much as Glaeser and Cutler try to do in *Survival of the City*, will require rethinking and then rethinking again about what has become the conventional wisdom about how U.S. cities function. Other challenges, like restrictions on new housing construction in blue state cities, are longstanding and will require creating new institutional and funding arrangements if they are to be addressed in earnest.

We begin with several cautionary notes. First, even now, three years into the Covid-19 pandemic, because of data collection and publication lags, we still do not have a complete picture of the pandemic's place-level effects.

Even as things finally return to something that can be called normal, one year of hindsight can never be as revealing as five or ten years' worth. Second, readers looking for simple or common narratives that tell a single story about the incidence and recovery from Covid-19 among U.S. urban areas are likely to be disappointed. The fact is that the U.S. urban system is incredibly large and diverse, and the political times being what they are, government officials usually start from a perspective of the uniqueness of their own places and circumstances, rather than looking to develop common understandings or to test common strategies. That is, outcomes may diverge not because the underlying dynamics are divergent, but because those in charge have chosen to pursue divergent paths. Such behaviors and results are typically difficult to garner from government data sources.

Third, because the U.S. urban system is so diverse, telling its Covid-19 pandemic story involves a lot of place-specific data, often in a form that cannot be distilled down to one or two trend lines or narratives. Sometimes, the narrative *is the data*, and you must respect the fact that every data point potential contains useful information. This is a fancy way of saying get ready to look at lots of data tables and charts. Fourth, our comparisons all involve places, not people. Unlike many studies of Covid's effects which focus on individual responses over time, and which are increasingly being modeled by applying pattern-finding algorithms to big data sources, here we focus on identifying patterns across places, which inevitably requires paying less attention to variations within those places.

Fourth, our tabulations of pre-pandemic and pandemic era population growth and change do not include undocumented immigrants. According to the U.S. Customs and Border Patrol, the number of stops at the U.S.'s southern border, which includes both persons admitted to the United States and those turned back, increased from about 400,000 in 2020 to 1.7 million in 2021 and 2022.<sup>5</sup> These estimates do not include those who crossed the border without being detained. Precisely where recently admitted undocumented immigrants eventually settle and whether they are working and how much they are earning is not known with any precision.

As always, we are captive to the fact that different government agencies and professional associations collect their data on different schedules and at various levels of spatial aggregation. In some cases, this will mean comparing outcomes across metro areas, in other cases, across counties or cities, or a representative selection of places. Last, although we frequently reference various academic and empirical studies as appropriate, we do not seek to either test or form theories as to how cities do or should respond to external disruptions like Covid-19. Rather, as the title of this article implies, our intent is to determine how much of a permanent marker Covid-19 is likely to leave on America's diverse urban landscape.

Finally, we make no representations that this is the only way to use scenario-building techniques to think about the future. Our two scenarios are intentionally designed as linear extrapolations and are not intended to incorporate potential policy changes or contingent actions. For a helpful guide to the uses of scenario-building in contemporary planning practice, see Goodspeed (2020) and Avin and Goodspeed (2020).

The balance of this paper is organized into ten thematic sections dealing with national, state, metro area and city population growth, job centralization, office occupancy and the future of work, housing, retail sales and shopping patterns, housing and homeless, sprawl and infill development, auto use and transit ridership, crime and policing, and urban poverty. Each thematic section is organized similarly, beginning with an identification of pre-Covid era trend, followed by an analysis of 2020-2022 Covid era patterns. This is followed, in turn, by projections of how both the pre-Covid and Covid-era trends might play out through 2030; and by a discussion of what these alternative future suggest for present day urban planning and policy priorities. A concluding section returns to the questions implied by this paper's title. In which ways did Covid-19 cause urban development trends and patterns to deviate from their pre-Covid trajectories? Which such shifts are desirable or sustainable? And what challenges and opportunities do they present for today's planners and urban policymakers?



## 1. REGIONAL AND STATE POPULATION GROWTH TRENDS

We start with the national population growth picture and then work our way down to regions, states, and then later, metropolitan areas and cities. According to the Census Bureau, in the two decades prior to the onset of Covid-19, the U.S. added 50.1 million residents, bringing its 2020 population to 331.4 million. Twenty-nine million (58%) of these new residents were born in the U.S., with the balance (21 million; 42%) accounted for by foreign immigration.<sup>6</sup> When tabulated by race, Blacks and Asians/Asian-Americans each accounted for 21% of U.S. population growth between 2000 and 2020, while those who self-identified as “white alone” saw their numbers decline by 12.6 million. The number of U.S. residents who reported having a Hispanic or Latino heritage increased from 35.3 million in 2000 to 62.1 million in 2020. Over the same period, those listing themselves as multi-racial grew from 6.8 million to 33.8 million (Frey 2022).

Covid-19's January 2020 U.S. arrival led to an immediate and noticeable increase in death rates and a decline in immigration and birth rates. This caused the nation's annual population growth rate to tumble from 0.8% for the 2000-2020 period to just 0.27% between 2020 to 2022. All told, the Census Bureau estimates the number of U.S. residents to have grown by just over one million between 2020 and 2022, bringing its April 2022 population to 332.5 million. Because of discrepancies between the Census Bureau's two primary survey instruments, the American Community Survey and the Current Population Survey, exactly how much of this growth is attributable to natural increase versus immigration is still being determined.

***Pre-Pandemic Regional and State Population Growth Trends:*** In terms of how these new Americans distributed themselves geographically, during the twenty years prior to Covid-19, the Southeast region attracted the largest share of U.S. population growth (32%), followed by the Southwest (22%) and Pacific regions (19%). Lesser growth shares were attracted to the Mid-Atlantic region (8%), the Mountain region (7%), the Great Plains region (5%), the Midwest (4%) and the Northeast (2%). Among individual states, Texas led the population growth race, attracting 8.3 million new residents between 2000 and 2020. Texas was followed by California (5.7 million new residents), Florida (5.6 million), Georgia (2.5 million), North Carolina (2.4 million) and Arizona (2 million). Another eight states—Washington, Virginia, Colorado, New York, Tennessee, Nevada, South Carolina, and Utah—added between one and two million residents. Added together, these thirteen states accounted for almost three-quarters of U.S. population growth between 2000 and 2020. Just one state, West Virginia, saw its population decline during the 2000-2020 period.

***The Covid Interregnum:*** As Table 1 indicates, Covid's 2020 arrival was accompanied by significant changes in regional and state growth shares. Among regions, the Southeast region by itself accounted for 80% of U.S. population growth between 2020 and 2022, up from 32% during the 2000-2020 period. Close behind, the Southwest region accounted for 61% of U.S. population growth during the 2000-2020 period, up from 22% between 2000 and 2020. The other big share gainer was the Mountain region, which saw its share of national population growth rise from 7% during the 2000-2020 period to 17% between 2020 and 2022. The fact that these three 2020-to-2022 growth shares add up to more than 100 percent is explained by corresponding population declines in the Mid-Atlantic, Pacific, and Midwest regions. Between 2020 and 2022, the five Mid-Atlantic states (Delaware, Maryland, New Jersey, New York, and Pennsylvania) lost a combined 585,000 residents while the six Pacific region states (Alaska, California, Hawaii, Nevada, Oregon and Washington) lost a combined 367,000. The other region to lose a significant amount of population was the Midwest, whose five states (Illinois, Indiana, Michigan, Ohio and Wisconsin) lost a combined 359,000 residents between 2020 and 2022.

**Table 1: U.S. Population Change by Region and State**  
 Source: U.S. Census Bureau, American Community Survey

	Population Change (in thousands)		Share of U.S. Population Change	
	2000- 2020	2020- 2022	2000- 2020	2020- 2022
U.S. Total	50,064	1,881	100.0%	100.0%
<b>By Region</b>				
Southeast	16,053	1,507	32.1%	80.1%
Southwest	11,121	1,148	22.2%	61.0%
Pacific	9,751	-367	19.5%	-19.5%
Mid-Atlantic	4,027	-585	8.0%	-31.1%
Mountain	3,322	318	6.6%	16.9%
Great Plains	2,381	92	4.8%	4.9%
Midwest	2,216	-271	4.4%	-14.4%
Northeast	1,193	39	2.4%	2.1%
<b>10 Largest States in 2020</b>				
1 California	5,666	-509	11.3%	-27.1%
2 Texas	8,294	884	16.6%	47.0%
3 Florida	5,556	707	11.1%	37.6%
4 New York	1,225	-524	2.4%	-27.9%
5 Pennsylvania	722	-31	1.4%	-1.6%
6 Illinois	394	-231	0.8%	-12.3%
7 Ohio	446	-43	0.9%	-2.3%
8 Georgia	2,526	201	5.0%	10.7%
9 North Carolina	2,390	260	4.8%	13.8%
10 Michigan	139	-43	0.3%	-2.3%

Among states, Texas saw its share of the nation’s population growth swell from 17% between 2000 and 2020 to 47% between 2020 and 2022. Other notable growth share gainers were Florida (whose share of national population growth increased from 11% between 2000 and 2020 to 38% between 2020 and 2022), North Carolina (increasing from 5% to 14%), Arizona (increasing from 4% to 11%) and Georgia (up from 5% to 11%). On the losing side of the ledger, two states, New York and California, together accounted for -55% of national population growth between 2020 and 2022. Rounding out the list of notable 2020-2022 population growth share losers were Illinois (-12% of national population growth between 2020 and 2022), Louisiana (-4%) and Massachusetts (-3%).

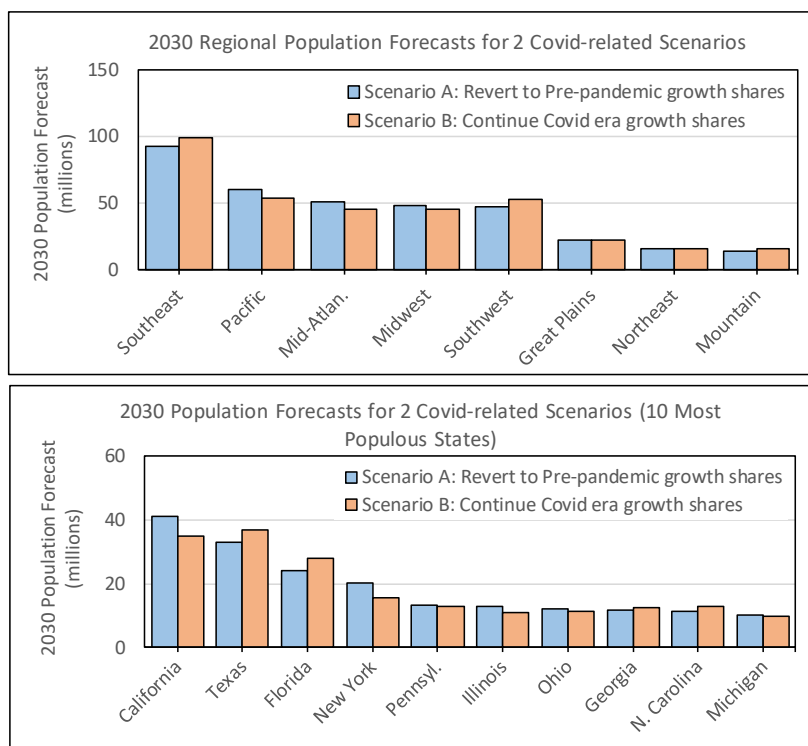
**Alternative 2030 Population Forecasts:** To get a better sense of what a continuation of 2020-2022 Covid-era population growth trends would mean for U.S. regions and states, we constructed two 2030 population growth scenarios. The first, labeled “Scenario A: Reversion to Pre-Covid Trends” assumes that 2000-2020 regional and state population growth trends will reassert themselves beginning in 2023. The second, labeled, “Scenario B: Continuation of Covid-era Trends” assumes instead that 2020-2022 pandemic-era regional and state population growth trends remain in place going forward through 2030. Versions of these same two scenarios will also be utilized in subsequent sections.

Should 2020-2022 pandemic-era population growth trends continue for another eight years (Scenario B), the U.S population in 2030 would total 348 million. This is two million less than if population growth levels were to

return to their 2000-2020 trendline (Scenario B). The reason for this difference has to do with the pandemic-related slowdown in legal immigration and natural increase that occurred in 2020 and 2021.

These slight differences between Scenarios A and B at the national level obscure some large regional and state level differences. Among regions (see Figure 2, top panel), a return to pre-pandemic growth shares (Scenario A) would see the Mid-Atlantic and Pacific regions add another six million residents each compared to a continuation of Covid era trends (Scenario B). Instead of losing population compared to 2022, both regions would gain it. Similarly, the Midwest region would gain 750,000 new residents by 2030 under Scenario A (Revert to pre-pandemic growth shares) as opposed to losing 3.2 million under Scenario B (continue pandemic era trends) By contrast, the Southeast and Southwest regions would have 6 million and 5 million fewer residents in 2030 if population growth shares were to return to their pre-pandemic levels (Scenario A) as compared to remaining at their Covid era levels. The differences between the two scenarios for the Northeast, Great Plains, and Mountain regions are all smaller.

**Figure 2:** Regional (top panel) and Large State (bottom panel) 2030 Population Forecasts based on Pre-Covid and Covid Era Population Growth Shares



Among states (see Figure 2, bottom panel), California would gain almost two million new residents by 2030 under Scenario A (compared to 2022) instead of losing four million as under Scenario B. The story is similar for New York, which would add 400,00 residents by 2030 under Scenario A instead of losing four million, as under Scenario B. In terms of adding population by 2030, Scenario would also be kinder to Illinois as compared to Scenario B. On the flip side, should Covid era population growth shares remain in place (Scenario B), Texas and Florida would each gain four million *fewer* additional residents by 2030 than if their growth shares were to revert to 2000-2020 levels (Scenario B). Georgia and North Carolina would also do slightly better in terms of population growth through 2030 under Scenario B than under Scenario A. Among the other states included in

Figure 2b—Pennsylvania, Ohio and Michigan—the differences in projected 2030 population between returning to their pre-Covid growth shares (Scenario A) and remaining at their 2020-2022 levels (Scenario B) are relatively small.

**Planning and Policy Challenges and Opportunities:** Well before Covid's 2020 U.S. arrival, states in the Southwest and Pacific regions were struggling to respond to the long-term infrastructure, housing supply and climate change effects of continuing population growth. Elsewhere, states in the Mid-Atlantic and Midwest regions were confronting problems of population stasis: an aging native-born population, a lack of young and energetic immigrants, high tax rates, and an aging public infrastructure and housing stock in need of substantial reinvestment. To the degree that Covid-19 permanently widened the differentials between slow- and fast-growing states and regions, it magnified the challenges facing both groups. Those in the first group will face increased competition among government agencies and population subgroups for limited public revenues, and a further widening of the interests and political divides between central city, suburban and rural residents. Those in the second group will face water shortages, rising year-round temperatures, growing shortages of easily accessible and easy-to-develop housing sites, rising NIMBYism and income inequality, and a growing disconnect between state-level and metropolitan-level politics.

How might these various challenges be met? Local governments in slower-growing regions and states will have to get much smarter about leveraging limited public budgets. They will also have to do a better job prioritizing sites for market-led redevelopment and for ensuring that any benefits from redevelopment benefits are equitably shared. This is likely to involve loosening long-held zoning restrictions and is best done at the state level. State and local governments in the South and Southwest will need to develop new institutional arrangements to further reduce per capita resource and energy consumption and to ensure that new housing and commercial projects are better able to accommodate the wider temperature and rainfall swings accompanying climate change. To make their housing supplies more affordable and sustainable, they will need to create mechanisms to accommodate new residential development at higher densities and in a manner less dependent on automobile use. With their more mobile and fluid populations, they will also have to develop methods to anticipate and accommodate neighborhood demographic and economic change. Lastly, with income and class distinctions widening everywhere, governments of every size will increasingly have to work across municipal boundaries and with private sector organizations to improve access to affordable housing, high-performing public schools, and good-quality affordable healthcare. The federal government should help in all these efforts by identifying local best practices and creating fiscal incentives to broaden their adoption.

**The Upshot:** Covid-19 further widened the already sizeable growth and governance gaps between low tax rate and growth-friendly states in the Southeast, Southwest and Mountain regions, and higher tax rate states in the Mid-Atlantic, Midwest and Pacific regions.

## 2. METROPOLITAN AREA & LARGE CITY POPULATION GROWTH TRENDS

The U.S. is a profoundly urban nation.<sup>7</sup> As of 2020, 85 percent of Americans resided in one of the nation's 384 metropolitan areas and one-fifth lived in a city with more than 200,000 people. Whereas most U.S. metropolitan areas continued growing between 2020 and 2022—albeit at a much reduced rate compared to the 2000-2020 period—some larger cities lost population.

**Pre-Pandemic Metro Area and Large City Population Growth Trends:** Adjusted for changes in composition, the population of U.S. metropolitan areas grew by 22% percent between 2000 and 2020, significantly faster than the nation. As with states, population growth rates varied widely among individual metro areas, ranging from a high of 63% for Charlotte (North Carolina) to a low of -17% for Youngstown (Ohio). A regression analysis population growth shares among the nation's 107 largest metro areas in the twenty years before Covid-19's arrival finds them to positively associated with population growth shares during the prior 1990-2000 period; positively associated with higher average daily temperatures during the winter months; positively associated with the share of workers employed in the professional and business services sector as of 2000; and negatively



associated with 2000 median housing values. Refuting the oft-heard contention that people are attracted to places with lower taxes, metro areas in states with lower income tax rates grew neither faster nor slower between 2000 and 2020 than those in high-tax states.

As indicated in Table 2, among the fifteen largest U.S. metro areas in 2020, Houston added the most residents between 2000 and 2020 (+2.5 million), followed by Atlanta (+2.3 million), Dallas-Fort Worth (+2.1 million), Phoenix (+1.6 million) and Miami-Ft. Lauderdale (+1.2 million). The only large metro area to lose population between 2000 and 2020 was Detroit, which lost 351,000 residents.

Most large U.S. cities also added population during the 2000-to-2020 period, albeit not as fast as their metropolitan areas (Table 2). Among the nation's 50 largest cities, eight added 200,000 or more residents by 2020, starting with New York City (+789,000), followed by Fort Worth (+373,000), Houston (+327,000), Austin (+290,000), Phoenix (+281,000), San Antonio (+274,000), and Jacksonville (+214,000). Of that same group, eight lost population between 2000 and 2020, including Detroit (-307,000), Chicago (-154,000), Cleveland (-105,000), New Orleans (-101,000), Baltimore (-66,000), Memphis (-59,000), Honolulu (-22,000) and Milwaukee (-21,000). Most population-losing U.S. cities during this period were in the Midwest and Mid-Atlantic regions.

***The Covid Interregnum:*** Faster-growing metro areas during the 2000-2020 period further lengthened their leads during the 2020-2022 pandemic years. Altogether, the nation's fifteen largest metro areas in 2020 accounted for 66.4% of U.S. population growth between 2020 and 2022, up from 30.2% during the 2000-2020 period. Indeed, a regression analysis of 2020-2022 growth shares among the 107 largest U.S. metro areas found that the 2000-2020 population growth share alone explained 95 percent of the variation in pandemic era population growth shares; and that none of the other variables associated with population growth during the prior twenty years—average winter temperatures, housing values, and the share of professional and business service workers—mattered during the latter period. Among individual metro areas, Houston led the way, with its share of U.S. population growth rising from 5% during the 2000-2020 period to 12.3% during the 2020-2022 period. Other large metro areas whose population growth shares more than doubled between the 20-year pre-pandemic period and the 2020-2022 Covid era included Atlanta (from 4.6% to 11.2%), Dallas-Fort Worth (from 4.3% to 9.9%), Phoenix (from 3.2% to 7.5%), Washington, D.C. (from 2.7% to 6%), Miami-Ft. Lauderdale (from 2.4% to 4.9%), Seattle (from 1.4% to 3%) and San Diego (from 1.1% to 2.3%). In short, even though the overall population growth pie was much smaller during the pandemic years than previously, large metropolitan areas took a bigger share.

