

McKinsey's Real Estate Practice

Empty spaces and hybrid places

The pandemic's lasting impact on real estate

July 2023

Authors

Jan Mischke

Ryan Luby

Brian Vickery

Jonathan Woetzel

Olivia White

Aditya Sanghvi

Jinnie Rhee

Anna Fu

Rob Palter

André Dua

Sven Smit

Editor

Benjamin Plotinsky



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At a glance

This research examines the impact of the COVID-19 pandemic on real estate in “superstar” cities in the United States, Europe, and Asia. That real estate has not kept up with shifts in behavior caused by the pandemic. The cities’ vibrancy is at risk, and they will have to adapt.

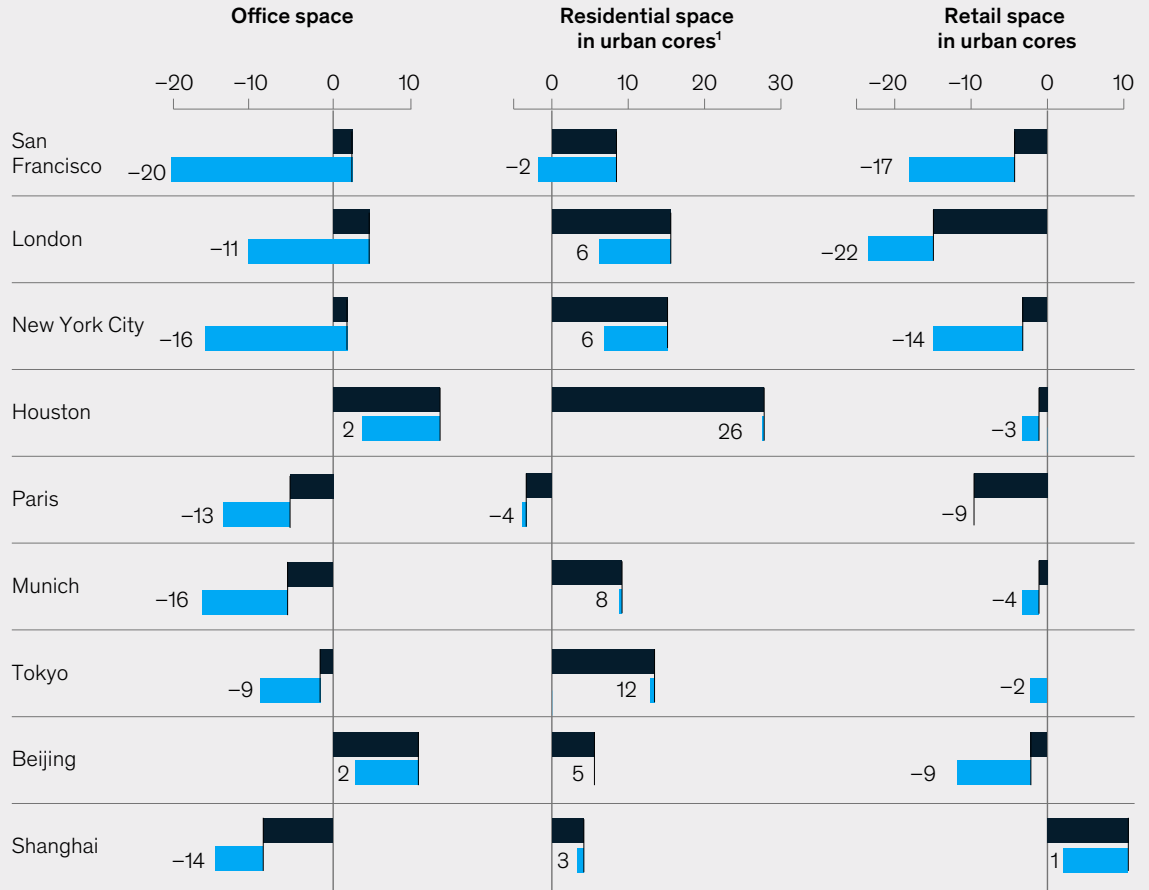
- **Hybrid work is here to stay.** As a result, office attendance has stabilized at 30 percent below prepandemic norms.
- **The ripple effects of hybrid work are substantial.** Untethered from their offices, residents have left urban cores and shifted their shopping elsewhere. For example, New York City’s urban core lost 5 percent of its population from mid-2020 to mid-2022, and San Francisco’s lost 6 percent. Urban vacancy rates have shot up. Foot traffic near stores in metropolitan areas remains 10 to 20 percent below prepandemic levels.
- **Demand for office and retail space in superstar cities will remain below prepandemic levels.** In a moderate scenario that we modeled, demand for office space is 13 percent lower in 2030 than it was in 2019 for the median city in our study. In a severe scenario, demand falls by 38 percent in the most heavily affected city.
- **Real estate is local, and demand will vary substantially by neighborhood and city.** Demand may be lower in neighborhoods and cities characterized by dense office space, expensive housing, and large employers in the knowledge economy.
- **Cities and buildings can adapt and thrive by taking hybrid approaches themselves.** Priorities might include developing mixed-use neighborhoods, constructing more adaptable buildings, and designing multiuse office and retail space.

Exhibit

In a moderate scenario, demand for office and retail space falls sharply between 2019 and 2030.

Change in demand for real estate before prices adjust, 2019–30, %

■ Change resulting from factors unrelated to the pandemic
 ■ Change resulting from pandemic-driven behavior



Note: For more information about the scenario, see the technical appendix.

¹Demand for residential space in superstar cities is highly price elastic, so in the long run, these shifts would probably lead to a rebalancing of prices rather than an actual reduction in demand.

Source: Beijing Municipal Bureau of Statistics; BNP Paribas; Colliers; Commercial Real Estate Intelligence Solutions; CoStar; Department for Levelling Up, Housing and Communities (United Kingdom); E&G Real Estate; E-Stat (Japan); Eurostat; EW & Associates Realty; Federal Statistical Office (Germany); German Property Partners; Kastle; Ministry of Beijing; Mitsui Fudosan; National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); Office for National Statistics (United Kingdom); RealAdvisor; Sanko Estate Company; Shanghai Municipal Bureau of Statistics; Statistics Bureau of Japan; Tokyo Metropolitan Government; US Bureau of Labor Statistics; US Census Bureau; McKinsey Global Institute analysis

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Executive summary

When the COVID-19 pandemic began, it dramatically changed the way people worked, lived, and shopped in cities around the world. The starkest change was where and how they worked. Obeying lockdowns and office closures, tired of uncomfortable masks, and enabled by remote-work technology, many employees abruptly retreated from traditional offices to home offices. Many of those employees, newly freed from their daily commutes, chose to move out of urban cores. And now that fewer of them were working and living near urban stores, fewer of them shopped there. In recent months, some of those behavioral shifts have slowed. Others persist, particularly among office employees continuing to engage in hybrid work (that is, a combination of remote and in-office work).