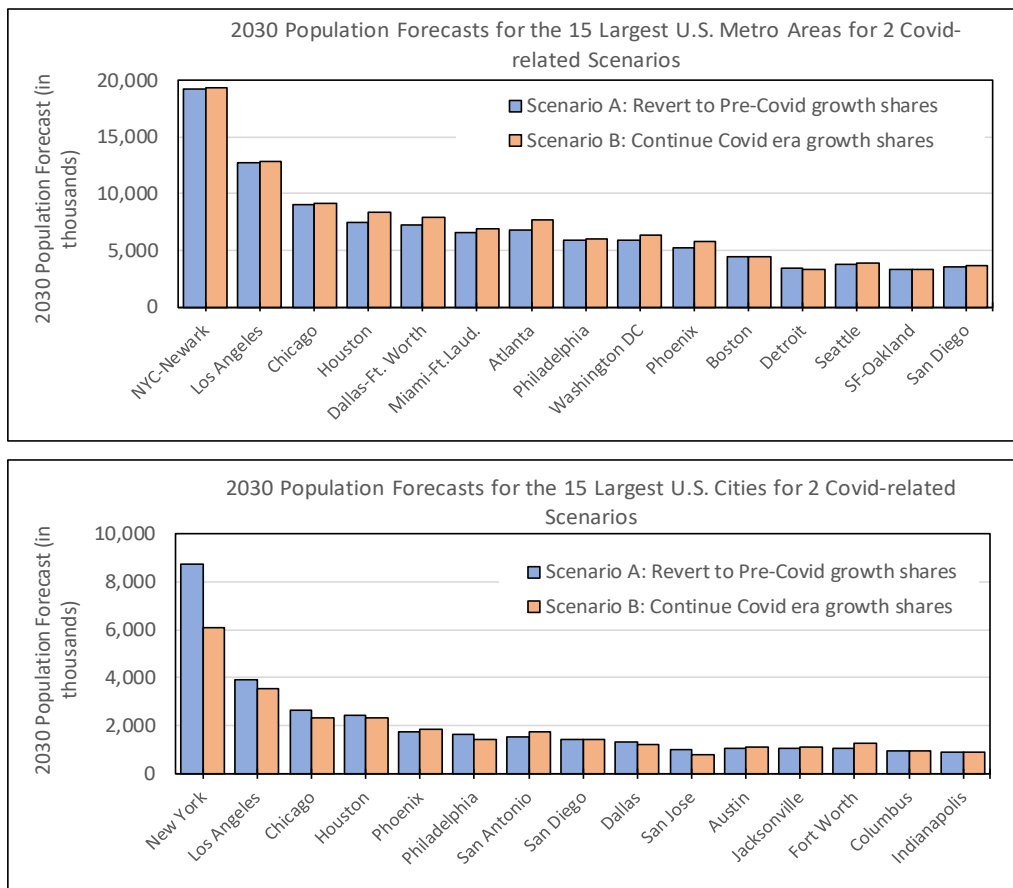
**Table 2: Population Change in the 15 Largest U.S. Metro Areas and Cities, 2000-2020 and 2020-2022 (Source: U.S. Census Bureau, American Community Survey)**

		Population Change (in thousands)		Share of U.S. Population Growth	
		2000- 2020	2020- 2022	2000- 2020	2020- 2022
<b>15 Largest U.S. Metro Areas as of 2020</b>					
1	New York	991	63	2.0%	3.3%
2	Los Angeles	649	41	1.3%	2.2%
3	Chicago	550	36	1.1%	1.9%
4	Houston	2,524	232	5.0%	12.3%
5	Dallas-Ft. Worth	2,133	187	4.3%	9.9%
6	Miami-Ft.Lauderdale	1,189	93	2.4%	4.9%
7	Atlanta	2,281	210	4.6%	11.2%
8	Philadelphia	561	39	1.1%	2.1%
9	Washington DC	1,373	112	2.7%	6.0%
10	Phoenix	1,588	141	3.2%	7.5%
11	Boston	273	18	0.5%	1.0%
12	Detroit	-351	-27	-0.7%	-1.4%
13	Seattle	713	56	1.4%	3.0%
14	San Francisco-Oakland	84	4	0.2%	0.2%
15	San Diego	570	44	1.1%	2.3%
<b>15 Largest U.S. Cities as of 2020</b>					
1	New York	789	-309	1.6%	-16.4%
2	Los Angeles	195	-41	0.4%	-2.2%
3	Chicago	-149	-44	-0.3%	-2.4%
4	Houston	327	1	0.7%	0.1%
5	Phoenix	281	30	0.6%	1.6%
6	Philadelphia	90	-17	0.2%	-0.9%
7	San Antonio	271	34	0.5%	1.8%
8	San Diego	160	4	0.3%	0.2%
9	Dallas	114	-9	0.2%	-0.5%
10	San Jose	110	-22	0.2%	-1.2%
11	Austin	290	15	0.6%	0.8%
12	Jacksonville	213	19	0.4%	1.0%
13	Fort Worth	373	39	0.7%	2.1%
14	Columbus	190	7	0.4%	0.4%
15	Indianapolis	105	1	0.2%	0.1%

The story was quite different for large cities. Of the nation's fifteen largest cities in 2020, six, led by New York City, which lost 309,000 residents between 2020 and 2022, saw their pandemic era populations decline. (Table 2). Chicago, which had lost 149,000 residents between 2000 and 2020, lost an additional 44,000 between 2020 and 2022. Philadelphia lost 17,000 residents during the latter period. City population losses were concentrated in but not limited to cities in the Midwest and Mid-Atlantic regions. Included on the list of big cities that lost population between 2020 and 2022 were two in the West (Los Angeles and San Jose, which lost 63,000 residents between them), and one in the Southwest (Dallas, which lost 9,000 residents).

**Alternative 2030 Population Forecasts:** Figure 3 presents two sets of 2030 population forecasts for the nation’s fifteen largest metro areas and cities. Employing the same two scenario approach used above, Scenario A, assumes that 2000-2020 pre-pandemic population growth trends will reassert themselves starting in 2023. Scenario B assumes instead that Covid era population growth share trends will remain operative through 2030.

**Figure 3:** Metro Area (top panel) and Large City (bottom panel) 2030 Population Forecasts based on Pre-Covid and Covid Era Population Growth Shares



Except for Detroit, none of the 2030 Scenario B metro area forecasts presented in the top panel of Figure 3 are lower than the comparable 2030 Scenario A forecast. Indeed, several—including Houston, Miami, Atlanta, and Washington, D.C.—are notably higher. In terms of systematically reducing metro area population growth, Covid-19 seems to have had a negligible effect.

The same cannot be said for large cities (Figure 3, bottom panel). Comparing Scenarios A and B, Scenario B, the continue-Covid-era growth scenario, results in significantly less population growth among the nation’s three largest cities (New York City, Los Angeles and Chicago) by 2030 than Scenario A, the revert-to-pre-pandemic growth scenario. The situation is particularly dire for New York City, which would have 2.7 million fewer residents in 2030 under Scenario B than under Scenario A, and 2.4 million fewer residents than in 2022! The other city that does noticeably worse in 2030 under Scenario B is San Jose, which would see its population decline by more than 170,000 residents as compared to 2022 levels. On the flip side, Phoenix, San Antonio, Jacksonville and Fort Worth each gain additional residents under Scenario B as compared with Scenario A. In the other seven cities, the population differences between Scenarios A and B are generally small. If nothing else, the comparisons presented in Figure 3b reveal just how vulnerable several of the nation’s largest cities are to

disruptions that might undo recent population gains, while also revealing the robustness of recent population growth trends in cities like Houston, Phoenix and San Antonio. Whereas the first two decades of the 21<sup>st</sup> century saw central cities fortunes tied to those of their metropolitan areas—and vice versa—the comparisons presented in Table 2 and Figure 3 leave open the possibility that the current decade will see a significant divergence between central city and metropolitan growth fortunes.

***Planning and Policy Challenges and Opportunities:*** In many U.S. cities, the Covid-19 pandemic exposed the fragility of recent population and public and private investment gains. Pandemic relief aid from the federal government allowed U.S. cities to avoid having to cut essential services, but as that aid tails off, city and county governments everywhere will find themselves scrambling for revenues. They will also find themselves having to find new ways to assist poor renters burdened with escalating rents. Growing cities and suburbs in places like Atlanta, Houston, Denver and Phoenix will have an easier time of things as growth-related increases in residential property values gradually recharge municipal coffers. This will not be the case in slow-growing or shrinking cities and regions where there will be pressures to continue aiding those individuals, groups and neighborhoods most adversely affected by the Covid-19 pandemic. Municipal governments in those places should immediately undertake a process of scenario-based budgeting in which alternative revenue and expenditure assumptions are tested and evaluated with an eye toward raising additional tax revenues as necessary and consolidating service provision and delivery across neighboring jurisdictions. There will also be renewed fiscal pressure to privatize utility and other services, and such initiatives should be carefully evaluated for their long-term fiscal and equity effects as well as for their ability to generate short-term revenues. As we note in a later section, infill and gentrification pressures will remain in play in most U.S. cities and in many suburban communities as well, forcing local officials to update their comprehensive plans and zoning codes to accommodate additional infill development and to ensure an adequate supply of workforce and affordable housing. Cities like Detroit, Cleveland, Buffalo and potentially Chicago facing the likelihood of continued population shrinkage should immediately begin preparing equitable redevelopment plans that focus future public and private investments in select areas as well as begin thinking about how they will reuse a growing inventory of vacant lots and buildings.

***The Upshot:*** Most U.S. metropolitan areas will grow at similar rates through 2030 regardless of how quickly or slowly the Covid-19 pandemic abates. This will not be the case for several very large cities, which, should Covid-era population growth trends remain in effect, will grow more slowly than they did during the 2000-2020 period, or, in some cases, even shrink.

### 3. EMPLOYMENT GROWTH AND ECONOMIC AGGLOMERATION EFFECTS

After eight decades of growing ever outward at lower densities, many U.S. metro areas reversed course in the 1990s and also grew inward (Ehrenhalt 2013). This partial recentralization trend was driven by three forces. The first was that the leading edge of the U.S. economy (as measured in terms of GDP per worker) had shifted away from manufacturing and toward high technology and advanced business services, two sectors that rely on agglomeration effects<sup>8</sup> to boost their competitiveness and productivity. The second was that many workers in these forefront industries, having grown up inhomogeneous and car-dependent suburbs were eager to experience the social diversity and range of living experiences offered by urban neighborhoods (Florida 2005). Last, after years of disinvestment, many older urban neighborhoods, especially those in which crime rates had visibly declined, were now perceived as offering excellent value for money in terms of mobility and housing accommodations. Soon enough, the bloom was off the rose, and by 2003, what had previously been welcomed as needed investment in long overlooked urban neighborhoods (Wyly and Hammel 1999) was now being criticized as exploitive gentrification (Atkinson 2003).

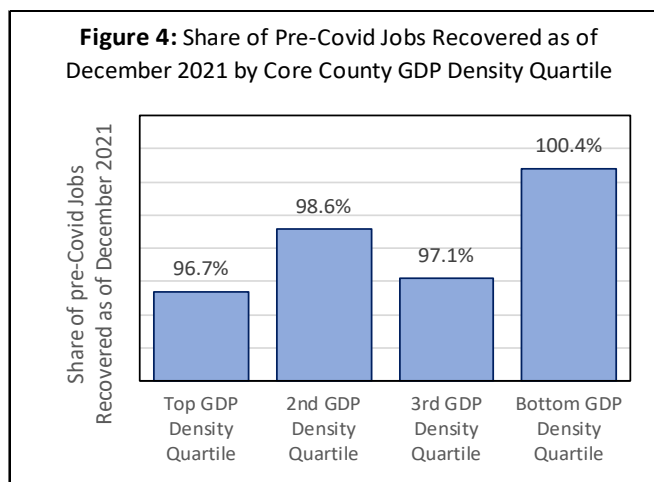
***Pre-Pandemic Recentralization Trends:*** Altogether, the nation's twenty-five largest core cities<sup>9</sup> (as of 1980) added 2.8 million new residents between 2000 and 2020. This was more than double the 1.2 million residents they added between 1980 and 2000.<sup>10</sup> Core city population growth was initially limited to selected

neighborhoods in New York City, Los Angeles, San Francisco, Boston and Seattle, but over time, it spread to other neighborhoods and other cities as well. This does not mean that U.S. metropolitan areas stopped suburbanizing. Especially among metro areas in the South, Southwest and Mountain regions where buildable land remained plentiful and inexpensive, it was still easier to find better quality housing at lower prices in the suburbs than in older neighborhoods.

The job recentralization picture was more selective. Collectively, the core counties<sup>11</sup> of the thirty largest U.S. urban economies added 3.6 million new jobs between January 2000 and January 2020, for a combined growth rate of 13.1%. Of those thirty, the core county job growth rate exceeded the metro area job growth rate in just seven: San Francisco, San Jose, Tampa, Washington, D.C, Boston, San Diego, and Philadelphia. As a result, the share of metro area jobs in core counties fell from 51% in 2000 to 47% in 2020. Employers were indeed returning to core cities, but many were also staying put and expanding in the suburbs.

**The Covid-19 Interregnum:** Covid-19 significantly diminished the rate of core city population and employment growth. Early worries that Covid might spread more quickly in denser neighborhoods led many better-resourced households to relocate from urban neighborhoods to suburbs and exurbs, and from high-density cities like New York and Los Angeles to lower density ones like Austin or Denver. According to the Census Bureau, the nation’s ten highest-density large cities lost half a million residents between 2020 and 2021, or 3% of their population.<sup>12</sup>

Did Covid-19 hit places that rely on agglomeration effects to fuel their economies harder than others? The answer would seem to be yes. As Figure 4 indicates, two years into the Covid pandemic, the top quartile of large urban counties ranked by gross domestic product (GDP) per square mile, a density-based measure of economic productivity, had recovered 96.7% of their pre-Covid jobs.<sup>13</sup> Those in the middle GDP-density quartiles had recovered 98.6% of their pre-Covid jobs, while those in the bottom quartile—the counties in which economic activity is the most spread out—had recovered 100.4%. These differences may not seem large, but at the level of individual places, they were and still are noticeable.



**Alternative Job Growth Futures:** If this Covid era density-related job growth penalty remains in effect, it means that the economies of some of America’s biggest cities will be in for tough times in the future. To put this issue into more concrete terms, we developed two sets of 2022-2030 job growth projections for twelve representative core counties<sup>14</sup>, three in each GDP-density category. Following the conventions established earlier, the first set of projections is based on Scenario A, which assumes that pre-pandemic job growth trends reassert themselves after 2022. The second set of projections is based on Scenario B, which assumes that Covid era trends continue to remain in effect through 2030. Specifically, Scenario A applies each county’s 2000-2019 annualized job growth rate<sup>15</sup> to the 2022-2030 period regardless of its GDP-density. By contrast, Scenario B reduces by 75% the 2000-2019 annualized job growth rate of counties in the highest GDP-density quartile; by



50% for counties in the second GDP-density quartile; and by 25% for those in the third quartile. Job growth rates for counties in the lowest GDP-density quartile remain unchanged from their 2000-2019 annualized average.

The results of these various 2022-2030 job growth projections are presented in Table 3. Even prior to Covid-19's arrival, job growth rates were lower among higher GDP-density counties like Los Angeles, Cook (Chicago) and Manhattan (New York City) than among lower GDP-density counties like Maricopa (Phoenix), Clark (Las Vegas) and Riverside. This is an indication that many types of businesses valued the lower land, building, and labor costs offered by lower GDP-density counties. Among the three counties in the highest GDP density quartile—Los Angeles, Cook and Manhattan—a reversion to pre-pandemic trends (Scenario A) will result in 2030 job numbers that are between 2% less (Cook County) and 5% more (Manhattan) than their comparable 2022 job numbers. For those same counties, a continuation of Covid era growth rates (Scenario B), would reduce 2022 to 2030 job growth rates to between -2% and +1%. Among counties in the lowest GDP density quartile, a reversion to pre-pandemic job growth rates (Scenario A) will result in a +12% (Maricopa) to +20% (Riverside) increase in jobs by 2030 compared to 2022 levels. Among those same counties, a continuation of Covid era job growth rates (Scenario B) would narrow the band of 2022-2030 job growth rates to +3% to +5%. The 2022-2030 job growth performance of the middle GDP density quartile counties mostly falls between these extremes.

**Table 3: 2030 Job Projections for Selected Core Counties based on Pre-Covid and Covid-era Job Growth Trends**  
Sources: U.S. Bureau of Labor Statistics, Federal Reserve Bank of St. Louis

GDP-Density Quartile	Core County & City	Private Sector Jobs (in thousands)				Projected 2030 Jobs as a Percentage of 2022Q4 Jobs	
		2000	2019Q4	2022Q4	2022Q4 Jobs as a Percent of 2019Q4 Jobs	Scenario A: Revert to Pre-pandemic Trends	Scenario B: Continue Covid era Trends
Very High	Los Angeles	3,864	4,009	3,888	97.0%	100.2%	100.0%
Very High	Cook (Chicago)	2,554	2,349	2,223	94.6%	97.8%	99.5%
Very High	Manhattan (New York)	2,081	2,344	2,107	89.9%	104.6%	101.1%
High	King (Seattle)	1,033	1,285	1,260	98.0%	109.0%	102.2%
High	Franklin (Columbus)	627	655	638	97.4%	102.6%	100.6%
High	Travis (Austin)	446	669	722	107.9%	116.1%	103.8%
Moderate	San Diego	1,052	1,271	1,252	98.6%	109.5%	102.3%
Moderate	Miami-Dade (Miami)	854	1,048	1,037	99.0%	106.4%	101.6%
Moderate	Bexar (San Antonio)	572	743	744	100.0%	113.6%	103.3%
Low	Maricopa (Phoenix)	1,354	1,918	1,954	101.9%	112.4%	103.0%
Low	Clark (Las Vegas)	639	942	923	98.0%	116.1%	103.8%
Low	Riverside	393	648	679	104.8%	120.2%	104.7%

Measured in absolute rather than percentage terms, the biggest differences in anticipated job growth between Scenario A (Revert-to-pre-pandemic trends) and Scenario B (Continue Covid era trends) would be among Manhattan (New York City), King (Seattle) and Travis (Austin) counties. All three counties are known to be attractive destinations for businesses and workers in knowledge-based industries.

***Planning and Policy Challenges and Opportunities:*** Before considering the various implications of these projections, we must acknowledge that trying to predict multi-year job growth at the level of a city or county is a particularly fraught endeavor. In addition to responding to macro-economic drivers like interest rates and aggregate demand, local job growth rates are determined by the production and investment decisions of individual businesses, by the intensity of competition between those businesses, by the local cost of doing business, and by the personal preferences of entrepreneurs and business leaders. None of these concerns are easily incorporated into the types of trend-based summary projections presented in Table 3. This qualification notwithstanding, there is still something to be said for applying a consistent and empirically-anchored forecasting methodology across geographic units which, while diverse, are all part of the same national economic system and all subject to similar macro-economic forces.

For the last quarter century, geographers and urban economists have insisted that the key to promoting the growth of good jobs lay in taking advantage of agglomeration effects by encouraging related businesses, especially those in knowledge-related industries, to cluster in so-called business innovation districts (Clark et al. 2010, Baily & Montalbano 2018; Krugman 2021). The productivity advantages associated with spatial clustering, it was thought, more than compensated for the higher land costs, building rents, taxes and labor costs that typically went along with being in such clusters.

Three years of Covid-19 should lead us to re-evaluate this presumption. As the data indicates, the urban economies that suffered least and recovered fastest from Covid-19 were not those with higher concentrations of knowledge-based industries and workers. Instead, they were those with plentiful supplies of developable land easily accessible by car, in which land use and business regulations were lightly applied, in which housing was more affordable relative to incomes, and where it was easy to start a business. And while it is true that tech companies such as Salesforce, Meta, Amazon and Zoom headquartered in places like San Francisco, Silicon Valley and Seattle saw their revenues skyrocket during the initial two years of the pandemic as businesses and their customers substituted online transactions for in-person ones, come 2022 and the beginnings of a return to normalcy, most have seen their revenues and share prices fall back to earth.<sup>16</sup>

These different trajectories and experiences have several important implications for economic development planners and policymakers. The first is that it is probably best to pursue a diversified strategy that promotes investments in modern suburban office parks as well as in center city innovation districts. The second is that the old adage about the virtues of industrial diversification is still valid, and that places that allowed themselves to become too dependent on a single business sector—whether it was internet and social media firms in San Francisco or warehousing and logistics facilities in Allentown, Pennsylvania—left themselves vulnerable to the dangers of overcapacity and macro-economic policy shifts. Third, it is important to remember that while tech industry spinoffs have high birth rates, they also have high takeover and mortality rates. This makes their role as long-term employment generators questionable, and means that from a local economic development perspective, it makes more sense pursuing policies that promote entrepreneurship in general than it does to try to create a tech-based startup culture. Finally, for companies themselves, when times get tough, not having to worry about high property or business taxes—or interest charges to cover the financing costs of a recent leveraged buyout—may be the difference between having to lay off 20 percent of your workforce or none at all.

***The Upshot:*** Covid-19 made clear the trajectory divergence between economies that rely on their cost-competitiveness to attract businesses and workers (and which are responsible for most of the nation's aggregate job growth) and those that rely on their attractiveness to amenity-seeking knowledge workers (which are pushing the economy forward in terms of innovation). A few metro areas, like Austin, Raleigh, and Denver have managed to do well on both counts.