The behavioral shifts have already had major effects on real estate in “superstar” cities—roughly speaking, cities with a disproportionate share of the world’s urban GDP and GDP growth. In superstar cities’ urban cores, the percentage of office and retail space that is vacant has grown sharply since 2019, and home prices have increased more slowly than in the suburbs and other cities.

To what extent could real estate in superstar cities continue to suffer? In this research, the McKinsey Global Institute has modeled future demand for office, residential, and retail space in several scenarios.¹ In those scenarios, demand for office and retail space is generally lower in 2030 than it was in 2019, though the anticipated reductions in our moderate scenario are smaller than those projected by many other researchers. Our analysis also shows that the ripple effects will be complex—for example, that certain kinds of cities and neighborhoods will be more heavily affected than others. We considered a wide variety of factors, including long-term population trends; employment trends, such as the ongoing effects of automation; office attendance patterns by industry; employee coordination, defined as the maximum share of workers in the office at a given time; workers’ ages and incomes; the share of a city’s population that commutes from elsewhere; housing price variation among neighborhoods; and shopping trends, such as the ongoing increase in online shopping. In addition to many secondary sources, our modeling includes information from a large global survey that we conducted to understand the behavioral shifts caused by the pandemic.

We performed this research during a time of exceptional macroeconomic uncertainty. Inflation and interest rates are high; fears of recession are mounting; stress in the financial system has been making headlines. Actual outcomes, of course, will depend on how those variables and others play out.

What is certain is that urban real estate in superstar cities around the world faces substantial challenges. And those challenges could imperil the fiscal health of cities, many of which are already straining to address homelessness, transit needs, and other pressing issues. But the challenges also provide an opportunity to spur a historic transformation of urban spaces. By becoming more flexible and adaptable in everything from the makeup of neighborhoods to the design of buildings—in essence, becoming more “hybrid” themselves—superstar cities can not only adapt but thrive.

¹ The research considers only those three asset classes: office, residential, and retail space. Others, such as industrial space and self-storage space, are outside the scope of the research.

How hybrid work has changed the way people work, live, and shop

During the pandemic, workers' office attendance plummeted. Untethered from their daily commutes, urbanites moved away from urban cores in greater numbers than they had before the pandemic (and fewer people moved in), and people spent less in urban stores (see Box E1, "How we define cities"). The rate of out-migration has now returned to its prepandemic trend, but our research suggests that few of the people who left will return and that urban shopping will not fully recover.

Box E1

How we define cities

This report is about real estate in superstar cities—roughly speaking, cities with a disproportionate share of the world's urban GDP and GDP growth. We have borrowed the term and the concept from the 2018 MGI report *Superstars: The dynamics of firms, sectors, and cities leading the global economy*. The report does not examine real estate outside superstar cities.

By *city*, we usually mean a large metropolitan area. Our analysis often separates such a metropolitan area into two parts: the *urban core*, which refers to the densest part of the area, and the *suburbs*, which refers to everything outside the urban core. For example, when we discuss San Francisco's urban core, we mean San Francisco County, Alameda County, and San Mateo County. And when we discuss San Francisco's suburbs, we mean the rest of the San Francisco metropolitan area (that is, Marin County and Contra Costa County).

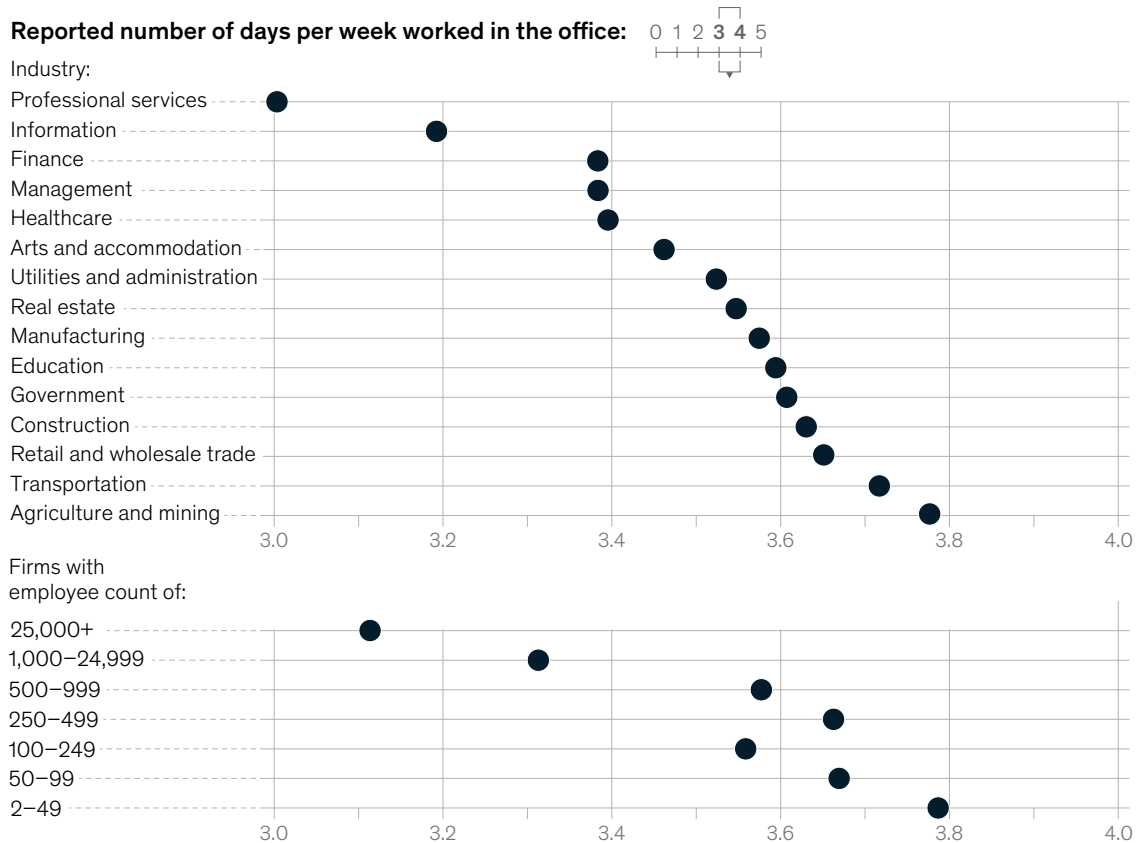
We focus most closely on nine superstar cities: Beijing, Houston, London, New York City, Paris, Munich, San Francisco, Shanghai, and Tokyo. However, in the survey that underlies much of this report, we collected data from a larger set of 17 superstar cities in six countries in order to better understand behavior. At one point in our research, we were able to extend our analysis to a still larger set of 24 superstar cities to help us identify patterns in suburbanization.

Hybrid work is here to stay, and office attendance is down by 30 percent

Employees still spend far less time working at the office than they did before the pandemic, according to our survey. In early 2020, as they adopted remote work and hybrid work in response to lockdowns and health concerns, office attendance in the metropolitan areas we studied dropped by up to 90 percent. It has since recovered substantially but remains down by about 30 percent, on average. As of October 2022, office workers were visiting the office about 3.5 days per week. That number varied among cities, from 3.1 days in London to 3.9 in Beijing. (For more information about the survey, see the technical appendix.)

Office attendance also varies by industry and neighborhood. In large firms in the knowledge economy—which we define as the professional services, information, and finance industries—employees tend to go to the office fewer days per week (Exhibit E1). Characteristics of areas with lower office attendance include expensive housing, a higher ratio of inbound commuters to residents, and a small share of retail, according to our research on US counties. Local culture also plays a role.

Office attendance is lower in large firms in the knowledge economy.



Note: Survey respondents were asked, "On average, how many days of the week do you work in the office currently?" These results exclude respondents who said that they were not "currently employed and in the office workforce." They also exclude respondents who said that they were not currently working full time. Source: McKinsey Global Institute analysis

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There are several reasons to believe that the current rate of office attendance could persist. First, the rate has remained fairly stable since mid-2022. Second, three key numbers—the number of days per week that survey respondents go to the office (3.5), the number of days they expect to go to the office after the pandemic ends (3.7), and their preferred number (3.2)—are not far apart. Third, 10 percent of the people we surveyed said that they were both likely to quit their jobs if required to work at the office every day and willing to take a substantial pay cut if doing so let them work from home when they wanted. That group contains many senior, high-income employees, suggesting that they may wield influence over companies' decisions. Nevertheless, it is not certain that the current rate of office attendance will persist; it could change, for example, if labor market dynamics shift or if research conclusively indicates either a negative or a positive relationship between hybrid work and productivity.

Up to 7 percent of the people in urban cores left for good

During the pandemic, a wave of households left the urban cores of superstar cities, and fewer households moved in. For example, New York City's urban core lost 5 percent of its population from mid-2020 to mid-2022, San Francisco's lost 6 percent during the same period, and London's lost 7 percent from mid-2020 to mid-2021.² The main reason was out-migration. In the suburbs, by contrast, populations grew, or they shrank less dramatically than populations in the urban cores did. In the United States, suburbanization had already been happening before the pandemic, and the shock accelerated an existing trend; by contrast, in most of the European and Japanese cities we studied, urbanization gave way to suburbanization (Exhibit E2).

Exhibit E2

During the pandemic, most suburbs grew more quickly than their urban cores.

Difference between urban and suburban population growth rates, percentage points



Note: Results shown for London are based on census revisions made for 2021 by the United Kingdom's Office for National Statistics.
 Source: Beijing Municipal Bureau of Statistics; Eurostat; National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); E-Stat (Japan); Office for National Statistics (United Kingdom); Shanghai Municipal Bureau of Statistics; US Census Bureau; McKinsey Global Institute analysis

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² Data about changes in London's population in 2022 are not available yet.

The urban cores where population growth was smallest in relation to their suburbs tended to be those with expensive homes, high office density, a high share of workers in the knowledge economy, and limited retail presence—some of the same characteristics that shaped office attendance. London, Dallas, New York, San Francisco, and Boston were the most affected. In general, US urban cores were more affected than European and Japanese ones, which tend to have more mixed-use development, in which office, residential, and retail space exist alongside one another. The migration trends in Beijing were primarily shaped by prepandemic efforts to control the population size in urban cores by encouraging out-migration, efforts that were paused during the pandemic.

Hybrid work seems to have contributed significantly to out-migration. In our survey, among respondents who moved after March 2020, 20 percent said that their move was possible only because they could now work from home more frequently. In the United Kingdom and the United States, people who had moved from urban cores to suburbs, and who said that their move was possible only because they could now work from home, said that they were drawn by housing conditions: better neighborhoods, the prospect of homeownership, and outdoor space. In Japan and China, wanting to own a home was far and away the strongest factor motivating people's moves to the suburbs.

Out-migration from urban cores of superstar cities seems to have slowed, but it is still above prepandemic levels. From 2019 to 2021, net out-migration from US superstar city cores doubled; then it fell in 2022, although it remained above 2019 rates. In other words, the people who moved out during the pandemic are not moving back, and others keep leaving.

Shopping remains depressed, especially in urban cores

As people stayed home during the pandemic, they radically shifted the way they shopped. Foot traffic plummeted near stores in the cities we studied, and online spending as a share of retail spending spiked.

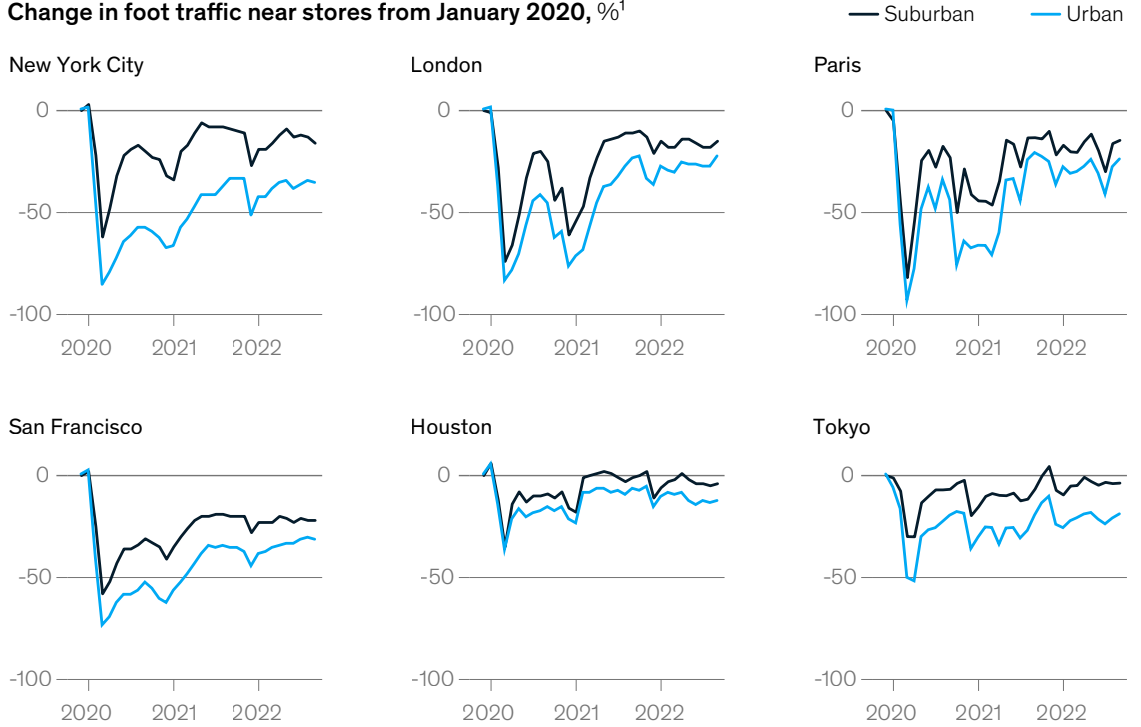
More recently, foot traffic near stores in metropolitan areas has risen again, but it is still 10 to 20 percent lower than it was before the pandemic. A major reason for the decline is that online spending as a share of retail spending, which admittedly grew more slowly after the initial spike, nevertheless remains higher than it was in 2019.