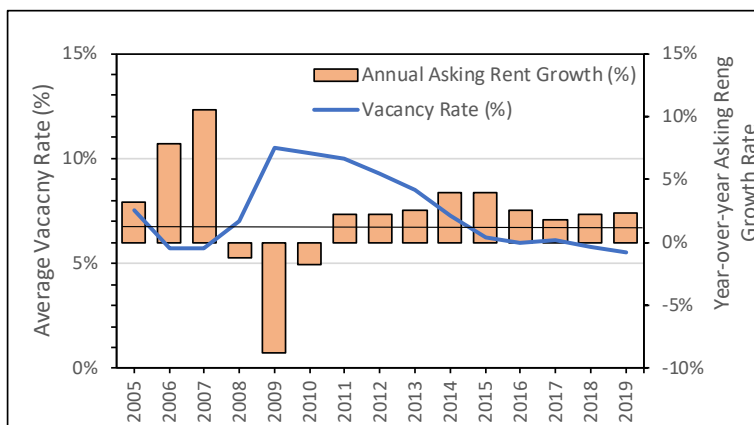
#### 4. OFFICE OCCUPANCY AND THE FUTURE OF WORK

Long before the Covid-19 pandemic emptied out downtown office buildings, economists and sociologists were engaged in a lively conversation about the future of work (West 2018). Their discussions centered on three questions. First, in a world in which human workplace tasks are constantly being automated, what will future workers do (Chiu et al. 2015; Bessen 2017)? That is, which occupations will grow, and which will shrink? Second, how much will future workers earn, and will it be enough to reverse a rising tide of income inequality (Acemoglu & Restrepo 2022)? Third, where will future workers actually work (Miller 2014; Harris 2015): at dedicated workplaces like personal offices or cubicles, at a desk in a shared office or workspace, or at home where they are linked to their co-workers and customers electronically? Covid-19 abruptly shifted the discussion from the first two questions to the third (Boland et al. 2020).

American labor markets have experienced three fundamental workplace transitions since the middle of the 19<sup>th</sup> century. The first, which started in the 1850s and extended through World War I, involved the shift from farming to manufacturing. The second, which started in earnest in the 1960s, involved the transition from manufacturing to business and financial services. The third, which involves mass digitization and shifting ever larger amounts of information from physical file cabinets (and later, from company and personal computers) to remote data servers (i.e., “the cloud”), began in the 1990s, but really took off in the early 2000s. Each transition involved a shift in where work was performed, first from farms and small towns to factories and cities, then from factories to office buildings, and now, from office buildings to wherever makes the most sense for a given task on a given day. Returning to our earlier question about the future of work and inequality, whereas the shift from farming to manufacturing was accompanied by a reduction in income inequality, primarily because of increasing factory unionization, the transition from factories to office buildings was accompanied by increasing inequality. What, if anything, might the current shift from office buildings to wherever mean for future income and wealth equality?

***Pre-Pandemic Trends:*** The 2010s saw the continuation of the long-term trend bifurcating America's work force into those who had completed college or graduate school and those who had not (Goldin & Katz 2010, Horowitz 2018). The former was more likely to work in a knowledge-based industry, earn a near six-figure salary, have a partner who had also completed college, have fewer children but a healthy retirement account, and live in a community with neighbors of similar socio-economic status (Brooks 2010; Peters 2013; Galster & Sharkey 2017). The latter were more likely to work with goods or people instead of information, earn less than \$60,000 per year, not be married or have a long-term partner, have more children but fewer savings than their college-educated counterparts, and have chosen their residential neighborhood because it provided a lot of house at a reasonable price.<sup>17</sup> Regardless of whether they were a company employee or an independent contractor, most of those in the college-educated cohort worked in an office building of some kind. And because their numbers were going up, so was the demand for office space—faster, in fact, than the supply of office space. As 2019 ended, despite developers having added half a billion square feet of new office space over the prior five years,<sup>18</sup> average asking rents were rising at more than two percent annually and vacancy rates were at 15-year lows. (Figure 5).<sup>19</sup>

**Figure 5: U.S. Office Market Vacancy Rates and Average Annual Rent Growth, 2005-2019** (Source: CBRE, 2022 Office Occupier Reports)



**The Covid-19 Interregnum:** Covid-19 upended America’s working and workplace habits in ways both big and small, with few feeling its effects more than office building occupants and owners. With office employers alternately encouraging and allowing their employees to work from home, overnight, daily office occupancy rates (measured as the number of people coming into the office for work instead of the share of office space with a signed lease) fell from around 90% in places like New York City<sup>20</sup> and San Francisco,<sup>21</sup> to less than 50%.

The fact that fewer office workers were coming to the office to work eventually made its way into official vacancy rate statistics. After starting out at 12.3% in the first quarter of 2020, office vacancy rates nationally rose to 16.8% in the third quarter of 2021, and then—in spite of effective Covid-19 vaccines having become available—to 17.1% in the third quarter of 2022 (Table 4).<sup>22</sup> Net office space absorption, which is the net amount of additional office space occupied each month or quarter, after having gone negative for most of 2020 and 2021, finally turned positive in the third quarter of 2021. (As of early 2023, it continues to bounce around between positive and negative territory.) As is always the case with office occupancies and rents, conditions vary widely among individual markets. According to the office brokerage and research firm JLL, of the 15 U.S. office markets with at least 100 million square feet of inventory, as of October 2022, vacancy rates still exceeded 20 percent in all but five. No part of the country was spared. In Houston, the 2022Q3 office vacancy rate stood at 25.7%; in Phoenix, it stood at 24.4%; in suburban New Jersey, it stood at 24.3%, in San Francisco, it stood at 24.4% in Chicago, it stood at 22.3%; and in Washington, D.C, it stood at 20.7% (JLL Research 2022).

Assuming a normal vacancy rate<sup>23</sup> of ten to fifteen percent depending on the market, the total amount of excess office space in the U.S. at the end of 2022 stood at between 200 and 400 million square feet. At a pre-Covid average absorption rate of 15 million square feet per year nationwide, it would take 12 to 25 years to bring office vacancy rates back into what is considered a normal range. If the past is any guide, some of this unused office space will eventually be withdrawn from service or converted to another use. We note also that these vacancy estimates apply only to office space available for lease and do not account for the much larger volume of space that is currently leased but unoccupied. According to the job placement firm Zippia.com, as of October 2022, just 49% of remote office workers nationwide had returned to their workplaces on a full-time basis.<sup>24</sup>

**Table 4:** Selected US Office Markets: 2030 Vacancy Rate Projections based on Pre-Covid and Covid-era Occupancy Trends

Metropolitan Area Office Market (listed by size)	2022 Office Inventory (000 sqft) <sup>1</sup>	2022Q3 Vacant Space (000 sqft) <sup>2</sup>	2015-2019 Avg. Yearly Net Absorption (000 sqft) <sup>3</sup>	Office Market Vacancy Rate			
				2019 <sup>3</sup>	2022Q3 <sup>1</sup>	2030F Scenario A Projections <sup>4</sup>	2030F Scenario B Projections <sup>5</sup>
New York City	464,100	71,471	0	8%	15%	15%	15%
Washington, DC	353,200	73,112	900	14%	21%	19%	20%
Chicago	267,800	59,452	900	14%	22%	20%	21%
Dallas-Ft. Worth	213,300	51,832	3,500	19%	24%	11%	18%
Los Angeles	194,600	41,450	500	18%	21%	19%	20%
Houston	192,600	49,498	1,800	19%	26%	18%	22%
Atlanta	176,400	37,750	1,000	18%	21%	17%	19%
Northern New Jersey	169,700	41,237	700	13%	24%	21%	23%
Boston	168,100	29,922	400	5%	18%	16%	17%
Philadelphia	148,500	27,176	1,250	11%	18%	12%	15%
Denver	127,200	26,203	2,000	17%	21%	8%	14%
Seattle	120,100	19,096	1,000	6%	16%	9%	13%
San Francisco & San Mateo	119,900	21,900	1,250	11%	18%	10%	14%
Baltimore	100,900	16,749	300	13%	17%	14%	15%
Orange County (California)	100,700	15,709	250	12%	16%	14%	15%
Minneapolis-St. Paul	99,800	18,862	450	15%	19%	15%	17%

*Data sources and notes:*

1. JLL Research
2. Calculated from 2022Q3 vacancy rates
3. As reported in CBRE, Cushman Wakefield and JLL Research market reports
4. Assuming annual net absorption rates for the 2022-2030 mirror those for the 2015-2019 period.
5. Assuming annual net absorption rates for the 2022-2030 are 50% of the 2015-2019 period.



Longer term, Covid-19 may have an even bigger effect on office demand with many of America's largest companies having announced plans to permanently shift some of their workers to hybridized schedules in which employees work a few days each week at the office and the remainder from home. As workers leave or retire from their jobs, they are increasingly being replaced by part-time or full-time contractors who do not require company-provided permanent office space. Over time, and despite more workers than ever doing desk work, the combination of hybridized work schedules and fewer full-time office employees may very well lead to a decline in total office demand. This does not mean that no additional office space will be needed—even before the Covid-19 pandemic, a “flight to quality” movement was occurring in which top tier tenants were seeking out more technologically capable office space—but it does mean that the supply of capital available to office developers, and thus the pipeline of new office construction, is likely to shrink dramatically. Looking even further ahead, Covid's effects on secondary school outcomes in terms of how ready graduating high schoolers are to take on college-level work (and the need for remedial instruction) may have additional follow-on effects on the quality of America's office work force, whether they work in an office or not (Krishnamoorthy & Keating 2021).

***Alternative Office Occupancy Futures.*** The method usually used to project office space demand involves converting projected job growth into projected office occupations, and then, using occupation-based office-space-per-worker ratios, calculating occupation-specific office demand. These projections are then summed across occupations and business sectors and compared to current office inventory estimates net of any office space replacement and upgrading needs. This method works well when its key ratios are stable, but is ill-suited for use when, as in present circumstances, they are in flux.

With this caveat in mind, rather than trying to forecast 2030 office demand by city or metro areas, we focus instead on office occupancy, using the same Scenario A and Scenario B conventions employed earlier. In Scenario A, the revert-to pre-pandemic trends scenario, we assume that all office workers currently working at home eventually return to their office workplaces full-time and that annual net absorption rates mirror those for the 2015-2019 period. In Scenario B, the Covid era continuation scenario, we assume that only 75% of office workers return to the offices full-time, and that as a consequence, annual (net) office absorption will be only half of what it was during the 2015-2019 period. Given all the uncertainties as to how Covid-related office market disruptions resolve themselves, both the 75% office worker return rate and the 50% net absorption rate assumptions used in Scenario B should be regarded as indicative rather than predictive. Nevertheless, they serve as useful framing points around which to consider how different macro office market trends might resolve themselves at the local level.

The results of this forecasting exercise, as presented for the fifteen largest U.S. office markets in Table 4, reveal just how disruptive the Covid-19 pandemic has been to the office sector and just how difficult it will be for it to recover. Consider the cases of Seattle, Chicago and Houston. With a vacancy rate of just 6%, Seattle had the tightest office market in the country in 2019 thanks to the robust performance of its tech sector. That performance notwithstanding, by the third quarter of 2022, Seattle's office market vacancy rate had risen to 16%. Assuming office absorption rates revert to their pre-pandemic levels (Scenario A) and that there is no additional new construction, by 2030, Seattle's office market vacancy rate will have declined to 9%, which is still 50% higher than it was in 2019. In a less optimistic world, if instead of all office workers returning to their offices, just 75 percent do (Scenario B), instead of 9%, Seattle's office vacancy rate in 2030 would be 13%.

Houston sat at the other end of the office vacancy spectrum in 2019 with an office vacancy rate of 19%, which, by the third quarter of 2022, had grown to 26%. Assuming occupancy and absorption rates recover to pre-pandemic levels (Scenario A), by 2030, Houston's office vacancy rate will have fallen to 18%. Assuming instead that a considerable number of Houston office workers continue to work from home (Scenario B), by 2030, Houston's office vacancy rate will have declined just four percentage points to 22%.

With a 2019 office vacancy rate of 14%, the Chicago office market was more typical of the rest of the country than the go-go Seattle market or the always-overbuilt Houston market. Covid-19 hit the Chicago office market especially hard, pushing its office vacancy rate up eight percentage points to 22% by the third quarter of 2022.

Because Chicago's economy is weak by national standards, assuming it recovers to its pre-pandemic occupancy and absorption levels (Scenario A), by 2030, Chicago's office vacancy rate will still be 20%. Alternately, assuming many of those in Chicago's office workforce continue working from home (Scenario B), its 2030 office vacancy rate will fall hardly at all from current levels.

These three groups of projections, as well as the others summarized in Table 4, are subject to two important qualifications. First, they assume that if there is any additional office construction between 2022 and 2030, it will be accompanied by the equivalent withdrawal of older office space. Second, if the past is any indication, some office markets (e.g., Denver, Seattle, Atlanta) are likely to recover faster than others. Other office markets such as San Francisco's will face challenges unique to their own economies and may recover more slowly. Still other office markets such as New York City's are less a single unified market and more a series of overlapping sub-markets, and what happens in one submarket will have selective spillover effects in others.

***Planning and Policy Challenges and Opportunities:*** As with most real estate market projections, we assume that supply responds to demand rather than leading it; and that if there is truly a demand for new or diverse types of office space, developers will provide it. Likewise, if the demand for office space shrinks, existing office owners will find some other use (including potentially, demolition and redevelopment) for their excess space. Neither of these assumptions is strictly true. Office buildings can take a long time to get approved and built and it is not uncommon for supply to get ahead of demand. Likewise, unoccupied office buildings can sit empty for many years until their owners finally figure out what to do with them. Finally, as the trend projections presented in Table 4 remind us, there is no unified national office market. Whereas office space may be in short supply in some markets, in others it may go begging.

With these caveats in mind, we can say with some assurance that U.S. office markets will remain in flux for the next few years as building owners struggle to navigate the changing office job market. In some markets--New York City and San Francisco immediately come to mind--there is likely to be an excess of downtown office space, and officials should begin the job of loosening local zoning controls so that the excess space may find other productive uses (Van Nieuwerburgh 2023). There will be other markets where pressures to reduce excess inventory will lead to an increase in demolition applications. Local officials should regard such requests carefully, and before granting them, should make sure there is a realistic and financeable site reuse plan in place. In suburban municipalities, local planners should begin developing housing-based reuse plans for older and half-empty office parks, many of which will be financially difficult to upgrade and re-tenant. Elsewhere, as expiring leases come up for renewal in downtown and suburban locations, there will be a flight to quality and, like the children's game of musical chairs, a disconcerting reallocation of office tenants between old and new office buildings. This too will create positive reuse and re-tenanting opportunities that local officials should be ready to take advantage of.

Whatever forms they take, shifts in office occupancy are likely to have significant spillover effects, especially on municipal budgets. Cities whose budgets are dependent on commercial property tax revenues or sales tax revenues derived from daytime office worker spending, or, in a limited number of cases, on city income tax revenues, should begin looking for ways to rebalance their revenue sources and expenditures. Similarly, cities that were expecting future office development projects to anchor local redevelopment efforts may have to cut back on their plans, or else be willing to provide additional development incentives. For much of the last 50 years, local officials have paid inordinate attention to how proposed development projects impact local budgets. This has resulted in the approval of overly large, single-use development projects that diminish rather than expand opportunities for work-leisure-residential interactions. Looking forward, planners should use the emergence of the hybrid office-home work model as an opportunity to push for a more granular and neighborhood-specific mix of land uses and activities.

***The Upshot:*** In light of what looks to be a permanent shift to more flexible work arrangements, owners of large office buildings in both downtowns and suburban business parks will continue to face persistent tenanting challenges and should be open to alternative reuse and redevelopment opportunities. The municipalities in

which these properties are located will need to become more flexible with regards to how they regulate and encourage future land uses.

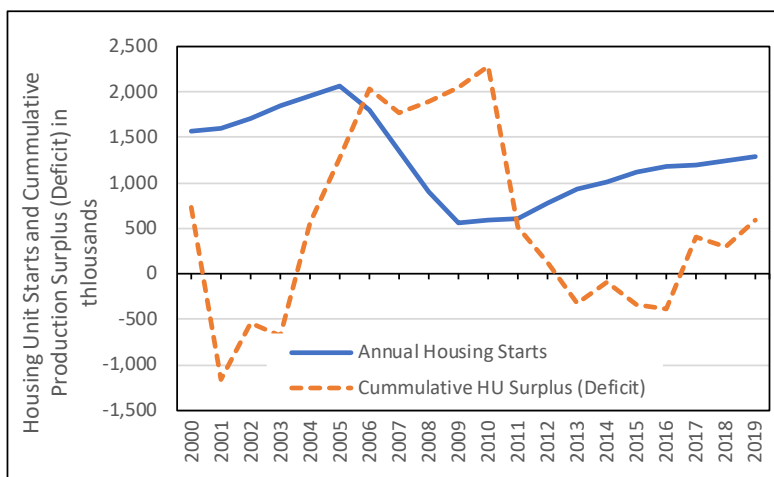
## 5. HOUSING AND HOMELESSNESS

The U.S. is currently suffering from an acute housing shortage brought on by a shortfall in new home construction, and in the rental market, by a worsening affordability situation that is exacerbating longstanding eviction and homelessness issues (Harvard Joint Center 2020, 2021, 2022). The origins of these problems predate Covid-19 but the pandemic has aggravated them while also revealing the inadequacies of the nation's fragmented and piecemeal approach to meeting its pressing housing needs.

***Pre-Pandemic Trends:*** U.S. housing markets have long been vulnerable to boom-bust cycles brought on by shifting demographics, gyrating mortgage rates, and by off-and-on periods of price speculation. These problems have been exacerbated in recent years by a lack of development sites approved for housing construction and by increased local opposition to both infill and suburban housing development. U.S. homebuilders started the 2000s building an average of 1.8 million new homes each year, just enough to keep up with population and household growth. New home starts began slowing in 2006 and then, with the arrival of the Great Recession in December 2007, stopped altogether. After a four year lull, construction activity picked up modestly in 2012, but over the course of the next four years, U.S. homebuilders managed to build just 0.8 million units each year, far less than what was needed to house the country's growing population (Figure 6). By the end of 2016, the nation's cumulative housing production deficit had reached nearly 400,000 units. The mix of new homes being produced also swung back and forth, tilting toward single-family homes during the 2000-2010 years, and then back to multi-family construction during the 2011-2019 period.<sup>25</sup>

Production swings were matched by price swings. After growing at a 10 percent yearly rate between 2000 and 2006, housing prices fell at a 4 percent annual rate through 2011. They finally began rising again in 2013, and once underway, the recovery proved both durable and robust. Altogether, a house that sold for \$200,000 in January 2000 would have resold for \$425,000 in December 2019, an increase of 112%. Despite the rise in prices, with mortgage interest rates at record lows, millions of Millennial and Gen-Z renters found themselves able to buy a home, and the resulting renter-to-homeowners shift, plus a steady supply of new apartment units, helped keep a lid on rents. According to the U.S. Department of Housing and Urban Development (HUD), the median apartment rent nationally in 2019 stood at \$1,062. For renters who earned more than \$43,000 annually, this was well below the 30 percent rate that the U.S. Department of Housing and Urban Development (HUD) determines constitutes an excess rent burden.