Retailers in urban cores face particularly acute challenges in attracting customers. As of October 2022, foot traffic had recovered noticeably less near those stores than near suburban ones (Exhibit E3). In New York, for example, foot traffic near suburban stores was 16 percent lower than it had been in January 2020, but foot traffic near urban stores was 36 percent lower. And office-dense neighborhoods in urban cores are facing even more challenges. The reason seems to be that when people come to the office less often, they shop less often near the office. In our survey, respondents in the United States who worked at the office no more than one day per week reported doing much less of their total retail spending near the office than did those who worked in the office two to five days a week.

Out-migration from urban cores of superstar cities seems to have slowed, but it is still above prepandemic levels.

Foot traffic near stores is recovering more quickly in the suburbs than in urban cores.

Change in foot traffic near stores from January 2020, %¹



Note: Cities are defined as follows: the New York–Newark–Jersey City metropolitan statistical area (MSA); the Greater London area; Île-de-France; the San Francisco–Oakland–Hayward MSA; the Houston–The Woodlands–Sugar Land MSA; and the Kanto Region (Tokyo).
¹Stores include retail and recreation locations but not grocery stores or pharmacies.
Source: Google's Community Mobility Reports; McKinsey Global Institute analysis

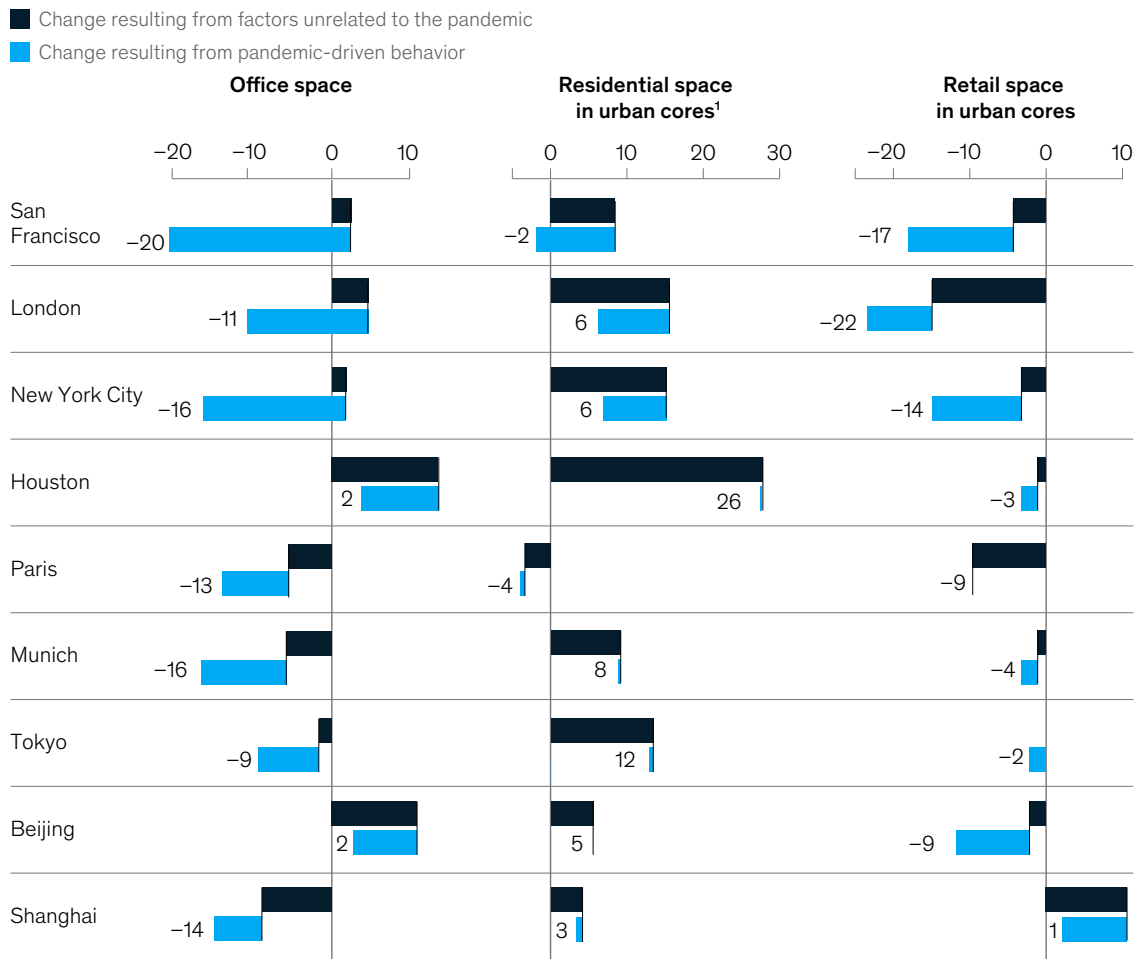
The impact on real estate

The behavioral changes caused by the pandemic—lower office attendance, accelerated out-migration from cities, and less shopping in office-heavy neighborhoods—will push down demand for real estate in most superstar cities. By 2030, in the scenarios we modeled, demand for office and retail space is generally lower than it was in 2019 (Exhibit E4). Residential space is less affected, though the price differences between urban cores and suburbs are narrower than they used to be. (Note that our model does not consider price elasticity; that is, it does not account for the fact that when demand decreases, prices fall, pushing demand partway back up. For more information about the model, see the technical appendix.)

Exhibit E4

In a moderate scenario, demand for office and retail space falls sharply between 2019 and 2030.

Change in demand for real estate before prices adjust, 2019–30, %



Note: For more information about the scenario, see the technical appendix.

¹Demand for residential space in superstar cities is highly price elastic, so in the long run, these shifts would probably lead to a rebalancing of prices rather than an actual reduction in demand.

Source: Beijing Municipal Bureau of Statistics; BNP Paribas; Colliers; Commercial Real Estate Intelligence Solutions; CoStar; Department for Levelling Up, Housing and Communities (United Kingdom); E&G Real Estate; E-Stat (Japan); Eurostat; EW & Associates Realty; Federal Statistical Office (Germany); German Property Partners; Kastle; Ministry of Beijing; Mitsui Fudosan; National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); Office for National Statistics (United Kingdom); RealAdvisor; Sanko Estate Company; Shanghai Municipal Bureau of Statistics; Statistics Bureau of Japan; Tokyo Metropolitan Government; US Bureau of Labor Statistics; US Census Bureau; McKinsey Global Institute analysis

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There will be 13 percent less demand for office space in the median city we studied

Demand for office space has already declined, partly because of the increase in remote work and partly because of a challenging macroeconomic environment. Vacancy rates have increased in all the cities we studied. In the US cities, transaction volume (the total dollar value of all sales) fell by 57 percent, average sale price per square foot fell by 20 percent, and asking rents fell by nearly 22 percent (all in real terms) from 2019 to 2022. In San Francisco, the most strongly affected city in the United States, the share of office space that was vacant was ten percentage points higher in 2022 than it was in 2019, transaction volume was 79 percent lower, sale prices per square foot were 24 percent lower, and asking rents were 28 percent lower (also in real terms). The decline in demand has prompted tenants—wary about current macroeconomic conditions, uncertain about how much their workers will come to the office, and therefore uncertain about how much space they will need—to negotiate shorter leases from owners. Shorter leases, in turn, may make it more difficult for owners to obtain financing or may cause banks to adjust valuation models, which rely in part on the duration of existing leases.

\$800 bn

Value of office space at stake by 2030

In the scenarios we modeled, the amount of office space demanded in most cities does not return to prepandemic levels for decades. By 2030, demand is as much as 20 percent lower than it was in 2019, depending on the city.³ That estimate is what our model yields in a moderate scenario—one in which, by 2025, office attendance is higher than it is now but still lower than it was before the pandemic, and that partial recovery continues indefinitely.⁴ In a more severe scenario, in which attendance for all office workers in 2030 falls to the rate already seen in large firms in the knowledge economy, demand is as much as 38 percent lower than it was in 2019, again depending on the city.

Falling demand will drive down value. In the nine cities we studied, a total of \$800 billion (in real terms) in value is at stake by 2030 in the moderate scenario. On average, the total value of office space declines by 26 percent from 2019 to 2030 in the moderate scenario and by 42 percent in the severe one. The impact on value could be even stronger if rising interest rates compound it. Similarly, the impact could be stronger if troubled financial institutions decide to more quickly reduce the price of property they finance or own.

Falling demand will also result in a surplus of office space, particularly in the lower-quality and older buildings that the real estate industry calls Class B and Class C. From 2020 to 2022, rents, demand, and sometimes prices generally grew more quickly (or fell less sharply) for Class A buildings than for Class B buildings in US superstar cities. For example, in New York City during that period, the average sale price per square foot rose 3 percent for Class A buildings but fell by 8 percent for Class B buildings.⁵ There are a number of reasons for this “flight to quality.” One is that many employers see high-quality space as a way to encourage office attendance among their employees. Another is that Class B and Class C office space is often not suited to hybrid work; for example, it may have less sophisticated audiovisual equipment. Also, now that hybrid work has reduced the total amount of space that employers need, they can spend their budgets on smaller amounts of higher-quality space rather than larger amounts of lower-quality space.

³ When we projected demand for office space in Beijing and Shanghai, we studied only the urban cores of those cities. When we projected demand for office space in the other superstar cities, we studied larger areas, usually but not always the entire metropolitan areas.

⁴ Our model considers peak weekly attendance rather than average weekly attendance. It also takes into account the continued trend toward more desks in less space as well as projections of population growth, shifts in urban migration, and the share of office workers as the knowledge economy grows but feels the impact of automation.

⁵ Data from CoStar.

Demand growth for residences will be muted, especially in urban cores

During the pandemic, partly because of out-migration, demand for residences grew less quickly in superstar urban cores than it did in suburbs and other cities. Residential vacancy rates increased from 2019 to 2022 in every superstar urban core that we studied, from a 0.8-percentage-point increase in Tokyo to a 9.9-percentage-point increase in London; meanwhile, in the suburbs, vacancy rates grew much less or even declined.⁶ Prices followed suit, rising eight percentage points more slowly in US superstar urban cores than in their suburbs and 13 percentage points more slowly than in non-superstar urban cores. In San Francisco, nominal prices in some neighborhoods fell by 12 percent from the end of 2019 to 2022. Residences in San Francisco's urban core are now worth \$750 billion less than they would have been if prices there had risen at the national average rate. The effect seems to be a global phenomenon.

Before price adjustments are accounted for, the demand for residences in superstar urban cores that we modeled is up to 10 percent lower by 2030 than it would have been if not for the pandemic. It is nevertheless higher than it was in 2019 in every city we studied except San Francisco and Paris. That estimate rests on the assumption that the wave of residents who left urban cores will not return but that population growth in each city will return to its prepandemic rate by 2024. Should population growth remain depressed for longer, the impact on demand would be even bigger.

However, prices will probably adjust, and so will rents. Again, our model does not account for such price adjustments, so we could not create demand scenarios that incorporated them. But we can say that homes in urban cores are unlikely to stay empty. Residential space differs from office space in that regard: once prices and rents fall, any available floor space is usually taken up quickly. Indeed, vacancy rates in urban cores have already increased less sharply than urban out-migration would suggest. Unfortunately, the downward pressure on prices and rents is unlikely to make residences in superstar cities—many of which suffer from expensive housing and homelessness—much more affordable.

There will be 9 percent less demand for retail space in the median city we studied

Because of reduced foot traffic near urban stores during the pandemic, vacancy in retail space has increased and rents have declined, particularly in office-dense locations. As with office and residential space, vacancy rates increased from 2019 to 2022 in all the superstar urban cores we studied, ranging from a 1.8-percentage-point increase in San Francisco to a 6.2-percentage-point increase in London. From 2019 to 2022, asking retail rents declined an average of 5.4 percent (in real terms) in the cities we studied. The rents that were actually paid may have fallen even more.

Before price adjustments are accounted for, the demand for retail space in superstar urban cores that we modeled is lower in 2030 than it was in 2019, putting downward pressure on rents.⁷ In San Francisco's urban core, for example, demand will be 17 percent lower. That estimate is what our model yields in a scenario in which there is a partial return to office (and therefore a partial recovery of retail spending near the office), people's adoption of online shopping returns to its prepandemic rate of growth by 2025, and people who moved during the pandemic do not move back. In a more severe scenario, the decline in demand in San Francisco's urban core would be as high as 42 percent. In most superstar urban cores, demand would be projected to decline even if the pandemic had not happened; the reasons are population trends and the increasing move to online shopping. As with residential real estate, however, prices are likely to adjust.

⁶ Estimate excludes China because of data limitations.

⁷ Our model accounts for population growth, shifts toward remote work, per capita spending growth, increasing online spending as a share of retail spending, shifts in migration patterns, and increased shopping in the suburbs.

What strongly affected neighborhoods and cities have in common

A review of various components of this research—regression analyses, survey responses, and literature reviews—suggests that cities where the pandemic has strongly affected real estate demand tend to have certain characteristics. (We were unable to determine which of those characteristics correlated most strongly with the impact on demand.)

Some of the characteristics are related to the **business mix** in a city. Specifically, cities with a larger share of workers in the knowledge economy, a higher number of large firms, a higher ratio of commuters to residents, and more cultural acceptance of remote work have tended to experience a greater impact on demand. Those factors lead to lower rates of office attendance, which reduce demand for office space directly, reduce demand for retail space by diminishing the number of office workers shopping at urban stores, and reduce demand for residential space by prompting people to move out of cities' urban cores.