**Figure 6:** U.S. Annual Housing Starts & Cumulative Surpluses (Deficits), 2000-2019 (Source: U.S. Census Bureau, Annual Housing Starts)

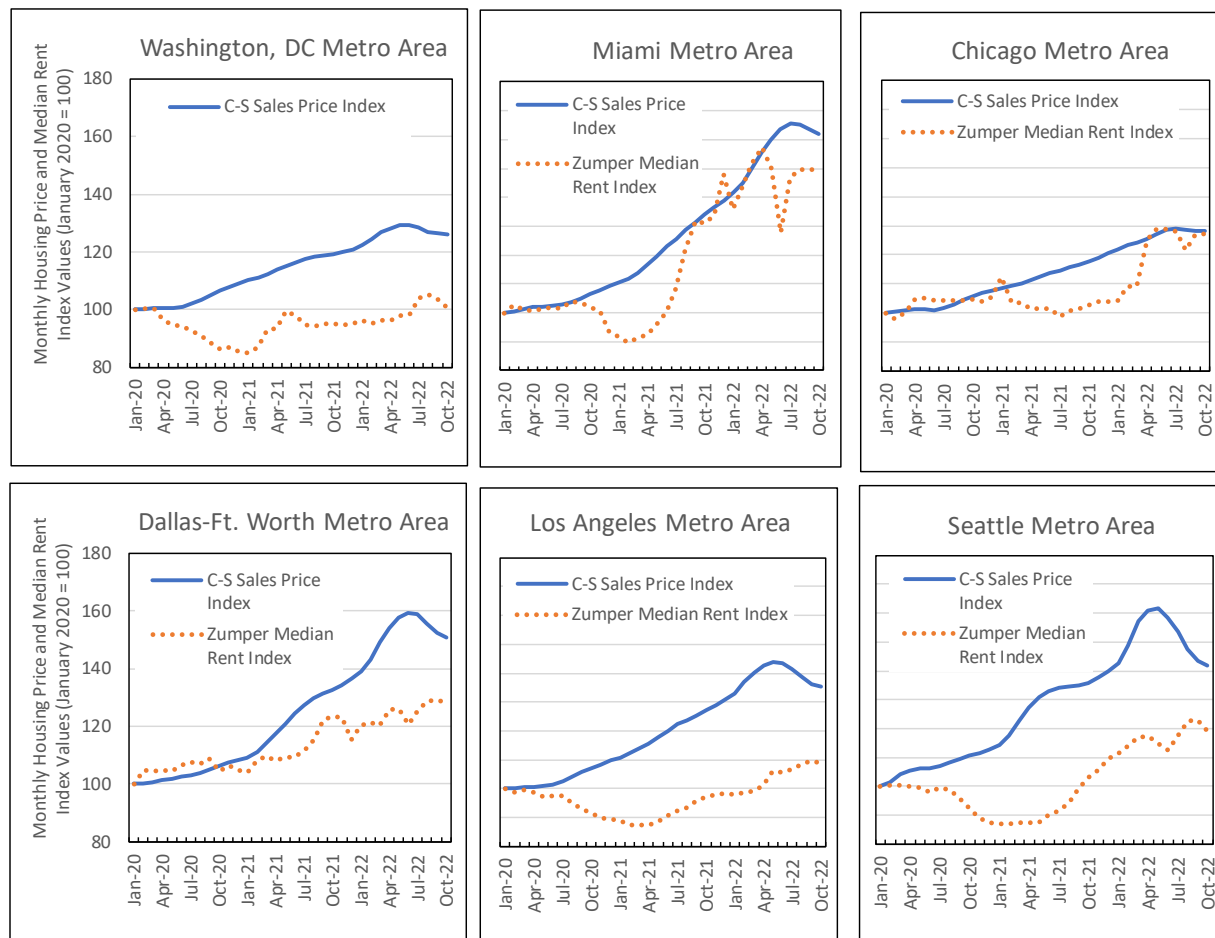


As with every other demographic or economic trend described in this paper, housing price and rent trends vary locally. According to the S&P/Case Schiller Repeat Sales Index, between January 2000 and January 2020, housing prices in Los Angeles rose by nearly 200%, whereas in Cleveland, they rose by just 28%.<sup>26</sup> Rents varied similarly. According to the rent-tracking website Zumper.com, the median monthly rent for a two-bedroom apartment in Los Angeles in October 2019 was \$3,250.<sup>27</sup> Across the country in Cleveland, it was just \$1,200.<sup>28</sup>

**The Covid-19 Interregnum:** Covid up-ended local housing markets in ways both big and small. On September 4, 2020, citing the threat to public health, the Centers for Disease Control (CDC) imposed a temporary ban on evictions, enabling renters and homeowners who had lost their jobs to remain in their homes and apartments.<sup>29</sup> Protected from eviction, some renters stopped paying rent, which cut sharply into landlord incomes. Significant numbers of young and single renters living in expensive markets like New York City, Washington D.C., San Francisco and Los Angeles relocated to less expensive cities in the Southeast and Southwest or moved in temporarily with relatives. Fearful that Covid spread more easily in cities, families with children relocated to the suburbs. Unsure of where the housing market might be heading, homebuilders and developers stopped building, and the combination of near-zero mortgage interest rates<sup>30</sup> and a shortage of new supply caused home prices to move broadly upward. Rents went the other way, falling sharply during the first year of the pandemic, but then leveled off as renters began tentatively returning to cities in early 2021. By early 2022, rents in most U.S. cities were at or above their January 2020 levels.

The timing and size of these price and rent swings varied widely. (Figure 7). Housing prices in Miami, Dallas and Seattle rose faster and to higher levels than housing prices in Washington D.C., Chicago, and Los Angeles; before declining modestly during the summer of 2022 when higher mortgage rates kicked in. At the end of 2020, the rent for a two-bedroom apartment in Washington, D.C., Miami, Los Angeles, or Seattle had declined to about 85% of its pre-pandemic level. Eighteen months later, those same apartments in Miami and Seattle were renting for 30% to 40% above their pre-Covid highs. In Dallas and Chicago, by contrast, rents never fell, even during the pandemic's height.

**Figure 7:** Case-Schiller Repeat Sales Housing Price and Zumper.com 2-bedroom Median Rent Index Values (by month) for Six U.S. Metro Areas, January 2020 - October 2022



For many homeowners and renters, these price and rent swings were more of a hassle than a true impediment. Steady housing price growth between 2016 and 2020 had enabled many homeowners to build a strong equity position while pandemic-related income assistance and anti-eviction programs helped many renters deal with rent gyrations. As always, the group hit hardest was low-income renters on the verge of homelessness. While HUD’s national surveys showed sheltered homelessness falling by 8% between 2020 and 2021,<sup>31</sup> many locally-conducted continuum of care counts revealed homelessness to be rising, especially in California.<sup>32</sup>

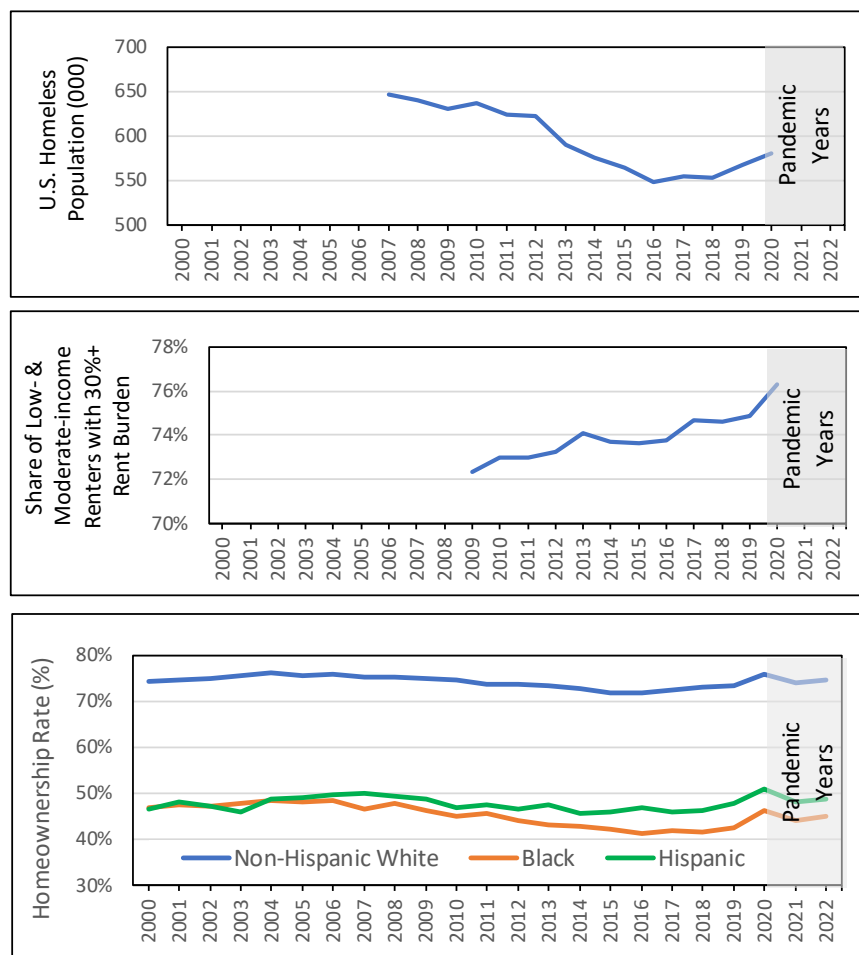
**Alternative Housing Futures:** With things playing out differently in every housing market, figuring out what it all adds up to is a challenge. Still, at the end of the day, three housing outcomes matter more than others. First, how many people are homeless or lack physically adequate housing? Second, how many households, especially low-income renter households, must pay a burdensome share of their income for rent? And third, is homeownership increasing or decreasing, and for whom? Figure 8 provides current (as of January 2023) trend data for each of these questions, laying the groundwork for thinking about post-Covid housing futures.

Homelessness first. The number of Americans counted as homeless by HUD declined continuously from 647,000 in 2007 to 553,000 in 2018 before rising slightly to 580,000 in 2020, the most recent year for which national counts are presently available. If this trendline continues (Scenario A), by 2030, the number of homeless Americans would decline to 525,000. If instead of extrapolating from the 2007-2020 trendline, we use more



recent 2018-2020 homelessness counts (Scenario B), the number of homeless Americans by 2030 could potentially reach 700,000.

**Figure 8:** U.S. Homelessness (top panel), Excess Rent Burden (middle panel) and Homeownership Rate (bottom panel) Trends, 2000-2022 (Sources: U.S. Department of Housing and Urban Development; American Community Survey)



In terms of rental housing cost burdens, according to the American Community Survey (ACS), the share of low and moderate-income renter households nationwide with excess cost burdens (i.e., renter households with incomes below \$35,000 who paid 30 percent or more of their income for rent) rose continuously from 72.3% in 2009 to 76.3% in 2020. If this upward trend were to continue (Scenario A), by 2030, the number of cost-burdened low and moderate income renter households will be between 14 and 15 million. To put this figure into context, it is three times the number of households currently receiving federal rental housing subsidies.<sup>33</sup> Interestingly, because Covid-19 relief funding resulted in a reduction in poverty—albeit a temporary one--2030 rental cost burden projections based on 2020-2022 data would be lower than those based on 2009-2020 data.

After rising steadily during the 1990-2005 period (and then falling between 2007 and 2010), homeownership rates since 2010 have fluctuated within a narrow range, albeit one that varies by race and ethnicity. For non-Hispanic whites, annual homeownership rates since 2010 have varied between 73% and 75%. For Blacks, they have ranged between 42% and 46%. For Hispanics, homeownership rates have been trending slightly upward, reaching 51% in 2020. Homeownership rates for all three groups were down slightly in 2021 (compared to

2020), and then up slightly in 2022. Assuming pre-pandemic era trends continue (Scenario A), white homeownership rates will likely stay in the 74% to 76% range through 2030; Black homeownership rates will likely remain in the 44% to 45% range; and Hispanic homeownership rates will continue trending upward, possibly reaching 52% or 53% by 2030.

The biggest uncertainties around future homeownership rates have less to do with post-Covid housing demand and more to do with inflation and Federal Reserve interest rate policies. If the Fed succeeds in bringing inflation under control by the end of 2023 and can stop increasing interest rates, then there should be little long-term change in homeownership rates one way or another. By contrast, if inflation remains a problem into 2024 (and beyond) and the Fed is unable to lower rates, then by 2030, we should expect to observe a slight decline in homeownership rates, especially among Black and Hispanic households who have fewer resources to tap into for a down payment.

***Planning and Policy Challenges and Opportunities:*** There is little in the 2021 federal Bipartisan Infrastructure Law or the 2022 Inflation Reduction Act to help housing; and with Republicans in control of the House of Representatives at least until 2024, there is no prospect for increased federal spending on homelessness, low-income rental subsidies, or affordable housing construction. And while many big city mayors in recent years have campaigned on building more affordable housing and reducing homelessness,<sup>34</sup> so far, none have put forth a fully-funded and credible plan for doing so. The one good piece of news is that an increasing number of cities and suburbs are re-evaluating how their local zoning and planning codes mitigate against new housing construction, both in terms of limiting new housing construction and residential densities (Flint 2023). New York City Mayor Michael Bloomberg kicked things off in the 2010s by residentially upzoning significant portions of Manhattan, Brooklyn and Queens. In 2018, the Minneapolis City Council approved a new long-term housing plan, dubbed Minneapolis 2040, that allowed property owners to build duplexes and triplexes on sites currently zoned for single-family homes.<sup>35</sup> Portland went Minneapolis one better in 2020, allowing the by-right construction anywhere in the city of four to six housing units on parcels zoned for single-family housing. Numerous other cities around the country have enacted laws making it easier to construct accessory dwelling units (e.g., ADUs, also known as “granny units”) and in September 2021, California Governor Gavin Newsom signed SB 9 streamlining the approval process for property owners wanting to build a duplex or additional unit on their single-family home site.

New York City' zoning changes have been in place long enough to observe that they are having a positive (but small) effect on overall housing supplies, but the housing supply and affordability effects of zoning law changes in Portland, Minneapolis and California have yet to be determined. In terms of local efforts to preserve or expand the supply of affordable housing, a growing number of cities across the U.S. have introduced inclusionary zoning requirements mandating that market-rate housing developers include a minimum proportion of affordable housing units in their projects. Except in Montgomery County, Maryland, which adopted its inclusionary zoning law in 1973, the housing supply benefits of these requirements have all been small (Bento et al. 2009).

***The Upshot:*** Federal housing officials and economists and planners working for organizations like the National Association of Homebuilders and the National Low-income Housing Coalition are highly proficient at identifying America's current and future housing construction and low-income housing needs, but so far, they have been unable to persuade Congress or state and local legislative bodies to increase their low-income tenant assistance funding levels or to remove local impediments to needed housing construction. Unless and until more state legislatures do what California's has done and make it easier for developers and owners of existing properties to moderately increase local housing densities by right in appropriate locations—and California's changes are still too recent to have had any effect—little is likely to change in terms of how the U.S. supplies both market rate and affordable housing. Without changes on the supply side, future housing prices and rents will continue to be shaped by shifting interest rates and by local population growth and gentrification trends.

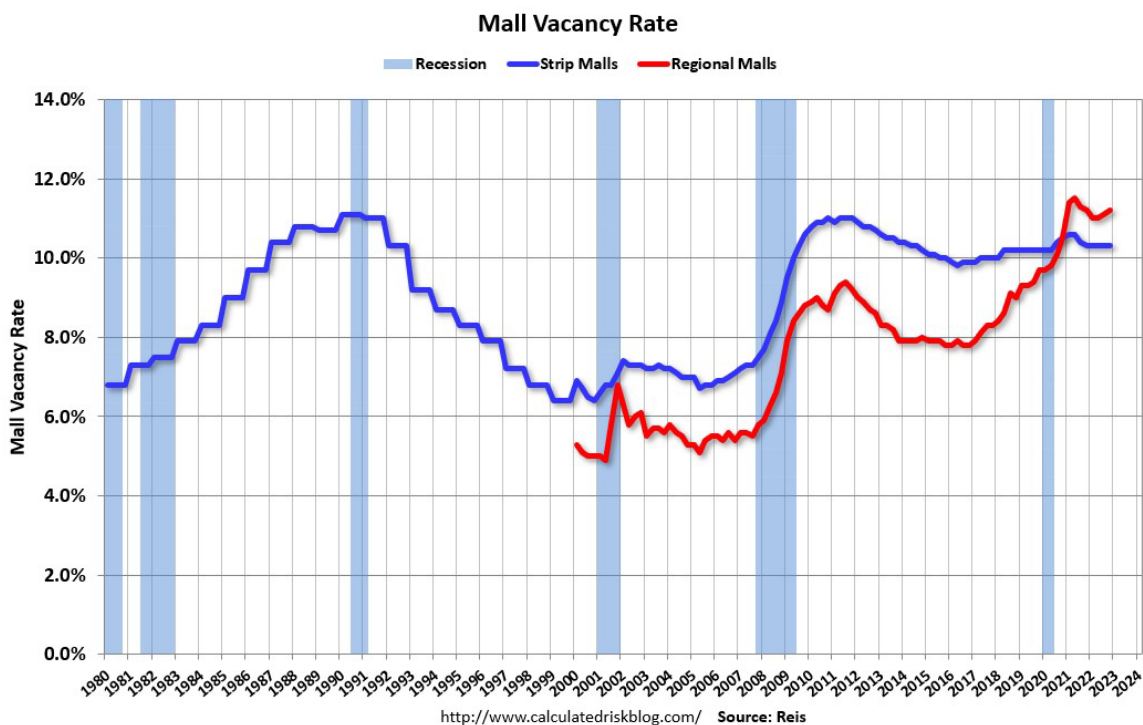
## 6. RETAIL SPENDING AND SHOPPING CENTER TRENDS

Every thirty years or so, American retailing enters a period of accelerated change in which one retail format supplants another. This succession process occurs incrementally as newer retail forms and spaces grab market share from older ones. In the early 20<sup>th</sup> century, general stores and main street shops gradually gave way to supermarkets and department stores as the places most Americans did their regular food and durable goods shopping. Suburban supermarkets with large parking lots began proliferating in the late 1940s and indoor regional shopping malls (with even more parking) arrived en masse in the late 1950s. So-called “power centers” full of big box retailers began taking market share from malls in the early 1980s, and in the early 2000s, many Americans started regularly shopping online. Each of these retail transitions has offered shoppers greater convenience, choice and value-for money; and for retailers, they have offered additional branding and marketing opportunities. More broadly, the process of retail succession should be seen one in which wider producer-to-consumer channels replace narrower ones, thereby providing shoppers with new opportunities to express their continually-shifting (and advertising-manipulated) preferences.

***Pre-Pandemic Trends.*** New retail forms rarely replace old ones immediately or on a one-for-one basis. Instead of underperforming retailers serenely exiting the stage, most stick around until the store owner retires or loses interest, or, if a national chain, until a cash crunch forces a round of store closures. This manifests itself in the marketplace as an overhang of unoccupied retail space—typically about 10 to 20 percent—until such time as the excess is shuttered permanently or repurposed in a different use. During the 1970s and 1980s, this retail filtering process was mostly limited to traditional downtowns and obsolete strip centers, but starting around 2000, it also began afflicting regional shopping centers and malls as well. According to REIS, a national property data and analytics company owned by Moody's, regional mall vacancy rates rose from a national average of 5% in 2000 to 9% in 2011 (Figure 9). Mall vacancy rates declined slightly with the end of Great Recession, but then rose again in 2019 to just under 10%. Part of the reason for the vacancy rate rise was that retail developers were continuing to build new shopping centers. Based on data provided by the International Council of Shopping Centers, researchers at the banking research firm UBS put the number of U.S. shopping centers in 2020—including strip centers, malls, outlet and other lifestyle centers — at 115,000. This was up from 112,000 in 2010 and from 90,000 in 2000. Based on these estimates and the projected growth in online sales, and without taking Covid-19 into account, UBS researchers estimated that 80,000 stores, or roughly 9% of U.S. retail establishments might have to close by 2026.<sup>36</sup> This weeding out process is expected to play out at different rates and in different ways in different places, with the biggest declines projected to occur in the middle-to-lower end of the market in which years of easy borrowing resulted in too much new retail space being built.

***The Covid Interregnum.*** Before exploring how Covid-19 changed where shoppers spent their retail dollars, we look at how it changed what they purchased. According to the Bureau of Labor Statistics' Consumer Expenditure Survey, compared to 2019, American shoppers in 2021 spent an average of 21% more on household furnishings, 9% more on entertainment, and 5% more on homeownership-related expenditures (Table 5). Among the items Americans spent less on in 2021 than in 2019 were public transportation (-46%), education (-20%), eating out (-19%), clothing and apparel (-12%) and alcoholic beverages (-10%).

**Figure 9: U.S. Mall Vacancy Rates, 1980-2022 (Source: Estimates and Image from REIS)**



In terms of how Americans households reallocated their shopping budgets, the biggest shifts in spending patterns between 2019 and 2019 were in the categories of food-away-from home (down 0.9 percentage points as a share of household budgets), mortgage-related expenses (up 0.6 percentage points), household furnishings (also up 0.6 percentage points) and public transportation (down 0.5 percentage points). When added up, these tell two basic stories about how the Covid-19 pandemic changed household spending patterns. The first is that Americans stayed home much more during the Covid-19 pandemic, substituting spending on home furnishings and TV streaming services for eating out and entertainment. The second is that changes in spending patterns were fairly consistent across household income categories. Compared to their pre-Covid spending patterns, households in the bottom fifth of the income distribution spent slightly more in 2021 on alcoholic beverages, apparel, vehicle operating expenses and personal care than households in the top fifth, while those in the top fifth spent more buying new vehicles.

The big Covid-related change was not in what people bought but in where and how they shopped. According to the Census Bureau, online retail sales in the U.S. increased from \$578 billion in 2019 to more than \$1 trillion in 2022, rising from 10.7% of total retail sales in 2019 to 14.8% in 2022 (Figure 10). Amazon, by itself, accounted for roughly 37% of U.S. e-commerce sales in 2021.

Most of the decline in bricks-and-mortar retail sales occurred at regional malls. According to researchers at REIS, regional mall vacancy rates rose nationally from 9.75% in 2019 to 11.5% by the middle of 2021. Depending on the individual retailer, this both over-estimates and under-estimates how big a sales hit mall retailers took in 2020 and 2021. Retailers like Walmart, Target, and Costco that were able to devote additional floorspace to groceries and home products saw their foot traffic and sales-per-square foot totals rise. On the other hand, with no one buying clothes for work, traditional department stores and men’s and women’s apparel stores—a sector already in trouble—saw their sales continue declining.