Other characteristics that correlate with the impact on demand are related to the **urban structure** of a city. Specifically, cities with office-dense real estate and little mixed-use development, as well as expensive housing and little green space, have tended to experience a greater impact on demand. Such characteristics make places less desirable for working, living, and shopping.

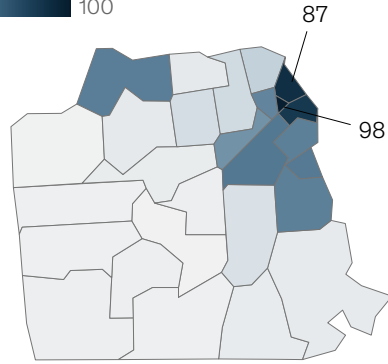
Two of those characteristics seem to correlate with the impact on demand at the neighborhood level as well. We examined neighborhoods defined by zip codes in Manhattan and San Francisco County (Exhibit E5). According to our analysis, the larger the share of real estate in a neighborhood that was occupied by offices, the more out-migration from that neighborhood. Similarly, home prices correlated with out-migration: pricier neighborhoods experienced more out-migration. (Data limitations prevented us from finding out whether the other characteristics also correlated with demand at the neighborhood level.)

The larger the share of real estate in a neighborhood that was occupied by offices, the more out-migration from that neighborhood.

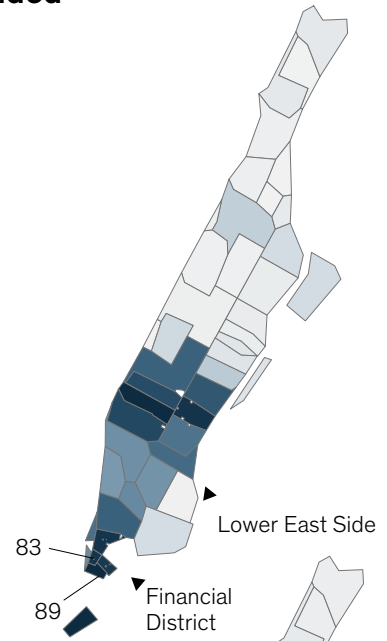
Expensive, office-dense neighborhoods have tended to suffer more out-migration.



Share of real estate occupied by office buildings in 2019, %

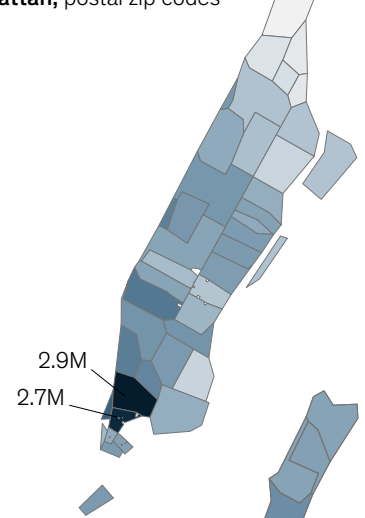
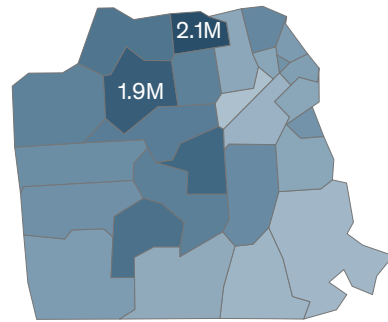
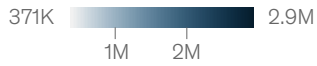


San Francisco, postal zip codes

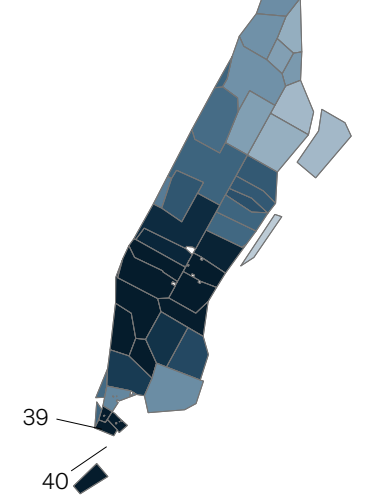
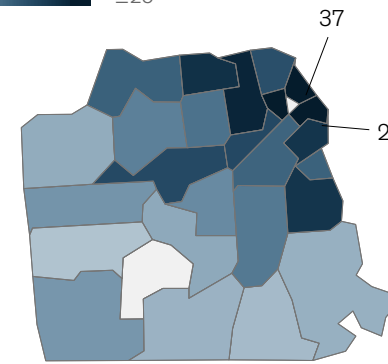


Manhattan, postal zip codes

Typical home value in 2019, \$



Net out-migration in 2020–22, % of residents



Note: Estimates of out-migration are based on permanent and temporary change-of-address requests to the US Postal Service—not on data from the US Census Bureau, as in some other exhibits in this report—because the postal data are more up-to-date and describe smaller geographical areas. Source: US Census Bureau; US Postal Service; Zillow Home Value Index; McKinsey Global Institute analysis

80%

Share of real estate in New York's Financial District dedicated to offices

Business mix and urban structure make a difference at the neighborhood level

Two very different Manhattan neighborhoods show that business mix and urban structure correlate with demand at the neighborhood level. The business mix of the first neighborhood, the Financial District, is heavily skewed toward the knowledge economy; 50 percent of all office space there is occupied by knowledge-economy tenants. The Financial District's urban structure is office dense: 80 percent of real estate is dedicated to offices. And the average price of a home is roughly \$1.5 million. Now consider the nearby Lower East Side, where just 22 percent of office space is dedicated to the knowledge economy, 7 percent of all space is dedicated to offices, and the average home price is about \$1.0 million.

Those factors help us understand why the pandemic has driven such different outcomes in the two neighborhoods. The domestic out-migration rate from the start of 2020 to the start of 2022 was 2.2 times higher in the Financial District than in the Lower East Side, for example. It stands to reason that residents of the Financial District could easily work from home, as the prevalence of the knowledge economy there suggests, and were therefore likelier to move to bigger homes far from their offices; meanwhile, expensive housing may have given them another reason to leave.

At the city level too, business mix and urban structure drive differences

San Francisco's business mix helps explain the pandemic's heavy impact there. The city has long cultivated a technology-focused economy with a large population of office workers, especially knowledge-economy workers. It has many inbound commuters, as the employment-to-population ratio shows: that ratio, a proxy for the prevalence of commuters, is 0.87 in San Francisco, starkly higher than the national average of 0.48. And the city's employers, many of which are in the technology industry, may have been more likely to be aware of and adopt remote work technology when the pandemic began. San Francisco's urban structure also helps explain why the pandemic affected demand so strongly there. Home prices in San Francisco County are five times higher than the national average and almost twice as high as prices in the suburbs. Furthermore, San Francisco has limited mixed-use development: offices represent 30 percent or more of all real estate in nine of San Francisco's 26 neighborhoods.