**Table 5:** Household Spending Trends by Expenditure Category and Household Income Quintile, 2019-2021  
 Source: Bureau of Labor Statistics Annual Consumer Expenditure Survey

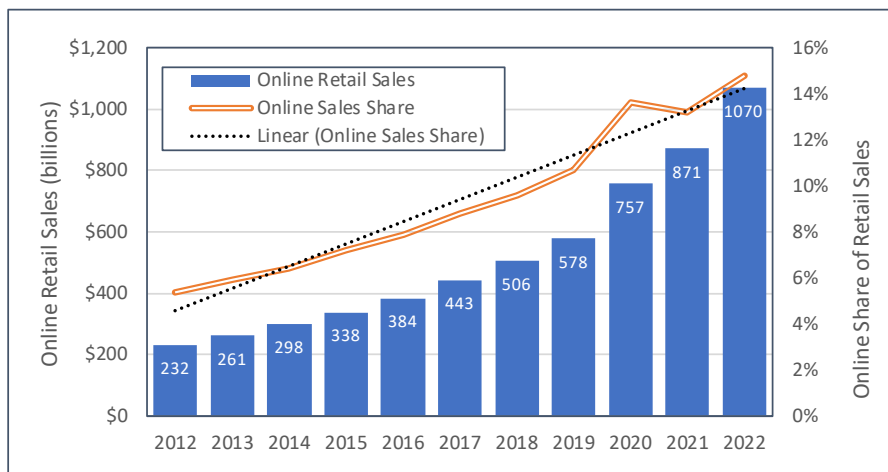
Income and Spending Categories (listed by spending amount)	2021 Average Annual Spending per Household (All Surveyed Households)	Percent Change in Income or Spending by Spending Category, 2019-2021 (adjusted for inflation)		
		All Surveyed Households	Bottom Income Quintile of Surveyed Households	Top Income Quintile of Surveyed Households
Income before taxes	\$87,432	-0.8%	9.0%	-0.7%
Income after taxes	\$78,743	-1.2%	28.9%	1.5%
<b>Average annual expenditures</b>	<b><u>\$66,923</u></b>	<b><u>-0.2%</u></b>	<b><u>4.8%</u></b>	<b><u>-1.2%</u></b>
Homeownership-related expenses <sup>1</sup>	\$7,591	5.0%	0.2%	-2.2%
Vehicle operating expenses	\$5,682	-4.1%	4.6%	-8.8%
Healthcare	\$5,452	-1.3%	9.4%	0.8%
Food at home	\$5,259	0.0%	16.6%	8.2%
Vehicle purchases	\$4,828	3.3%	-16.6%	3.3%
Rent and rental expenses <sup>2</sup>	\$4,684	-0.7%	7.0%	3.1%
Utilities & public services	\$4,223	-2.1%	7.1%	-6.2%
Entertainment	\$3,568	8.5%	9.8%	5.0%
Food away from home	\$3,030	-19.2%	-14.5%	-18.7%
Household furnishings	\$2,701	21.0%	30.1%	20.6%
Household operations & supplies	\$2,441	0.5%	4.7%	-8.1%
Apparel & related	\$1,754	-12.4%	24.7%	-13.4%
Education	\$1,226	-20.1%	-30.4%	-14.3%
Miscellaneous	\$986	3.1%	1.2%	-0.6%
Personal care products & services	\$771	-7.8%	6.2%	-13.5%
Alcoholic beverages	\$554	-10.1%	0.8%	-1.9%
Public transportation	\$452	-45.6%	-53.3%	-44.8%

*Notes:* 1. Applies to homeowners only; 2. applies to renters only

These trends are reflected in the stock prices of leading U.S. retailers and shopping center owners (Figure 11). Amazon, America's largest internet retailer as measured by sales, saw its stock price rise by almost 1000% between January 2015 and January 2022.<sup>37</sup> The nation's largest retailer, Walmart, which owns and operates its own standalone physical stores as well as sells over the internet, saw its stock price rise by 97% over the same period. Two other large standalone retailers, Home Depot and Target, saw their share prices rise by 280% and 324%, respectively. Mall stores and owners did not perform as well. Macy's, the nation's largest mall-based department store retailer, finished 2022 with a share price that was half its 2015 level. Simon Properties, which owns a financial interest in more than 180 U.S. malls and is the nation's largest mall owner, saw its stock price fall from \$96 per share in January 2020 to \$61 per share in January 2021, before climbing back to \$120 per share in January 2022. The share price for Kimco, another large US mall owner, followed a similar trajectory, falling from \$93 per share in January 2020 to \$79 per share in January 2021, and then rising to \$131 per share in January 2022.

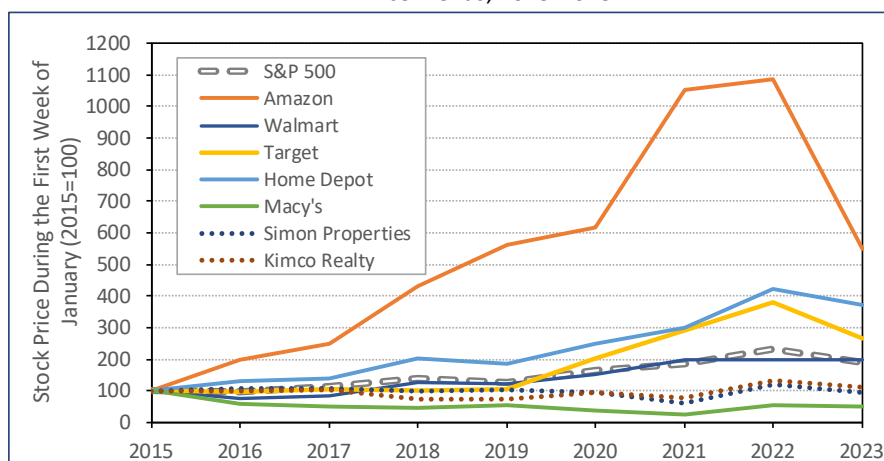


**Figure 10: Online Retail Sales as a Share of Total Retail Sales, 2012-2022**



**Source:** U.S. Census Bureau. “Quarterly Retail E-Commerce Sales 4th Quarter 2021,” Zippia: e-commerce statistics (<https://www.zippia.com/advice/what-percentage-of-retail-sales-are-online/>)

**Figure 11: Selected U.S. Retailer and Shopping Center Owner Share Price Trends, 2015-2023**



With Covid-19 infection rates declining and many retail supply chain bottlenecks finally having been resolved, shoppers started returning to physical stores in mid-2022. By the fourth quarter of 2022, vacancy rates at regional malls had fallen below 11% while those at strip malls were back where they were in 2019. Amazon, meanwhile, having over-expanded its regional warehouse capacity in 2021, began canceling new warehouse construction orders. Final retail sales numbers for 2022 are not available as of this writing, but for now, it looks like pre-Covid era trends are gradually reasserting themselves. E-commerce sales are growing, just not as quickly as during the 2020-2022Q2 period; and although the rate of store closures is down compared to 2020 and 2021, many now-empty storefronts have yet to find permanent tenants. According to the Matthews Company, a real estate investment services company, as of January 2023, 64 million square feet of new retail space was under construction, mostly in Florida and Texas.<sup>38</sup>

**Alternative Futures/Planning and Policy Challenges and Opportunities:** Where does the U.S. retail sector go from here? Anyone who says they know for sure clearly does not. Ask ten different market analysts and you will

get ten different answers.<sup>39</sup> Most will agree that e-commerce sales will continue to grow vigorously, and that in terms of absolute numbers, the U.S. is still significantly over-stored. They will also likely agree that the traditional department store sector will continue to shrink, freeing up former anchor space at regional malls for reuse. Beyond these three points, there is not much agreement. Some opine that the traditional regional mall is becoming increasingly obsolete and point to a reuse model that combines readily-identifiable store brands like Target or Whole Foods with multi-family housing, health care and a neo-main street design scheme. Others point to e-commerce conglomerates like Amazon, or eyeglasses retailer Warby Parker expanding into bricks-and-mortar physical stores. Still others point to the success of stores like Sephora which serve as “experience hubs” for multiple brands. The practice of “omni-channel retailing,” meaning retailing that combines a bricks-and-mortar showroom experience with the ease of online ordering and product selection has become the retail strategy du jour, at least for now. Beyond ideas for new retail products, new niches, and new delivery models, a few deeper realities are starting to come into focus. They include:

- **Increasing automation:** Like every other industry, retailing is becoming increasingly automated. Think of how supermarkets have cut back on cashiers as they have added self-service scanners, or how fast food stores have embraced what is essentially online ordering within their stores. This trend will continue, and it will give a competitive and funding advantage to retailers who can make the automated service experience a pleasurable as well as convenient one.
- **Hybrid shopping formats:** Social media influencers are magnifying the power of brands, but also potentially, shortening their half-lives. This will favor retailers who operate like global apparel company H&M, which has learned how to quickly adapt its product lines (and costs) to rapidly-changing consumer demands. It will also move e-commerce toward retail platforms like Wayfair which help browsers mix and match their own bundles of complementary goods. Social media and supply chain management software are also speeding the rise of ethnic and other specialized marketplaces.
- **Local retail over-capacity:** For all the talk of redeveloping under-performing regional shopping centers into housing, sales tax revenues currently constitute such a large share of state and municipal budgets that local governments will continue to welcome retail and shopping center developers, even amid a glut of existing retail space. Similarly, even as they continue to favor the pedestrianization of their downtowns, local officials are unlikely to turn their backs entirely on auto-oriented strip centers. In the short-term, efforts to make restaurants and eating establishments the centerpiece of downtown renewal efforts may run into problems associated with rising labor and financing costs. And with banking and real estate brokerage services increasingly going line, this will leave additional holes in the fabric of downtown retailing.
- **Squeezed shopping budgets:** Because of climate change, rising labor costs, and increases in health consciousness, food costs will likely continue rising, and for many lower-income families, will claim a larger share of their weekly household budgets. This will leave even fewer dollars available for other goods and services.

**The Upshot:** The Covid-19 pandemic accelerated the growth of online retailing and home delivery, put restaurants and retailers in over-supplied markets out of business, and further undermined the viability of hundreds of strip and regional shopping centers. Going forward, successful retailers will be those who integrate their online presence with carefully chosen physical locations.

## 7. INFILL AND SPRAWL

After fifty years of urban disinvestment and runaway sprawl, Americans in limited numbers finally started returning to older urban neighborhoods in the early 1990s (Danielson et al. 1999; Ehrenhalt 2013; Ross 2015). This added to the market for infill housing but also created concerns about gentrification. A series of reports published by the U.S. Environmental Protection Agency between 2009 and 2012 (Thomas 2009, Thomas 2010, Ramsey 2012) documented the growth in infill housing construction, noting that as of 2010, infill housing accounted for one of every five new homes then under construction.

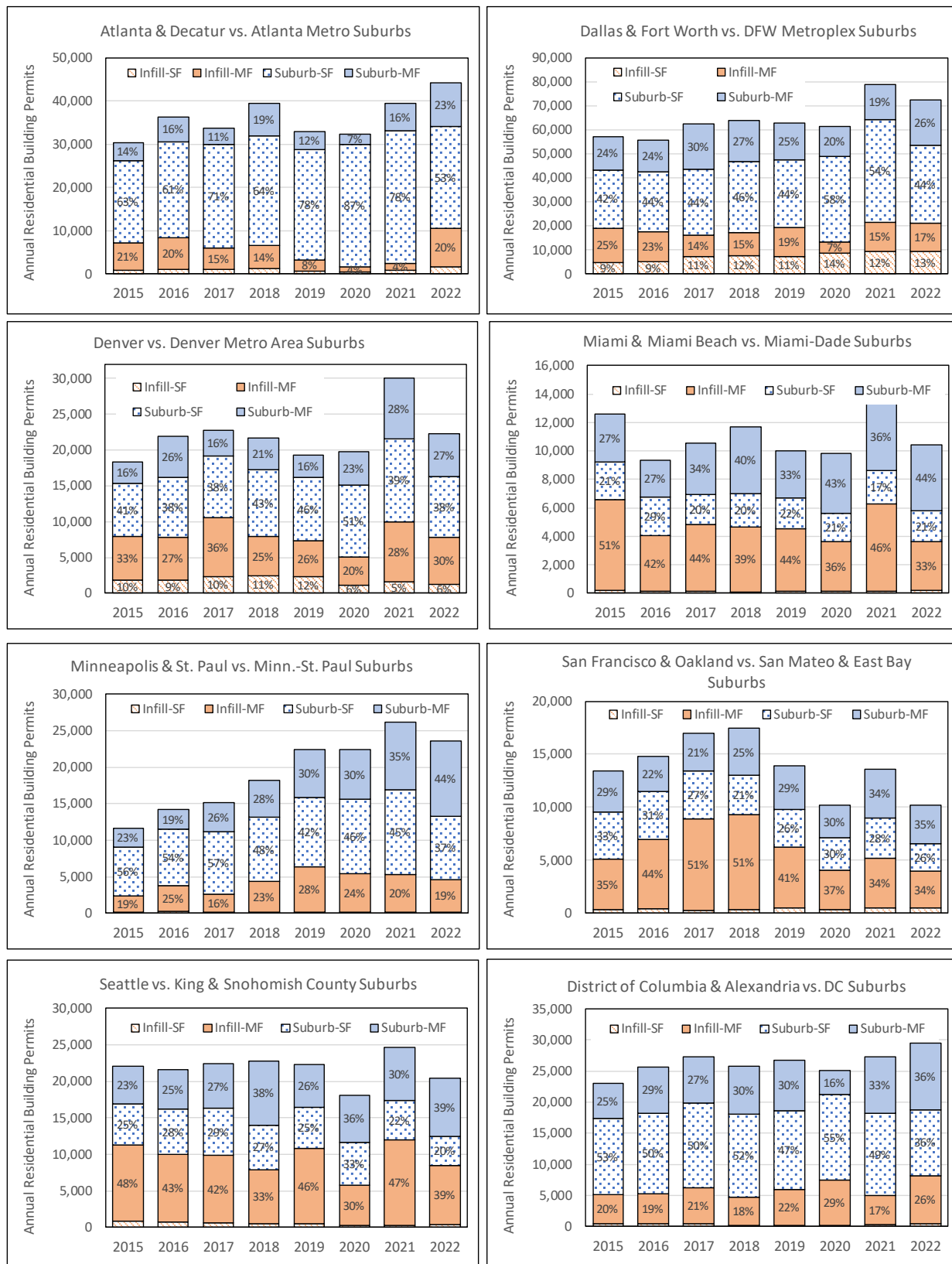
The fact that infill was becoming more popular did not mean that suburbs were becoming less popular. A study by Landis (2017) of sprawl and compact growth trends among the nation's 178 largest metro areas between 2000 and 2010 found that while sprawl was indeed declining when measured by changes in average population density and per capita land consumption, if measured instead by population growth in urban neighborhoods, steepening density gradients, and increased employment clustering, no such decline was evident. Among the metro areas where sprawl declined most between 2000 and 2010 were those with more immigrants and young people, those where easy-to-develop land was in short supply, and those where high housing prices were encouraging developers to build more densely. By contrast, the introduction of state and local compact growth policies did little to either promote infill or reduce sprawl (Landis 2017: 680).

***Pre-Pandemic Trends/The Covid Interregnum.*** There are many ways to keep track of the balance between infill and sprawl (Ewing et al. 2003, Ewing 2008, Hamidi et al. 2015) but the simplest is to identify infill as new housing construction occurring in older core cities and sprawl as everything else. Using place and type-specific counts from HUD's city, county and metro area building permit database,<sup>49</sup> we can further distinguish between single-family homes and multi-family units. Tabulations of the number of new core city and suburban single- and multi-family housing units in eight representative U.S. metro areas for the 2015 to 2022 period are presented in graphic form in Figure 12. Based on this limited sample, the Covid-19 pandemic seems to have had no discernable impact on the balance between infill and sprawl, meaning that the mix of new single-family and multi-family housing units in core cities and suburbs did not change much between the pre-Covid 2015-to-2019 period and the 2020-to-2022 Covid era.

With respect to the contributions of infill versus sprawl, the eight metro areas profiled in Figure 12 divide themselves into two groups. In the first group, which includes Atlanta, Dallas-Fort Worth, Minneapolis-St. Paul, and Washington D.C., infill development accounted for between 5% and 30% of new housing permits issued between 2015 and 2022. Even within this group, there are wide year to year variations. In Atlanta, for example, infill housing activity fell during 2020 and 2021 but then rose in 2022, principally because of increased multi-family housing construction. In the Dallas-Fort Worth region, infill housing construction declined in 2020 (compared to 2019), but then increased in 2021 and 2022. The pattern was similar in Washington, D.C. By contrast, in the Minneapolis-St. Paul metro area, infill housing construction activity hardly varied between 2019 and 2022. Except in Dallas-Fort Worth, the 2021-2022 period also saw a strong uptick in suburban multi-family building permits.

Compared to the first group, infill makes up a much larger proportion of new housing construction in the second group, which includes Denver, Miami, San Francisco-Oakland, and Seattle—between 25% and 50%, depending on the place and year. There is also less year-to-year variation in infill construction activity among the second group. Compared to the 2015-2019 period, infill activity declined slightly in 2020, picked up in 2021 and then fell in 2022, as if it were compensating for the previous year's higher construction levels. Among this second group, except for the San Francisco-Oakland metro area, the pandemic era also saw an increase in suburban multi-family construction activity.

**Figure 12:** Core City and Suburban Residential Building Permit Activity for Selected Metro Areas, 2015-2022



**Alternative Futures/Planning and Policy Challenges and Opportunities.** Based on the number of residential building permits issued during the 2020-2022 period, U.S. cities would seem to be alive and well. Even so, homebuilders report significant and persistent difficulties getting permit approvals for infill as well as suburban housing projects. For infill projects, a survey of metropolitan homebuilder associations by Landis et al. (2022) identified getting the required community sign-off to be the biggest challenge faced by residential developers, followed by getting a density or dimensional<sup>41</sup> variance or special exception, followed by getting rezoning approval for a different land use or housing type. Among suburban developers, the top three regulatory differences were obtaining a residential zoning variance to permit higher-density development, rezoning non-residential parcels to residential use, and securing the necessary environmental permits and clearances.

**The Upshot:** Those concerned that the Covid-19 pandemic might have undone previous years of infill housing progress can relax. Based on building permit counts from eight representative U.S. metro areas, Covid or no Covid, U.S. homebuilders continue to see significant infill housing construction opportunities within core cities and significant multi-family construction opportunities in suburbs. Overall, the level of infill housing activity in large U.S. metropolitan areas continues to grow, although not necessarily at the levels needed to bring about significant housing density increases or housing affordability improvements.

## 8. AUTO USE AND PUBLIC TRANSPORT RIDERSHIP

Americans love their cars and use public transportation principally to avoid being stuck in commute traffic or because they do not own a car or drive. This is a generalization, of course. There are a few U.S. cities like New York City and parts of Chicago, Philadelphia, San Francisco and Boston where the combination of higher residential densities, good transit service and a lack of parking make using public transportation the logical choice, but almost everywhere else, Americans prioritize the freedom, mobility and control over their schedules that comes with driving (Seiler 2009). That is why car use was one of the first things to rebound as the health threats of Covid-19 receded. Still, as we shall see, this rebound effect varied widely among different cities and nowhere did it extend to public transit.

**Pre-Pandemic Trends:** Vehicle use in America is tracked using a measure known as vehicle miles of travel (VMT), which totals the miles drivers accrue per day or per year on local highways and arterials. When divided by population, VMT rose at a steady 2.6% annual rate between 1946 and 2000 before peaking at just over 10,000 miles per year in 2002.<sup>42</sup> Since then, it has fluctuated at around 9,750 miles (per year) depending on gas prices and the health of the economy. Both VMT and per capita VMT vary widely among metropolitan areas depending on local settlement patterns, roadway capacity, and the availability and quality of local public transport. According to the Texas A&M Transportation Institute (TAMTI), which has been keeping track of metro area VMT statistics since the early 1980s, among the twenty largest U.S. metro areas, average daily per capita VMT in 2019 varied from a low of 13.2 miles in the New York metro area to high of 23.2 miles in the St. Louis metro area (Table 6). Looking at the 20 years prior to Covid-19's arrival, TAMTI researchers found VMT per capita to have risen fastest in the Boston metro area (+18%) and slowest in the Seattle metro area (-15%).