The pandemic has affected demand less strongly in Paris than in San Francisco. Paris's business mix helps show why: unlike San Francisco, which is heavily dependent on tech firms and the knowledge economy, Paris is home to companies that are global leaders in a wide variety of industries, such as beauty, hospitality, and consumer retail. But the city's urban structure has features that push residents away as well as those that pull them in. On the one hand, home prices are twice as high in Paris's urban core as in its suburbs and four times higher than the national average. On the other hand, Paris has a great deal of mixed-use development.

Finally, consider Tokyo, where real estate demand has been affected less than in most cities we studied. Most of Tokyo's workers are in wholesale and retail trade, in contrast with technology-dependent San Francisco. Like Paris, Japan has a culture that values being present in the office, in particular among employees of small and medium-size businesses; in our survey, respondents in Tokyo said that they expected to be required to be in the office 3.7 days per week, a response noticeably higher than Paris's 3.3. Loyalty to employers is also common in Japan, as are lower rates of technology adoption than in San Francisco. Furthermore, online spending as a share of retail spending was lower in Japan than in any other country we studied; that may have contributed to higher office attendance and continued in-person retail shopping. And in Tokyo, home prices in the urban core are 2.1 times higher than the national average—a starkly smaller number than Paris's 4.1 and San Francisco's 5.0.

Thriving in hybrid places

Superstar cities are facing a new reality in which hybrid work worsens vacancy rates, threatens the vibrancy of neighborhoods, and thus makes urban cores less attractive to employers, employees, and residents. To adapt to that new reality, urban stakeholders could consider adopting more hybrid approaches themselves. At the neighborhood and building levels, and even in the design of the floors of buildings, choosing diversity, adaptability, and flexibility rather than homogeneity can help cities thrive.

At the neighborhood level, consider mixed-use development

One way cities could adapt is through mixed-use neighborhoods—that is, neighborhoods that are not dominated by a single type of real estate (especially offices) but instead incorporate a diverse mix of office, residential, and retail space. Such hybrid neighborhoods were becoming more popular even before the pandemic. And now that the pandemic has reduced demand for offices, cities have been left with vacant space that could be converted to other uses. Furthermore, our research shows that mixed-use neighborhoods have suffered less during the pandemic than office-dense neighborhoods have. That resilience gives investors, developers, and cities still more reason to engage in placemaking.

Redeveloping neighborhoods is an enormous undertaking, of course, so mobilizing the many stakeholders is important. Governments may be particularly helpful in reforming restrictive zoning policies. Investors would be needed to finance redevelopment. And developers would be the ones to turn mixed-use visions into realities.

Suburbs can benefit from hybridity as well. City dwellers, untethered from their daily commutes and thus less concerned about living far from urban cores, are increasingly seeking larger homes in greener areas. More housing and retail in the suburbs could help satisfy their preferences. More multifamily housing could be particularly beneficial because it would accommodate more people than single-family homes do. So long as the apartments are larger and more comfortable than apartments in urban cores, they could attract urbanites seeking space. Suburban policy makers could consider encouraging multifamily development by adjusting zoning, offering incentives to developers, and reexamining regulations that prevent housing from being built, such as those governing minimum dwelling sizes and window requirements.

Redeveloping neighborhoods is an enormous undertaking, of course, so mobilizing the many stakeholders is important.

Furthermore, multifamily housing is more energy-efficient than single-family homes, so it could help push down carbon emissions. And because it accommodates many people, it could help alleviate the shortage of housing that many metropolitan areas suffer from, making living in those areas more affordable.

At the building level, construct space that is adaptable and flexible

To adapt to declining demand for traditional office and retail space, developers could create hybrid buildings. The most ambitious vision is a universal, “neutral-use” building whose design, infrastructure, and technology could be easily modified to serve different uses. Imagine a medical building that could be easily converted into, say, a hotel or an apartment building if customers’ preferences changed. More modestly, buildings could be designed to accommodate different degrees of collaborative and individual work or different arrangements of open and closed offices. They could also include technology that promotes flexibility, such as sensors to track patterns of usage that could inform an employer’s approach to hybrid work.

Hybrid buildings would bring at least two advantages. One is that they would protect owners from shifts in preferences that are impossible to predict now. The second relates to a current trend toward shorter leases in the office sector. Because tenants will now be moving in and out more frequently, buildings might become more valuable if they grow more adaptable.

Developers could also try to convert offices into the kinds of space for which there is more demand, such as apartments, hotels, and schools. Conversions are very hard, however. Obstacles include rezoning, renegotiating existing lease commitments to allow for renovations, and dealing with physical limitations. Furthermore, in the cities we studied, even if all excess office space were converted into housing, the amount of residential space in each city would grow by less than 3 percent.⁸ Still, for owners facing the prospect of lower occupancy and lower rents in their office buildings, the opportunity cost of conversion has fallen, and the number of successful conversions may grow.

Turning empty spaces into hybrid places could be a way to transform superstar cities and prepare them for a dynamic, prosperous future.

⁸ Excess office space means space projected to be vacant beyond what would result from the structural vacancy rate (defined as the average vacancy rate from 2014 to 2019).

Developers of retail space too could keep adaptability in mind. Of late, retail tenants have been evaluating their footprints with a stricter eye, shutting down stores or moving into smaller spaces. If developers built more adaptable spaces, they would be likelier to remain relevant to tenants' shifting needs. Developers might also offer new store formats, such as spaces intended for delivery and fulfillment or for logistics rather than traditional retail. Or they might design buildings that are more integrated with their environments—for example, with dining spaces that extend onto sidewalks.

At the floor level, design space that is modular and multiuse

Tenants in urban cores—both the employers who rent office space and the merchants who rent retail space—may have to start “earning the commute” from office workers and shoppers who would otherwise visit less often. Here too, thinking flexibly and adaptably can help. For example, the office does not have to be just a place to work; it can also be a place where employees genuinely enjoy spending time or where they can take part in compelling events and activities. Office tenants might try to attract them by building magnetic, hospitality-oriented workplaces. Office tenants might also design more modular spaces that can adapt to changes in work patterns from week to week. And the most forward-thinking tenants will provide an efficient, digital way to organize hybrid work patterns and preferences.

Retailers too may have to “earn the commute” by designing spaces that cater to many different uses. A prime example is stores that easily accommodate omnichannel retail—a single, seamless experience for customers, whether they shop online or in person. Similarly, stores can provide experiential retail. For example, one department store brand is launching smaller stores where customers can pick up products bought online, get clothes altered, find style advice, and patronize a beauty salon.

Indeed, it is not hard to imagine more “hybrid floors” in which offices, residences, and stores exist side by side. For floors—as for buildings and neighborhoods—turning empty spaces into hybrid places may not simply be a way to counter the damage wrought by the pandemic. It could be a way to transform superstar cities and prepare them for a dynamic, prosperous future.