**Table 6: 2019 Per Capita VMT and Congestion Delay Hours for the 20 Largest US Metro Areas: 2000, 2019 & 2020**

Source: Texas A&M Transportation Institute, 2022 Urban Mobility Report

Average Daily Per Capita Vehicle Miles of Travel (VMT)						Annual Hours of Congestion-related Delay per Commuter					
20 Largest US Metro Areas (listed by 2019-2020 percent change in per capita VMT)	2000	2019	2020	Percent Change		20 Largest US Metro Areas (listed by 2019-2020 percent change in per delay hours)	2000	2019	2020	Percent Change	
				2000-2019 (Pre-Covid Period)	2019-2020 (1st year of Covid-19 Pandemic)					2000-2019 (Pre-Covid Period)	2019-2020 (1st year of Covid Pandemic)
San Diego	19.6	19.6	11.3	0%	-42%	Tampa-St. Petersburg	36	53	18	47%	-66%
Baltimore	17.8	19.4	11.8	9%	-39%	Miami	49	74	27	51%	-64%
St. Louis	21.2	23.2	14.3	9%	-39%	San Diego	41	64	24	56%	-63%
San Francisco-Oakland	15.1	16.5	11.5	10%	-30%	Los Angeles-Orange County	84	119	46	42%	-61%
Dallas-Fort Worth	23.1	20.7	14.8	-11%	-28%	Washington, DC	70	105	42	50%	-60%
Minneapolis-St. Paul	20.5	20.5	14.8	0%	-28%	Seattle	55	77	31	40%	-60%
Los Angeles-Orange County	20.5	19.3	15.0	-6%	-22%	Phoenix	45	61	25	36%	-59%
Denver	19.4	19.0	14.9	-2%	-22%	Denver	44	62	26	41%	-58%
Detroit	19.3	21.1	16.9	9%	-20%	Baltimore	41	63	27	54%	-57%
Houston	21.6	20.9	16.9	-3%	-19%	San Francisco-Oakland	79	103	46	30%	-55%
Seattle	19.7	16.8	13.7	-15%	-19%	Atlanta	53	78	37	47%	-53%
Miami	15.6	17.0	15.4	9%	-9%	Chicago	52	74	39	42%	-47%
Phoenix	17.2	18.2	17.2	6%	-5%	Minneapolis-St. Paul	47	59	32	26%	-46%
Atlanta	22.7	22.7	21.8	0%	-4%	Boston	61	86	50	41%	-42%
Boston	16.9	20.0	20.0	18%	0%	Detroit	52	60	35	15%	-42%
Philadelphia	13.7	15.5	15.5	13%	0%	New York-Newark	62	96	56	55%	-42%
Washington, DC	17.9	17.6	17.6	-2%	0%	Philadelphia	41	63	37	54%	-41%
New York-Newark	10.8	12.1	13.2	12%	9%	Dallas-Fort Worth	47	65	40	38%	-38%
Tampa-St. Petersburg	15.8	18.1	20.4	14%	13%	Houston	43	76	49	77%	-36%
Chicago	15.1	15.3	17.6	1%	15%	St. Louis	39	46	33	18%	-28%

TAMTI researchers also track the hours of commute time lost each year to excessive congestion, which they estimate by comparing uncongested and actual travel speeds.<sup>43</sup> Nationally, congestion-related commute delays rose from 38 hours per commuter in 2000 to 54 hours in 2019 (TAMTI 2021, p.3). Among the twenty largest U.S. metro areas, average yearly commute delays in 2019 varied from a low of 33 hours in St. Louis to a high of 119 hours in Los Angeles. Washington DC had the perverse honor of being the metro area where congestion delays increased the most between 2000 and 2019, rising from 70 hours per commuter in 2000 to 105 hours in 2019. By contrast, commuters in Detroit saw their congestion delays rise the least, increasing from 52 hours per commuter in 2000 to 60 hours in 2019.

Estimates of congestion-related time losses are also available from Internet-based travel technology companies like INRIX. In 2019, INRIX ranked Boston as the nation's most delay-prone city, with the average Boston commuter losing 149 hours to congestion. INRIX ranked Chicago second at 145 lost hours, followed by Philadelphia (142 hours), New York City (140 hours) and Washington D.C. (124 lost hours). Despite its world-wide reputation for never-ending gridlock, Los Angeles, with 103 hours lost to travel delays in 2019, ranked only sixth.<sup>44</sup>

What about public transit use? According to the American Public Transportation Association (APTA), ridership on metro and subway systems, light rail lines and commuter rail routes increased 39% during the 2000 to 2019 period while bus ridership fell by 18%.<sup>45</sup> These national averages conceal major variations among individual cities and metro areas. Among individual cities, transit operators in New York City, the San Francisco Bay Area, Chicago, Los Angeles, and Denver all recorded large absolute increases in rail service patronage between 2000 to 2019 while those in Denver, San Francisco, Dallas, Seattle, and Portland also reported sizable percentage gains. The bus patronage story was quite different: the only metro areas where bus ridership rose between 2000 and 2019 were Denver and Seattle.<sup>46</sup>

***The Covid Interregnum:*** The Covid-19 pandemic brought with it a major reduction in travel activity, causing car use, congestion and transit ridership all to plummet. According to the U.S. Department of Transportation's Bureau of Transportation Statistics, nationwide, daily VMT was 60% lower on April 5, 2020 than it had been a month earlier.<sup>47</sup> The decline in car use was only temporary, and by June 2021 (the latest date for which data is currently available), daily VMT was running 20% ahead of June 2020 levels.<sup>48</sup> The situation was very different for public transit. According to APTA, as of May 2020, urban rail and bus ridership were down 87% and 55% from their levels of a year earlier. Two years later, as of May 2022, they had recovered to just 63% and 69% of their pre-pandemic levels.

As always with travel data, these national-level statistics obscure large local variations. Among large U.S. metro areas, San Diego, Baltimore, St. Louis, San Francisco-Oakland, Dallas-Fort Worth and Minneapolis each experienced per capita VMT *declines* of 25% or more between 2019 and 2020. By contrast, New York and Chicago each experienced gains in per capita VMT as commuters abandoned public transit for their cars. With fewer drivers on the road, congestion just evaporated. According to TAMTI, of the twenty largest U.S. metro areas, there were only two, New York and Boston, in which commuters experienced more than 50 hours of congestion-related driving delays in 2020; in 2019, there had been nineteen. Averaged across all twenty metro areas, the average congestion-related delay fell from 74 hours in 2019 to 36 hours in 2020.

With almost nobody wanting to ride a bus or train in 2020 or 2021, public transit ridership was especially hard hit, and the places that were impacted the most were those that, prior to Covid-19, had the highest transit mode shares (Table 7). Nine months into the pandemic, according to APTA's patronage tabulations, average weekday rail ridership had declined by two-third or more in New York City, Chicago, San Francisco, Washington, Boston, Atlanta, Seattle, Denver, Baltimore, Minneapolis, Sacramento and San Jose. Eighteen months into the pandemic, average weekday rail ridership was still down by 50% or more in Chicago, San Francisco, Washington, DC, Philadelphia, Atlanta, Baltimore, Minneapolis, Sacramento and San Jose. Buses performed no better. Eighteen months into the pandemic, according to APTA, average weekday bus ridership was down by 40% or more in New York City, Chicago, Philadelphia, San Francisco, Seattle, Baltimore, Denver, Oakland, Portland, Minneapolis.



Phoenix, San Jose, Cleveland and St. Louis. Indeed, of the twenty-five highest patronage urban bus systems in the U.S. in 2019, 18 months into the pandemic, only San Antonio's ridership decline was less than 20%.

**Table 7: Average Weekday Urban Rail and Bus Ridership by City and Region, 2019-2021**

Source: American Public Transportation Association

Average Weekday RAIL Ridership by Transit Operator				Average Weekday BUS Ridership by Transit Operator			
City or Region (listed by ridership level)	2019Q4 (000)	Percent Change		City or Region (listed by ridership level)	2019Q4 (000)	Percent Change	
		2019Q4- 2020Q4	2019Q4- 2021Q4			2019Q4- 2020Q4	2019Q4- 2021Q4
New York	9814.2	-67.8%	-38.3%	New York	2259.1	-51.0%	-87.9%
Chicago	969.0	-82.2%	-56.6%	Los Angeles	865.6	-47.4%	-29.3%
San Francisco	821.9	-85.0%	-63.3%	Chicago	760.2	-61.3%	-40.6%
Washington	817.0	-87.2%	-65.6%	Philadelphia	491.5	na	-43.7%
Boston	744.2	-74.0%	-44.1%	Boston	381.2	-57.9%	-29.9%
Philadelphia	569.9	na	-57.2%	Washington	340.1	-49.9%	-16.3%
Los Angeles	330.8	-59.7%	-44.3%	San Francisco	334.6	-65.2%	-40.7%
Jersey City	307.0	-78.5%	-50.0%	Seattle	332.6	-68.6%	-49.6%
Atlanta	207.7	-72.5%	-59.8%	Baltimore	270.6	-66.6%	-55.0%
Seattle	168.1	-73.6%	-33.8%	Denver	265.2	-61.8%	-44.1%
Denver	135.3	-69.3%	-35.8%	Houston	224.0	-52.0%	-35.2%
Portland	119.6	-64.1%	-48.0%	Oakland	215.5	-62.3%	-43.4%
San Diego	117.7	-50.6%	-10.1%	Las Vegas	200.2	-50.8%	-35.3%
Dallas	92.0	-52.8%	-37.9%	Portland	186.0	-60.1%	-44.5%
Baltimore	91.9	-81.7%	-75.3%	Minneapolis	171.6	-65.2%	-51.3%
Salt Lake City	76.1	-65.7%	-39.9%	Atlanta	168.3	-56.7%	-44.3%
Minneapolis	75.2	-67.8%	-52.8%	Miami	163.5	-35.3%	-27.2%
Miami	62.6	na	-35.1%	San Diego	163.0	-62.9%	-37.5%
Houston	60.3	-53.1%	-39.8%	Dallas	124.2	-52.3%	-39.0%
Phoenix	47.0	-61.7%	-45.3%	Phoenix	108.3	-55.1%	-48.3%
St Louis	38.9	-56.8%	-44.2%	San Jose	92.0	-69.7%	-41.2%
Sacramento	38.4	-69.8%	-57.3%	Cleveland	82.1	-57.1%	-40.7%
Charlotte	29.9	-7.4%	-49.5%	San Antonio	80.9	-25.1%	-18.5%
San Jose	26.7	-72.3%	-60.7%	St Louis	70.2	-47.7%	-45.9%
Cleveland	15.9	-57.9%	-49.7%	Orlando	68.7	-45.6%	-27.4%

**Alternative Travel Futures.** It would be foolhardy based on the limited data available to try to predict city-specific 2030 traffic volumes or transit patronage levels, even using a scenario-based approach. For one thing, we do not yet have up-to-date local VMT or congestion data. For another, because commuters are returning to their workplaces in different proportions in different places, we cannot reliably project forward based on current mode shares or congestion levels. All this said, history offers useful lessons as to how quickly it takes travelers to get back to their old habits (or find new ones) in the aftermath of major economic disruptions. Nationally, it took until February 2015, or 7.25 years for per capita VMT levels to recover to their pre-Great Recession levels (Martin et al. 2016). Among large metro areas, it typically took three to five years (e.g., until 2010, 2011 or 2012) for daily VMT volumes to return to their 2007 levels, and eight or more years for per capita VMT figures to return to their pre-Great Recession daily levels (Table 8). Indeed, in several metro areas, daily per capita VMT levels never returned to their 2007 highs. Traffic volumes and per capita VMT levels recovered faster in metro areas with more immigrants and those with smaller households but given the limited number of metro areas included in Table 8, this observation is more indicative than conclusive. Except in Dallas and Detroit, congestion

levels, as measured by yearly hours of delay per commuter, returned to their pre-Great Recession levels in a year or two.

The post-Great Recession bus ridership picture is more idiosyncratic. In a few cities (e.g., Boston and New York City), bus ridership levels never declined during the Great Recession. In others (e.g., Dallas, Miami, and Phoenix), it fell sharply and never recovered. Even in the places where bus ridership levels held up during the Great Recession, except for San Francisco and Seattle, they fell off later, suggesting that travelers are less likely to keep riding the bus as they regain their pre-disruption economic status.

What conclusions might we draw from these observations regarding the post-pandemic period? The first is that pre-disruption travel behaviors tend to reassert themselves quickly once the disruption has passed, and that disruption-caused intervals of congestion relief are short-lived. This is especially true in faster-growing metro areas poorly served by public transit. The second is that economic disruptions do cause some people to change where they live or work in a manner that reduces per capita VMT, but that such changes have negligible effect on aggregate congestion levels. Finally, in places where they are committed to maintaining or improving bus service and where bus service is viewed as a convenience, transit operators may be able to avoid falling victim to a prosperity-related decline in post-disruption ridership. When combined, these observations suggest that travel patterns in most U.S. metro areas in 2030 will look like they did in 2019, and that unless purposive steps are undertaken to improve public transit service quality and relieve highway congestion, congestion levels will be notably worse.

***Planning and Policy Challenges and Opportunities:*** Timing, it is often said, is everything. Public transportation's slow recovery from the Covid-19 pandemic combined with funding from the Bipartisan Infrastructure Law passed by Congress in November 2021 provide a rare opportunity to rethink the role and configuration of public transportation services in America's cities in terms of expanding mobility for all residents. In terms of resources, the Bipartisan Infrastructure Law authorized \$110 billion for highway and bridge projects and another \$39 billion for public transit modernization projects. Additional infrastructure investment funds will be available through the Inflation Reduction Act signed into law in August 2022. Exactly how and where these funds will be spent is currently being worked out by state governments, metropolitan planning organizations (MPOs) and local transit operators. That said, several ideas present themselves that should be of nationwide interest. Local bus routes should be comprehensively reconfigured to provide improved mobility to those neighborhoods and groups who currently lack it. Many bus routes have not been significantly altered in decades. For commuters, cities and local transit operators should look to establishing or expanding bus rapid transit (BRT) service. As far as investments in new highway facilities go, transportation engineers should look first at improving intersection capacity (since that is where most bottlenecks arise), second at expanding lane capacity, and third at incentives to get people out of single-occupant vehicles. Finally, many cities and suburbs remain inhospitable and dangerous for pedestrians and bicyclists, and as new infill housing and commercial real estate projects go forth, local officials should work closely with community transportation planners to expand pedestrian and bicycling facilities and opportunities. Studying how Copenhagen managed to double its citywide bicycle mode share to 30% in twenty years is a good place to start.

**Table 8:** Years Required for Automobile Use, Congestion, and Bus Patronage to Return to pre-Great Recession Levels for Selected Metro Areas  
 Sources: Texas A&M Transportation Institute and American Public Transportation Association

Metro Area	Daily VMT (in 000s)		Daily VMT per capita		Yearly Hours of Congestion Delay per Commuter		Average Weekday Bus Ridership (in 000s)			
	2007 Level	Years to return to pre-recession level	2007 Level	Years to return to pre-recession level	2007 Level	Years to return to pre-recession level	2007Q2	2010Q2 (as % of 2007)	2013Q2 (as % of 2007)	2016Q2 (as % of 2007)
Atlanta	92,630	4	22.4	8	57	2	223.9	97%	85%	83%
Boston	75,515	3	18.2	8	64	3	356.9	105%	108%	103%
Chicago	130,150	1	15.4	1	59	3	999.9	98%	99%	84%
Dallas-Fort Worth	109,300	7	22.5	never	53	4	151 <sup>1</sup>	86%	82%	72%
Detroit	86,460	never	21.8	never	55	4	na	na	na	na
Houston	96,500	8	21.6	9	53	2	293.4	78%	78%	75%
Los Angeles-Orange County	255,925	4	20.8	4	92	0	1,597.7	84%	84%	70%
Miami-Ft. Lauderdale	93,195	3	17.4	never	52	0	256.7 <sup>2</sup>	87%	96%	80%
New York-Newark	222,710	3	12.1	3	73	0	2404.6 <sup>3</sup>	113%	112%	106%
Philadelphia	84,165	9	15.7	10	48	2	551.6	101%	101%	89%
Phoenix	64,450	4	18.5	8	48	2	147.9	85%	86%	71%
San Diego	60,680	6	20.9	never	48	0	155.9	101%	132%	108%
San Francisco-Oakland	51,300	5	15.4	8	86	0	287.9 <sup>4</sup>	99%	103%	114%
Seattle	57,800	3	18.6	3	62	0	294.5	97%	110%	113%
Washington DC	84,545	1	19.5	2	84	0	445.1	94%	102%	95%

*Notes:* 1. Dallas only; 2. Miami only; 3. New York City only; 4. San Francisco only.

**The Upshot:** Covid-19 revealed anew that most Americans prefer car use to public transit, whatever the circumstances. However, they are powered, controlled and owned (or leased), private vehicles (and the urban roadways they ride upon) are here to stay. Urban transportation planners, especially those working in growing metro areas, will need to find additional cost-effective ways to boost available highway and arterial capacity. Facing further declines in patronage, metropolitan transit operators will similarly have to look for new ways to significantly improve the quality of service and travel reliability on all their lines and modes.

## 9. VIOLENT CRIME AND POLICING

Of all the Covid-related disruptions that roiled American cities, none entered the political and policy arena with more vehemence than violent crime and policing. Nationally, according to the news website Vox, Republicans spent \$157 million in the 2022 midterm election on TV and radio ads criticizing Democrats for being soft on crime. The Wall Street Journal reported that crime was highlighted in more than a third of all congressional campaign ads that aired after Labor Day in Pennsylvania and Wisconsin. And although he ultimately lost, polls showed Republican challenger Lee Zeldin having significantly narrowed the gap with New York Governor Kathy Hochul by highlighting her limited support for bail reform.

The nationwide emergence of crime as a 2022 midterm political issue was something of a perfect storm. Even before Covid's health and mortality effects were properly understood, the May 25, 2020, murder of George Floyd by Minneapolis police officer Derek Chauvin ignited a national debate over whether urban policing practices were systematically racist. Republicans were eager to find a campaign issue that would resonate with suburbanites and crime polled ahead of any other. And then there was the crime rate itself. Compared to 2019, the national murder rate in 2020 was up 29%, according to FBI statistics. Aggravated assaults were up 12%, and among property crimes, motor vehicle thefts were up 11%. These increases were mostly concentrated in poor and minority neighborhoods, but to many suburbanites and media outlets, crime was presented and perceived as a national urban problem. How exactly did Covid-19 affect the incidence of crime and safety in America's big cities and metropolitan areas, and what combination of efforts is necessary to bring crime rates down to their pre-Covid levels?

**Pre-Pandemic Trends:** Covid-19 reversed a three decades-long decline in the incidence of crime in America, especially violent crime. According to FBI crime statistics, the U.S. homicide rate fell steadily from 9.8 homicides per 100,000 population in 1991 to 4.4 homicides per 100,000 population in 2014, and then more or less stabilized in the range of five homicides per 100,000 population through 2019. Although widespread, the decline in homicides was far from uniform. Among the cities where homicides and homicide rates fell the most between 2000 and 2019 were New York City and Los Angeles. Among the cities where they fell the least were Chicago and Philadelphia. Other types of crimes declined in parallel with homicides.

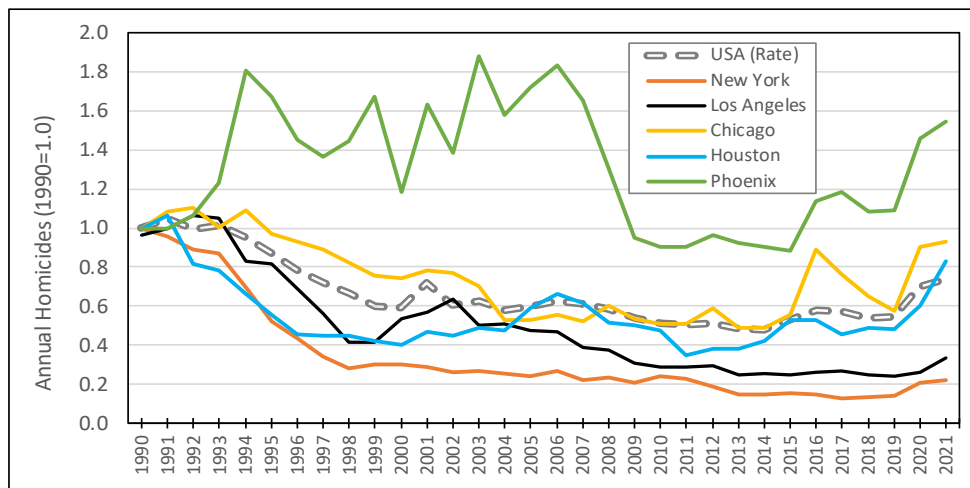
Criminologists have postulated various hypotheses to explain these trends (Zimring 2011, Grawert and Kim 2022), including the expanded use of real-time crime incident data to improve police dispatching and patrol procedures; the widespread adoption of community policing; the hiring of additional 100,000 police officers funded by the 1996 federal crime bill; increasing incarceration rates resulting from the more vigorous prosecution of drug-related and "quality-of-life" crimes; the general aging of the population, and in the most controversial explanation of all, the legalization of abortion. However, these factors combined to make places safer, people responded favorably by returning to cities for work and play and moving back into long-overlooked urban neighborhoods (Ellen et al. 2019). In New York, the city where crime declined the most in both absolute and percentage terms, the number of domestic tourist visits increased 135% between 1991 and 2010.

**The Covid-19 Interregnum:** The upswell in Covid-19 cases during the second quarter of 2020 was followed by a steady increase in crime rates, especially homicide rates. Nationally, the homicide rate rose from 5.0 per 100,000 population in 2019 to 6.5 in 2020, and then to 6.9 in 2021. Similar Covid-related increases occurred in many American cities (Figure 13). In New York City, homicide rates in 2020 and 2021 rose 50% above their 2015-2019 average. In Los Angeles, homicides in 2020 and 2021 were up 19% over their 2015-2019 levels. Chicago, Houston,

and Phoenix, America's third, fourth, and fifth biggest cities, experienced 2019-2021 homicide rate increases that were 34%, 43% and 39% above their 2015-2019 levels.

**Figure 13:** Annual Homicides in Selected U.S. Cities, 1990-2021 (1990 = 100)

Source: FBI statistics as compiled by The Brennan Center for Justice



As with earlier homicide rate reductions, criminologists lack a precise explanation for these increases. Among the factors commonly cited forces are the sudden uptick in Covid-19 related job layoffs, especially among Black, Latino and low-income workers whose jobs were not amenable to working remotely; the general increase in anxiety caused by the rise in Covid-related morbidity and mortality, especially among big cities with more poor and minority residents lacking access to adequate health care or Covid treatment facilities; uncertainties about appropriate police response strategies following the murder of George Floyd; the release of some prison inmates from over-crowded jails and prisons; and increased rates of legal and illegal gun possession--the former as sanctioned by the courts, and the latter by an upsurge of unregulated gun sales.

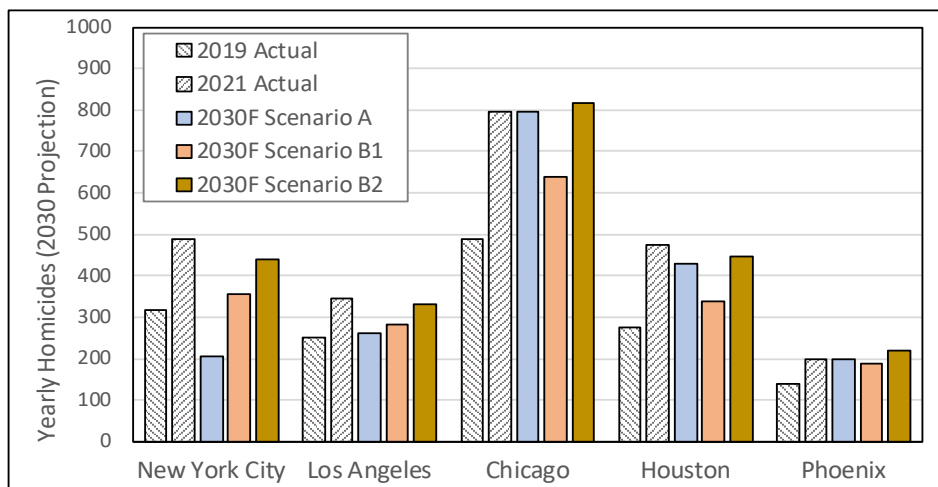
A detailed statistical analysis by Meyer et al. (2022) of weekly crime activity in twenty-eight of the seventy largest U.S. cities between January 2018 and December 2020 suggests that the causes of changes in crime activity varied by crime type. For example, whereas homicides and auto thefts increased with Covid's spread, the number of larcenies and burglaries declined, a finding the authors suggest might have been due to reduced foot traffic and improved security measures at bricks-and-mortar retail outlets (larcenies) and to more people staying at home (burglaries). By contrast, the increase in auto theft likely resulted from a combination of more vehicles sitting idle on the streets and fewer people outside, including local police. With respect to the rise in homicides, the authors venture that increased drug and alcohol consumption may have led to an uptick in the use of guns to resolve domestic and neighborhood conflicts (Meyer et al., p.107). One factor that did not seem to be associated with additional crime was cash bail reform. According to a report issued by the Center for American Progress (Preston and Eisenberg 2022), among the places where non-violent crime cash bail reforms have been implemented, those awaiting trial within the community instead of in jail were no more likely to be re-arrested after bail reform was passed than before.

**Alternative Crime Futures:** Given all the uncertainties as to why exactly local crime rates rise and fall, what might the post-Covid future hold? To get a better handle on this question, we developed a series of three scenario-based homicide rate projections for the nation's five largest cities, circa 2030. In the first, labeled Scenario A, homicide rates return to their pre-pandemic 10-year trend lines starting in 2023, but from their elevated 2020-2021 base. In the second, labeled Scenario B1, post-2022 homicide rates return to their higher 2017-2021 averages. In the third, labeled Scenario B2, homicide rates continue rising (from their 2019 base) at

the same rate as they did during the 2019 to 2021 period. In each scenario, the calculated 2030 homicide rate is multiplied by the city's projected 2030 population to estimate actual homicides.

The results of these various calculations are shown in Figure 14. In New York City and Los Angeles, a reversion in homicides rates back to their pre-pandemic levels (Scenario A) would see 2030 homicides fall back to their 2019 levels. By contrast, because of projected population growth, a similar reversion to pre-Covid homicide rates in Houston and Phoenix would not be accompanied by a reduction in actual homicides. In Chicago, a return to the high homicide rates of the 2015-2019 period means there would be no reduction in 2030 homicides compared to 2021 levels.

**Figure 14: 2030 Homicide Projections for America's Five Largest Cities Based on 3 Pandemic-related Crime Rate Scenarios (see text for methodology)**



If instead of falling to their pre-pandemic levels, homicide rates return to where they were between 2017 and 2021 (Scenario B1), the number of 2030 homicides in all five cities would fall midway between their (pre-Covid) 2019 and their 2021 numbers. In New York City, Los Angeles, Houston and Phoenix, this would result in the number of homicides in 2030 falling to between 200 and 350. In Chicago, by contrast, the number of 2030 murders would be between 600 and 700! Lastly, should homicide rates not return to their pre-pandemic 5-year averages (Scenario A) or to their 2017-2021 Covid-included five year averages (Scenario B1) and remain instead at their Covid-era averages (Scenario B2), then regardless of the city, there will be no significant decline in homicide numbers by 2030.

**Planning and Policy Challenges and Opportunities:** Crime disproportionately impacts poor and minority communities (Sharkey & Sampson 2015). Gun violence victims in particular are disproportionately young people of color living in poor urban neighborhoods (Delgado 2021). Rising violent crime rates are not only a public safety issue, they are also a racial and social justice issue and reducing them will go a long way toward convincing Black and Hispanic community members that their lives and livelihoods are just as valued as those of whites. As the New York City Police Department found out after it first implemented its CompStat policing information and management system in the mid-1990s, targeting crime hotspots in a manner that results in a visible reduction in crime has a significant deterrence value and yields further crime reductions (Maple & Mitchell 2010; Zimring 2011; Roeder et al. 2015). Moreover, crime is not generally mobile. Reducing crime in one neighborhood usually does not result in it being displaced to the neighborhood next door.

In today's cities, with guns more available than ever, reducing the incidence of violent and property crimes will require professionals from different disciplines breaking out of their respective silos to leverage each other's

practical and analytical strengths. Planners and geographers and neural network code-writers can play a role by analyzing the emergence and spatial incidence of crime hotspots (see, for example, Zhang et al. 2020, for a discussion of different neural network hotspot identification models). Sociologists can study how crime tendencies are transmitted among individuals and groups and how they can be dampened (Ludwig & Kling 2007). Criminologists can evaluate the circumstances in which crime prevention and response approaches do or do not work (MacDonald et al. 2016). Professionals in the legal system can do a better job keeping track of how particular legal procedures and penalties encourage or discourage additional offenses. Most of all, police forces from different communities and cities need to share and critique best practices.

Doing all these things simultaneously will require breaking away from today's conventional wisdom that the only solution to the crime problem is to hire additional police officers. Instead, it will require developing better shared and real-time crime data collection, monitoring and analysis procedures. It will require funding to put together multidisciplinary and multi-agency analysis and deployment teams, and when effective crime reduction strategies are identified, to implement them at scale. It will require greater sensitivity on the part of patrol officers and police commanders alike that activities perceived as singling out members of particular communities for harsh action usually have the effect of reducing policing support and cooperation, not increasing it.

***The Upshot:*** Covid-19 and changes in policing practice following the murder of George Floyd (and other young Black men and women) have altered the ability of urban police forces and criminal justice system to anticipate, respond to, and deter crime, especially gun-related crimes. With more guns on the street than ever and urban police forces across the nation finding it difficult to recruit new officers, it is unlikely that there will be a return to the pre-Covid status quo any time soon. Instead, urban police forces will have to find new ways to make use of information technologies, social media and predictive analytics to anticipate crime occurrences, to apprehend perpetrators, and to convict the guilty in court. This will require more police officers and better coordination between the police and the criminal justice system. It will also require paying much more attention to the root causes of crime such as poverty and unemployment and to working with community leaders to better disseminate confrontation and violence de-escalation techniques. Last, but by no means least, it will require every level of the police hierarchy, from patrol officers to senior commanders, to establish a daily and supportive presence within their communities.

#### 10. POVERTY REDUCTIONS: SURPRISING PROGRESS, BUT WILL IT STICK?

A considerable amount of federal pandemic relief aid was explicitly directed to low and moderate-income through temporary expansions in Medicaid, the Child Tax Credit, the Supplemental Nutrition Assistance Program (SNAP), rental assistance vouchers, and the Temporary Assistance for Needy Families (TANF) program as authorized under the Coronavirus Aid, Relief, and Economic Security (CARES) Act, passed by Congress in March 2020, as well as through the newly-enacted Economic Impact Payment (EIP) program. Additional aid to low-income persons and households was made available through the American Rescue Plan, signed by President Biden in March 2021.

This additional relief is credited with reducing the overall U.S. poverty rate from 9.2% in 2020 to 7.8% in 2021, and the child poverty rate from 5.2% to 4.5% based on poverty tabulations made using the government's Supplemental Poverty Measure, or SPM (Center on Budget and Policy Priorities 2022, Columbia University 2023). These were the largest single-year poverty rate declines since SPM data was first collected in 1967. How did these reductions play out at the city and county levels, and what, if any effect did they have on those living in high-poverty neighborhoods?

***Poverty Rate Reductions:*** From a 20-year high of 15.1% in 2010, the overall poverty rate in the U.S. fell continuously to 10.5% in 2019, before rising slightly to 11.5% in 2020. The poverty rate among children—those younger than 18—followed a parallel trajectory, falling from 22% in 2010 to 14.4% in 2019, and then rising to 16.1% in 2020.



Poverty rates in the twenty highest poverty U.S. cities (Table 9) mostly followed similar trends, declining from an average of 25.8% in 2010 to 20.7% in 2019, and then rising to 21.4% in 2020. Among the high-poverty cities listed in Table 9, Miami recorded the biggest poverty rate decline between 2010 and 2019, while San Antonio recorded the smallest. Neither the poverty rate declines during the 2010-2019 period nor the subsequent increases between 2019 and 2020 appear to follow any discernible geographic or demographic patterns. This reflects the fact that at the local level, poverty rates are determined by a complex interplay between local housing, demographic, education, and labor market conditions.

With pandemic era poverty data for cities available only through 2021, care must be taken when venturing observations about the poverty rate effects of Covid relief aid. Among the cities included in Table 9, poverty rates declined the most between 2020 and 2021 in Minneapolis (-3.3%), Detroit (-3.0%), and Cleveland (-2.7%), and the least in Miami (-0.5%) and Houston (-0.2%). These declines were not universal. Among the twenty cities listed in Table 9, poverty rates rose between 2020 and 2021 in seven, most notably in Baltimore and New Orleans. To the degree that there is a pattern among 2020-2021 poverty rate changes, it is that higher poverty rate cities in 2020 experienced larger 2020-to-2021 poverty rate reductions.<sup>49</sup> This suggests that the CARES Act, as was its intent, played a significant role in shielding low-income households from some of the most onerous economic impacts of the Covid-19 pandemic.

***Reductions in the Extent of Concentrated Poverty.*** Urban poverty rarely exists in a uniform manner. It is usually concentrated in a limited number of neighborhoods, usually those that also have higher concentrations of racial and ethnic minorities and lower quality housing (Wilson 1991, Jargowsky 1997, 2013; Massey & Fischer 2000, Greene & Turner 2017). Almost universally, these high-poverty neighborhoods suffer from reduced access to essential retail, health care and public services; have much higher violent and property crime rates; are home to lower-performing schools; and have great difficulty attracting needed private investment. The burdens of living in a high-poverty neighborhood also extend intergenerationally. As work by Chetty et al. (2014, 2018) tracking the individual trajectories of young people raised in different neighborhoods demonstrates, regardless of their race or ethnicity, children who spend their formative years in high-poverty neighborhoods are likely to earn less as adults than otherwise similar children raised in moderate- and middle-income neighborhoods. Because the incidence of concentrated poverty is so pernicious across so many domains, generations of social workers, urban planners and economists, public health officials, and criminal justice and civil rights advocates have made it their life's work to try to reduce and deconcentrate urban poverty. They have rarely succeeded (Desmond 2023). Indeed, analyses of census tract data over time (Kneebone 2014, Iceland & Hernandez 2017) indicate that in many U.S. cities, high-poverty areas are expanding, not shrinking.

**Table 9: Poverty Rates in the 20 Highest Poverty Large U.S. Cities: 2010-2021**

Source: U.S. Census Bureau, American Community Survey

City (listed in order of 2020 poverty rate)	Share of City Population Living Below the Poverty Line						
	2010	2019	2020	2021	2010 to 2019 Change	2019 to 2020 Change	2020 to 2021 Change
Detroit	37.6	30.6	33.2	30.2	↓↓	↑	↓
Cleveland	34.0	30.8	32.0	29.3	↓	↑	↓
Memphis	26.5	21.7	24.6	22.6	↓	↑	↓
Milwaukee	29.5	22.4	24.6	23.8	↓↓	↑	↔
Fresno	30.2	23.2	23.5	21.6	↓↓	↔	↓
Philadelphia	26.7	23.3	23.1	22.8	↓	↔	↔
New Orleans	27.2	23.2	23.0	24.8	↓	↔	↓
Miami	32.4	20.3	21.5	21.0	↓↓	↑	↔
Tucson	23.5	19.1	20.8	19.0	↓	↑	↓
Baltimore	25.6	20.2	20.0	23.0	↓↓	↔	↓
Houston	22.8	19.7	19.6	19.4	↓	↔	↔
Atlanta	26.1	20.2	19.2	17.9	↓↓	↓	↓
El Paso	21.6	18.6	18.8	19.1	↓	↔	↔
Minneapolis	23.3	17.4	18.3	15.0	↓↓	↔	↓↓
Tulsa	20.1	18.6	18.3	18.9	↓	↔	↔
Dallas	23.6	17.5	18.1	16.5	↓↓	↔	↓
Boston	23.3	17.1	18.0	18.7	↓↓	↔	↔
San Antonio	19.1	16.8	17.6	17.0	↓	↔	↔
Tampa	21.3	17.0	17.5	17.7	↓	↔	↔
Los Angeles	21.6	16.7	16.9	17.1	↓	↔	↔

*Key to symbols:* ↓↓ indicates a drop of 5% or more; ↓ indicates a drop of 1 to 5%; ↔ indicates a change of +/-1%; ↑ indicates an increase of 1 to 3%; ↑↑ indicates an increase of 3% or more

To what degree did the CARES Act and other Covid relief efforts succeed where prior poverty reduction efforts failed? While it is too early to say for sure, and the effects may only be temporary, based on an analysis of high-poverty census tracts in the 20 high-poverty cities listed in Table 9, it does seem there was a notable post-2019 reduction in the share of residents living in high-poverty neighborhoods--defined as census tracts in which one-third or more of the population lived below the poverty line in 2019.

These *population share reductions* are reported by race and ethnicity in Table 10 for the counties that correspond to the cities identified previously in Table 9.<sup>50</sup> Four patterns are immediately apparent. The first is that they are not consistent across all counties. There are two counties, Harris and El Paso, both in Texas, in which the share of the population living in high-poverty census tracts increased rather than decreased between 2019 and 2021. Second, the reduction effect is poverty rate-dependent: counties such as Wayne (Detroit), Cuyahoga (Cleveland), Orleans (New Orleans), Philadelphia, Milwaukee, Baltimore which suffered from higher poverty rates as of 2019 experienced larger share reductions over the ensuing two years. Third, the share reductions were larger and more consistent for Black residents than for Hispanic and White residents. Lastly, regardless of race or ethnicity, share reductions were smaller for faster growing counties in the South and Southwest such as Harris (Houston), Fulton (Atlanta), Bexar (San Antonio) and Hillsborough (Tampa) than for slower-growing counties in the Mid-Atlantic and Midwest regions such as Philadelphia, Baltimore, Wayne (Detroit) and Cuyahoga (Cleveland).

**Table 10:** 2019-2021 White, Black and Hispanic Population Shares Living in High-Poverty Census Tracts in the 20 Highest Poverty Large U.S. Cities, 2019-2021

Source: U.S. Census Bureau, American Community Survey

City Poverty Rank in 2020	Core City	Core Urban County	Share of County Population Living in High-Poverty Census Tracts							
			All		Whites		Blacks		Hispanics	
			2019	2021	2019	2021	2019	2021	2019	2021
1	Detroit	Wayne, MI	27.9%	↓↓	14.2%	↓↓	45.7%	↓↓	41.8%	↓↓
2	Cleveland	Cuyahoga, OH	16.4%	↓	7.5%	↓	34.2%	↓↓	29.3%	↓↓
3	Memphis	Shelby, TN	19.8%	↓	6.2%	↔	30.0%	↓	24.5%	↓
4	Milwaukee	Milwaukee, WI	18.4%	↓↓	8.8%	↓	34.5%	↓↓	33.7%	↓↓
5	Fresno	Fresno, CA	23.1%	↓↓	21.2%	↓↓	33.6%	↓↓	31.3%	↓↓
6	Philadelphia	Philadelphia, PA	26.0%	↓↓	13.8%	↓	35.7%	↓↓	45.7%	↓↓
7	New Orleans	Orleans, LA	23.8%	↓	8.9%	↔	33.5%	↓↓	19.6%	↑
8	Miami	Miami-Dade, FL	5.4%	↓	17.6%	↓	6.3%	↓	18.9%	↓
9	Tucson	Pima, AZ	10.4%	↓	8.2%	↓	15.0%	↓↓	11.9%	↓
10	Baltimore	Baltimore City, MD	17.8%	↓	6.2%	↔	24.3%	↓↓	14.5%	↔
11	Houston	Harris, TX	9.6%	↔	8.6%	↔	12.3%	↑	14.7%	↔
12	Atlanta	Fulton, GA	11.2%	↔	3.8%	↔	19.5%	↓	10.1%	↓↓
13	El Paso	El Paso, TX	12.2%	↑	11.3%	↓	7.0%	↓	13.7%	↑
14	Minneapolis	Hennepin, MN	6.8%	↓	4.2%	↓	17.1%	↓↓	8.6%	↓↓
15	Tulsa	Tulsa, OK	9.6%	↓↓	6.2%	↓↓	23.9%	↓↓	17.3%	↓↓
16	Dallas	Dallas, TX	5.5%	↔	3.6%	↔	12.2%	↔	5.4%	↔
17	Boston	Suffolk, MA	13.4%	↓↓	10.7%	↓	15.3%	↓↓	14.7%	↔
18	San Antonio	Bexar, TX	8.1%	↔	7.6%	↔	13.3%	↓	10.0%	↔
19	Tampa	Hillsborough, FL	6.4%	↔	4.0%	↔	16.2%	↓	6.4%	↔
20	Los Angeles	Los Angeles, CA	4.7%	↓	3.8%	↓	7.8%	↓	6.4%	↓

*Key to symbols:* ↓↓ indicates a drop of 3% or more; ↓ indicates a drop of 1 to 3%; ↔ indicates a change of +/-1%; ↑ indicates an increase of 1% or more

*Notes:* High-poverty census tracts are those in which more than one-third of the population in 2019 or 2021 lived below the poverty line.

Looking beyond numerical measurements toward underlying processes, the share reductions reported in Table 10 can be explained in three ways. In the first instance, some number of poorer residents may move *out of* a high-poverty census tract. In the second case, some number of wealthier residents may move *into* a high-poverty census tract. In both situations, if the number of in- and out-movers is large enough, the tract will no longer be classified as a high-poverty neighborhood. In the third case, there is little movement into or out of the neighborhood, but instead, existing residents benefit from increased incomes—either by earning more at their jobs or by receiving additional or larger transfer payments. This third change also reduces the number and share of census tract residents classified as poor, and if it is sizeable enough, will also result in the tract no longer being classified as a high-poverty neighborhood. Determining which of these three change processes dominated in which counties will have to await a more detailed analysis, but for now, given the degree to which Covid-19 depressed movement activity both into and out of poor neighborhoods, we can conclude that at least some of the reductions in the shares of Black and Hispanic populations living in high-poverty neighborhoods identified in Table 10 are likely the result of Covid-related relief payments lifting significant numbers of households above the poverty line. Whether they remain there, particularly as such payments tail off and as resurgent inflation reduces the value of those payments remains to be seen.

These observations are subject to three important caveats. The first is that they apply to county-level population shares, and not to individual people. One can be poor and live in a low-poverty neighborhood, just as one can be

wealthy and live in a high-poverty neighborhood. The second is that they do not measure spatial concentrations. It is indeed possible that poverty could be further concentrating even as its overall incidence declines. Third, and most important, we have no knowledge as to the amount of Covid relief aid distributed in any county, or of who received it. Still, the overall story seems to be a positive one, with an uptick in targeted income support and food and housing assistance associated with a noticeable decline in urban poverty rates and the shares of Black and Hispanic residents living in high-poverty neighborhoods.

***Planning and Policy Challenges and Opportunities.*** It will be several years before researchers can definitively determine whether the declines in poverty attributed to the 2020 CARES Act and 2021 American Rescue Plan are meaningful, permanent, and sufficient to offset a corresponding uptick in housing and food prices. For now, it is important to note two things. The first is that existing federal safety net programs, while tattered, still can keep millions of Americans out of poverty, especially after a nationwide disruption like the Covid-19 pandemic. The second is that the combination of giving low-income households money and protecting their security of tenure has the potential to make them more resilient to adverse personal and economic circumstances. Poverty in America—especially in its cities—may indeed be structural, as well as bound up with persistent racial, ethnic and gender discrimination, but given the right mix and delivery of income assistance programs, it can be significantly reduced. This realization should give policymakers at every level and branch of government an incentive to rethink how current anti-poverty programs are designed and delivered, and whether, through a process of coordinated incentives and targeting (rather than through the piecemeal determination of individual program eligibility and funding), it might be possible to significantly reduce poverty's pernicious incidence and inter-generational impacts.

***The Upshot:*** Federal funding assistance to low-income households under the CARES Act and the American Rescue Plan provided an unexpected respite from the effects of embedded urban poverty for millions of Americans. With the effects of the Covid-19 pandemic winding down, rather than putting these efforts entirely in the rearview mirror, poverty researchers and policymakers should make the effort to carefully evaluate their accumulated impacts and benefits, and to identify the lessons they offer for reforming and improving existing anti-poverty programs.

#### LOOKING AHEAD: OF URBAN DOOM LOOPS, INFLECTION POINTS AND FOCUSED PROBLEM-SOLVING

It has become fashionable in recent days among some commentators to opine that the Covid-19 pandemic has initiated an “urban doom loop” leading increasing numbers of residents and businesses to abandon many of America's leading urban centers. Or that because of the Covid-19 pandemic, American cities have reached some sort of inflection point that will make managing them increasingly difficult. Other commentators have warned of a Covid-19-related weakening of the economic interconnections and household preferences responsible for the pre-pandemic revival of U.S. downtowns and urban neighborhoods. As this paper's findings indicate, when the American urban landscape is considered in its entirety, these worries are mostly overblown. Among its more notable results:

- Three years in, the Covid-19 pandemic has done little to alter longstanding regional and metropolitan migration trends favoring lower density and lower living cost places in the South and Southwest over former industrial centers in the Midwest and Mid-Atlantic regions.
- In addition to legacy industrial cities like Chicago and Philadelphia, the cities that suffered most during the Covid-19 pandemic and are now recovering the most slowly are those with high housing and living costs, and whose economies are overly dependent on media and digital technology businesses: New York City, San Francisco, San Jose, Los Angeles, Seattle and Washington, DC.
- The Covid-19 pandemic sped up the process by which cloud-based communications are replacing face-to-face meetings, lessening the importance of downtown business clusters and permanently reducing the demand for high occupancy cost office buildings. This will lead to a modest number of older office buildings gradually being converted to other uses.

- In terms of retailing, the Covid-19 pandemic accelerated the shift toward e-commerce in all its forms while exposing the shaky market positions of retailers whose business models favored rapid store expansion over developing value and branding strategies that combined a bricks-and-mortar presence with the convenience of a satisfying and easy-to-use website.
- Other than generating extreme short-term housing price and rent volatility, Covid-19 did little to affect the three long-term dynamics currently shaping U.S. urban housing markets: (i) a demographically-induced proliferation in the number of housing types and market segments; (ii) a long-term slowdown in the rate of new housing construction due to inflexible zoning regulations limiting suburban home construction and urban and suburban redevelopment activity; (iii) a widening gap between Black and white homeownership rates; and (vi) rising housing costs putting larger numbers of individuals at risk of homelessness.
- Fears that Covid-induced fears of density would slow the rate of infill housing construction in cities and suburbs have yet proven unfounded.
- Similarly, despite all the pre-pandemic chatter about how autonomous and electric vehicles would fundamentally change how people travel, other than deepening transit agency operating deficits, Covid-19 did little to change long-term urban travel and mode choice behavior.
- Magnified by widespread protests over the discriminatory policing practices made evident by the murders of Michael Brown and Eric Garner in 2014 and Breonna Taylor and George Floyd in 2020, the Covid-19 pandemic made clear the inability of contemporary urban policing practices to contain the increase in violent crime conditioned on the growing availability of guns in U.S. cities and urban neighborhoods.
- On a more positive note, Covid-related income and housing assistance proved under the CARES act and American Rescue Plan made clear the potential for targeted anti-poverty programs to measurably alleviate concentrated urban poverty.

Time after time, U.S. cities and the U.S. urban system have proven to be remarkably adaptive to all manner of challenges including fires and natural disasters, the loss of leading businesses, and coping with technological and social change. Indeed, more often than not, the challenges that have proven most harmful to the long-term health and prosperity of American cities have arisen from poorly-conceived government policies and programs. These include the wholesale redlining of minority neighborhoods in the 1930s, 1940s and 1950s; the mistaken assumption that a torrent of private investment would follow in the wake of the urban renewal and urban freeway programs of the 1950s and 1960s; the federal government's insistence that public housing projects be built more cheaply and densely than necessary, further concentrating urban poverty; and the failure of local governments to properly reinvest in Black neighborhoods destroyed during the civil unrest of the 1960s. Only when these mistakes were finally recognized did America's cities begin recovering. Even then, the recovery process was slow and unbalanced, and typically favored business districts over residential neighborhoods. This pattern of selective neighborhood disinterest created the conditions that gave rise to the gentrification movement that began in the 1990s.

Recognizing that past government interventions have often proven to be more harmful than helpful, and that people have long memories, what actions should municipal officials undertake today to ensure a durable and equitable recovery from the Covid-19 pandemic? Based on observations of which places prospered during the pandemic and which did not, I offer six suggestions that apply to all local governments:

1. **Liberalize local zoning codes.** Zoning is a conservative mechanism that makes it harder for communities to respond to shifting market preferences and societal needs. Governments at every level should take a hard look at their zoning ordinances with an eye toward removing embedded barriers to mixed-use and multi-family development. This will make it easier to reuse excess office buildings and shopping centers as well add to housing supplies, putting downward pressure on prices and rents. A recent Urban Land Institute Report entitled "Reshaping the City: Zoning for a More Equitable, Resilient, and Sustainable Future,"

identifies the diverse ways various zoning reforms can be combined to make cities and suburbs more adaptable, more resilient, and more equitable.

2. **Make it easier and less costly for would-be entrepreneurs to start their own businesses.** The prevailing economic development model—and the one that has eased the economic recovery process in cities like Phoenix and Austin while impeding it in places like New York City and San Francisco-- stresses the importance of promoting locational synergies between existing and related businesses. This model will continue to have merit, but it needs to be supplemented by efforts making it easier for would-be entrepreneurs in all business sectors to start and grow their own businesses. Such efforts should include simplifying the local business registration process, making retail and commercial occupancy codes less onerous, and working with local banks and financial institutions to expand lines of credit to worthy entrepreneurs.
3. **Make using buses (and public transportation in general) easier and more convenient:** Many local transit agencies operate bus routes that are decades old and no longer reflect the origin-destination preferences or service priorities of potential bus riders. The only way to increase local transit patronage and begin making up pandemic-induced revenue shortfalls is to make local transit service more convenient for those who rely on it and more attractive to drivers stuck in traffic. In some cities, this will involve making selected bus lines free. In others, it will involve implementing bus rapid transit (BRT) service.
4. **Couple real-time crime data and pattern-finding software to identify areas prone to violent crime and redeploy police resources accordingly.** Violent crime is much more corrosive to a community's sense of well-being and security than the types of crimes that the "broken windows" doctrine of policing was created to deal with in the 1980s. In most cities, the bulk of violent crimes are concentrated in a limited set of neighborhoods. By combining real-time crime data with powerful pattern detection algorithms and constant community outreach, it should be possible to deploy anti-crime resources in a manner that improves police responsiveness, is seen as supportive rather than antagonistic, and helps build community trust.
5. **Refocus government low-income housing, economic opportunity, and income support programs on deconcentrating poverty.** A positive but unexpected result of the federal government's pandemic relief and income support programs was that they generated sharp declines in urban poverty rates and concomitant reductions in concentrated poverty rates. Governments at every level should study how these programs came together with an eye toward expanding on these favorable outcomes.
6. **Stress-test municipal budgets to identify key vulnerabilities to external disruptions.** There have been two significant external shocks during the past 15 years threatening local government fiscal capacity and health. The first was the Great Recession and the accompanying reduction in housing values. The second was the Covid-19 pandemic. Both led to reductions in own-source revenues while requiring expanded public spending. For a variety of reasons—climate change, economic contagion, increasing political volatility at the state and local levels—the incidence of external disruptions is on the rise. In anticipation that such shocks will continue, local governments should undertake a process of stress-testing municipal budgets to identify key points of revenue vulnerability and potential sources of revenue reserves.

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#### Public Access & Downloadable Data Websites

Covid-19 Case, Death and Hospitalization Data: Centers for Disease Control Covid Data Tracker:  
<https://covid.cdc.gov/covid-data-tracker/#datatracker-home>

Immigration Data: Department of Homeland Security Immigration Data and Statistics:  
<https://www.dhs.gov/immigration-statistics>

National, State, Place and Census Tract Population and Housing Statistics: Census Bureau American Community Survey and Decennial Census: <https://data.census.gov/>

National, State, Metro Area and County Population Projections: U.S. Census Bureau Population Projections:  
<https://www.census.gov/programs-surveys/popproj.html>

National, State and Metro Area Employment Statistics: U.S. Bureau of Labor Statistics:  
<https://www.bls.gov/data/tools.htm>

Housing Price and Metro Area GDP Statistics: St. Louis Federal Reserve, FRED Economic Data:  
<https://fred.stlouisfed.org/>

Metro Area and City Rent Statistics: Zumper: <https://www.zumper.com/>

Residential Building Permits: Census Bureau Construction residential construction series:  
<https://www.census.gov/construction/nrc/data/series.html>; HUD SOCDs Building Permit Database:  
<https://socds.huduser.gov/permits/help.htm>

Homelessness Counts and Continuum of Care Data: HUD Exchange:  
<https://www.hudexchange.info/programs/coc/coc-homeless-populations-and-subpopulations-reports/>

Retail Expenditures: Bureau of Labor Statistics: Consumer Expenditure Survey: <https://www.bls.gov/cex/>

Automobile Vehicle Miles of Travel and Congestion Data: Texas A&M Transportation Institute, Urban Mobility Report and Data: <https://mobility.tamu.edu/umr/report/>; FHWA Travel Monitoring Data:  
[https://www.fhwa.dot.gov/policyinformation/travel\\_monitoring/tvt.cfm](https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm)

Transit Patronage Data: American Public Transportation Association (APTA) Transit Statistics:  
<https://www.apta.com/research-technical-resources/transit-statistics/>

National and City Crime Statistics: FBI Crime Data Explorer:  
<https://cde.ucr.cjis.gov/LATEST/webapp/#/pages/home>

## NOTES

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- <sup>1</sup> As reported on the CDC website. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6946a2.htm>
- <sup>2</sup> Thomas Edsall. "How a 'Golden Era for Large Cities' Might Be Turning Into an 'Urban Doom Loop'" New York Times. November 30, 2022. Edward Glaeser and Carlo Ratti. New York is Full of Empty Offices after Covid. Make Way for Playground City. New York Times. May 10, 2023.
- <sup>3</sup> What Comes Next for San Francisco's Emptied Downtown. New York Times. December 17, 2022.
- <sup>4</sup> The term "creative class cities" was introduced by geographer Richard Florida in a 2003 article entitled "Cities and the Creative Class," to describe cities whose labor forces included high percentages of "people in design, education, arts, music and entertainment, whose economic function is to create new ideas, new technology and/or creative content."
- <sup>5</sup> U.S. Customs and Border Patrol website. Southwest Land Border Encounters. <https://www.cbp.gov/newsroom/stats/southwest-land-border-encounters> accessed March 2023.
- <sup>6</sup> These estimates are based on data from the U.S. Department of Homeland Security indicating average immigration volumes of 1.03 million immigrants per year between 2000 and 2009, and 1.06 million between 2010 and 2019. (U.S. 2019 Lawful Permanent Residents Annual Flow Report authored by the Office of Immigration Statistics (OIS) in the Department of Homeland Security)
- <sup>7</sup> Among countries with a population of fifty million or more, the U.S. ranks fourth in terms of the share of its population living in an urban area, behind only Japan, Brazil and the United Kingdom. World Factbook Urbanization. Central Intelligence Agency. <https://www.cia.gov/the-world-factbook/field/urbanization/> Accessed March 2023)
- <sup>8</sup> First introduced by Marshall in 1920, and later expanded by Hoover (1937), Isard (1956), Moomaw (1981), Krugman (1991) and Glaeser et al. (1992), the term *agglomeration effects* (a.k.a. agglomeration economies) refers to the firm-level productivity gains that occur when complementary firms and business activities locate nearby one another or in clusters (Rosenthal and Strange 2004). Agglomeration effects are an example of positive externalities or spillover effects in which the benefits of market transactions accrue to third parties.
- <sup>9</sup> We define *core cities* as non-contiguous cities with more than 300,000 residents at the center of major metropolitan areas. This definition excludes large adjunct cities like Mesa (Arizona), Anaheim (California), Fort Lauderdale (Florida), and Arlington (Texas).
- <sup>10</sup> Because of population losses following Hurricane Katrina in 2005, these population growth estimates do not include New Orleans, which was still the 21<sup>st</sup> largest U.S. city in 1980. St. Louis, the 26<sup>th</sup> largest, is included in its place.
- <sup>11</sup> Core counties are those that contain core cities. The U.S. Bureau of Labor Statistics publishes monthly and yearly employment estimates for counties and metro areas but not for cities.
- <sup>12</sup> The top three cities in terms of population losses in 2020 and 2021 were New York City (-300,000), San Francisco (-64,000), and Chicago (-45,000). These counts do not include temporary relocatees who did not change their address.
- <sup>13</sup> These estimates reflect permanent job losses, not temporary layoffs or those working part-time.
- <sup>14</sup> The twelve core counties include Los Angeles, Cook (Chicago), and Manhattan (New York City) in the top GDP density quartile; King (Seattle), Franklin (Columbus), and Travis (Austin) in the second GDP density quartile; San Diego, Miami-Dade and Bexar (San Antonio) in the third GDP density quartile; and Maricopa (Phoenix), Clark (Las Vegas) and Riverside in the lowest GDP density quartile.
- <sup>15</sup> Adjusted for a lower overall national growth rate. Between 2000 and 2019, the number of jobs nationally grew at an annual rate of 0.78%. Between 2020 and 2030, the Bureau of Economic Analysis predicts that the national economy will grow at an annual rate of 0.75 percent.
- <sup>16</sup> <https://moneyweek.com/investments/stocks-and-shares/tech-stocks/604868/tech-stock-crash-dotcom-bust-20-is-upon-us> accessed February 2023.

<sup>17</sup> As both cause and effect of this education/lifestyle bifurcation, income inequality—as indicated by the ratio of the mean income of the top decile of income earners to the mean income of the bottom decile—was also on the rise, having grown from 10.6 in 2000, to 11.7 in 2010, to 12.6 in 2018 (U.S. Census Bureau 2020).

<sup>18</sup> Cushman and Wakefield. U.S. National Marketbeat: Office Q4 2019. <https://www.crescorealestate.com/wp-content/uploads/2020/07/US-Office-MarketBeat-Q4-2019.pdf> accessed February 2023.

<sup>19</sup> CBRE, US Real Estate Market Outlook, Chapter 3: Office/Occupier. <https://www.cbre.com/insights/books/us-real-estate-market-outlook-2022/office-occupier> accessed March 2023.

<sup>20</sup> <https://www.thecity.nyc/2022/10/20/23415516/office-occupancy-pandemic-era-peak-modest-job-growth-income-taxes-recovery> accessed February 2023.

<sup>21</sup> <https://californiaglobe.com/articles/san-francisco-office-occupancy-still-under-40-despite-ending-mask-mandate/> accessed February 2023.

<sup>22</sup> CBRE. U.S. Real Estate Market Outlook 2023. December 13, 2022. <https://www.cbre.com/insights/books/us-real-estate-market-outlook-2023> accessed February 2023.

<sup>23</sup> The term “normal vacancy rate” refers to the vacancy rate range in which neither landlords nor prospective tenants have undue power to negotiate higher or lower rents. Normal vacancy rates are higher in markets where it is easier to build and lower in markets where building new office buildings is more difficult.

<sup>24</sup> <https://www.zippia.com/advice/return-to-work-statistics/> accessed January 2023.

<sup>25</sup> <https://www.census.gov/construction/nrc/data/series.html>

<sup>26</sup> <https://fred.stlouisfed.org/series/CEXRSA>

<sup>27</sup> <https://www.zumper.com/rent-research/los-angeles-ca> accessed February 2023.

<sup>28</sup> <https://www.zumper.com/rent-research/cleveland-oh> accessed February 2023.

<sup>29</sup> Originally set to expire in June 2021, the eviction ban was twice extended by the CDC, the first time to August 30, 2021, and the second time to the end of 2021. On August 26, 2021, the Supreme Court struck down the CDC’s eviction band, but allowed state bans to remain in place. By July 2022, all state bans had been phased out.

<sup>30</sup> Worried that Covid would devastate consumer demand and sink the U.S. economy, on March 14, 2020, the Federal Reserve cut the federal funds target rate to 0 to 0.25% and initiated a \$700 billion quantitative easing program.

<sup>31</sup> <https://www.bloomberg.com/news/articles/2022-02-04/what-covid-19-did-to-u-s-homelessness> accessed January 2023.

<sup>32</sup> “California homeless population grew by 22,000 over pandemic.” Calmatters.org. October 6, 2022. <https://calmatters.org/newsletters/whatmatters/2022/12/california-homeless-count-2/> accessed January 2023.

<sup>33</sup> Center on Budget and Policy Priorities . 2019 National and State Housing Factsheet. <https://www.cbpp.org/research/housing/national-and-state-housing-fact-sheets-data> (accessed January 2023). This estimate does not include the three million renter households currently residing in low-income housing tax credit units.

<sup>34</sup> Including Karen Bass in Los Angeles in 2022, Eric Adams in New York City in 2021, Eric Dickens in Atlanta in 2021 and Bruce Harrell in Seattle in 2021.

<sup>35</sup> In June 2022, Hennepin County Judge Joseph Klein paused implementation of Minneapolis’ zoning reforms, citing the need for further study of their impacts on the natural environment.

<sup>36</sup> <https://www.cnn.com/2021/04/05/store-closures-ubs-predicts-80000-stores-will-go-dark-by-2026.html> accessed February 2023.

<sup>37</sup> As reported on the business website Globaldata.com, 87% of Amazon’s revenues, which it refers to as net sales, came from its retail operations in fiscal year 2021. The balance came from Amazon Web Services (AWS). <https://www.globaldata.com/data-insights/retail-amp-wholesale/amazons-sales-by-segment/> accessed March 2023.

<sup>38</sup> The Matthews Company. 2022 End-of-year Retail Market Report. <https://www.matthews.com/eoy-retail-market-report-2022/> accessed February 2023.

<sup>39</sup> For a wide-ranging and independent assessment of the future of retailing, see Sara Brown, “Four Visions for the Future of Retail” MIT Sloan School of Management. August 2022. <https://mitsloan.mit.edu/ideas-made-to-matter/4-visions-future-retail> accessed March 2023.

<sup>40</sup> <https://socds.huduser.gov/permits/> accessed February 2023.

<sup>41</sup> The term dimensional variance refers to a change in allowable building heights or front, back and side yard setbacks.

<sup>42</sup> U.S. Department of Transportation, Federal Highway Administration. [https://www.fhwa.dot.gov/policyinformation/travel\\_monitoring/tvt.cfm](https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm) accessed January 2023

<sup>43</sup> See the TAMTI Urban Mobility website (<https://static.tti.tamu.edu/tti.tamu.edu/documents/mobility-report-2021-appx-a.pdf>) for a fuller explanation of how TAMTI researchers calculate total and per commuter travel delays.

<sup>44</sup> <https://inrix.com/scorecard/> accessed January 2023.

<sup>45</sup> These percentages were calculated from ridership counts published in APTA's quarterly ridership reports available at <https://www.apta.com/research-technical-resources/transit-statistics/ridership-report/ridership-report-archives/>

<sup>46</sup> Comparing rail and bus ridership levels among individual cities between 2000 and 2019 is complicated by the fact that some places combined or reorganized operations while others began new services.

<sup>47</sup> <https://www.bts.gov/product/national-transportation-statistics> accessed January 2023.

<sup>48</sup> <https://www.bts.dot.gov/covid-19/daily-vehicle-travel>. Accessed December 2022.

<sup>49</sup> The correlation coefficient among the 20 cities listed in Table 9 between the 2020 poverty rate and subsequent 2020-2021 poverty rate changes is -0.46.

<sup>50</sup> Because census tracts commonly cross city boundaries, the tabulations reported in Table 10 are for core urban counties instead of for cities.