1. How hybrid work has changed the way people work, live, and shop

When the COVID-19 pandemic began in 2020, daily life changed for billions of people in countless ways. The most important, from the perspective of real estate in superstar cities, was a sudden and massive shift to remote work, a change that was enabled by widespread adoption of videoconferencing and file-sharing technology. In the blink of an eye, millions of employees were working not at their offices downtown but from their bedrooms and couches.

That shift affected their behavior in three main ways. First, of course, it changed where they worked. Second, it changed where they lived; untethered from their daily commutes, many of them moved away from urban cores. Third, it changed where they shopped, as online shopping and stores near home became more attractive than urban establishments. Those three behavioral changes, in turn, affected the three classes of real estate—office, residential, and retail—that we discuss in the next chapter.

The three changes were not all permanent, but they have left cities permanently altered. In this chapter, we examine them in detail. Our research suggests that remote work will continue, that accelerated urban out-migration is slowing but not reversing, and that shopping in cities will remain weaker than it used to be.

Hybrid work is here to stay

After abandoning their offices at the start of the pandemic, employees are now working there more often—though still far less than they used to. Office attendance varies by city; for example, it tends to be lower in cities with expensive housing and a large share of knowledge-economy workers. It also varies by industry and workers' demographic characteristics. There are several reasons to think that office attendance has stabilized and will continue at current rates.

Office attendance is still 30 percent lower than it was before the pandemic

In early 2020, office attendance plummeted for workers in superstar cities. Lockdowns, office closures, and uncomfortable masks gave them a reason to work remotely, and existing technology gave them the means. Office attendance fell by 90 percent in New York City and San Francisco.⁹ The drops in Austin, Dallas, Houston, and Los Angeles were less severe but still stark at about 70 percent.

⁹ Data from Kastle, a company that manages access to office buildings in the United States.

Three years later, remote work has given way to hybrid work (a combination of in-office and remote work), and office attendance has rebounded substantially. But as of fall 2022, workers were going to the office an average of just 3.5 days per week, some 30 percent below prepandemic norms, according to our survey. (For more information about the survey, see the technical appendix.)

Of all the survey respondents, 37 percent go to the office every day (Exhibit 1). An additional 56 percent have hybrid work arrangements and thus spend one to four days per week in the office. And 7 percent work fully remotely.

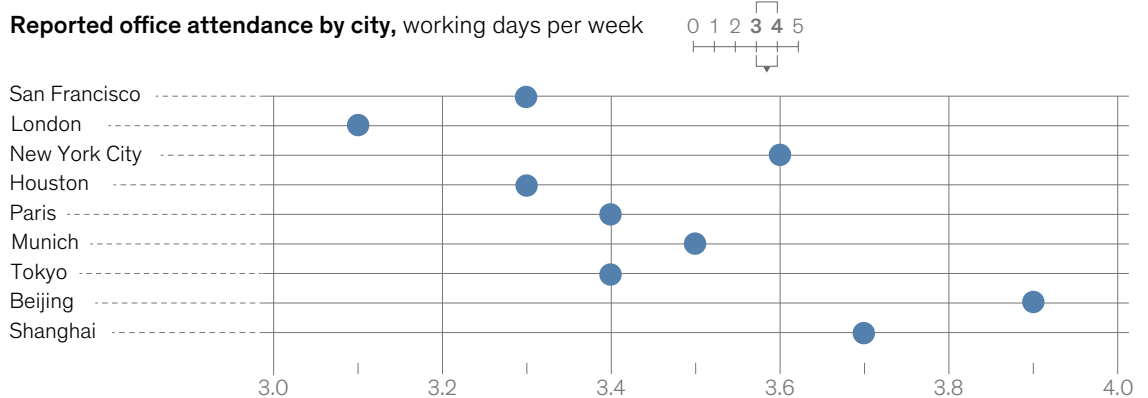
Exhibit 1

Most office employees report having hybrid work arrangements.

Distribution of survey respondents by reported days of office attendance per week, %



Reported office attendance by city, working days per week



Note: Percentages do not add up to 100 because of rounding. Survey respondents were asked, "On average, how many days of the week do you work in the office currently?" These results exclude respondents who said that they were not "currently employed and in the office workforce." They also exclude respondents who said that they were not currently working full time.
Source: McKinsey Global Institute analysis

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As of fall 2022, workers were going to the office just 3.5 days per week, on average, some 30 percent below prepandemic norms.

Office attendance is lower in metropolitan areas with expensive housing and a large share of knowledge-economy workers

Office attendance varies among metropolitan areas. Employees in Beijing, for example, go to the office 3.9 days per week, on average, while those in London go just 3.1 days per week. The other metropolitan areas we studied ranked between those extremes and were mostly clustered around 3.3 to 3.6 days in the office. Similarly, the percentage of workers who do not work from home at all varies by country. In Japan, more than half of all office workers spend five days per week in the office. In the United Kingdom, just 28 percent do.

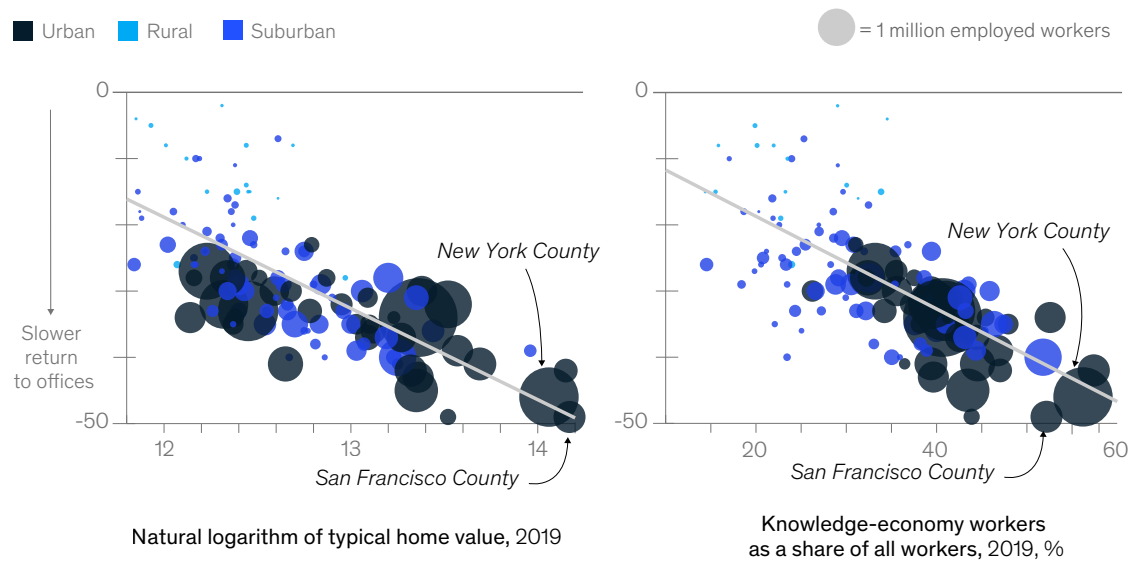
Two urban characteristics seem to matter most in determining office attendance in a metropolitan area: its proportion of knowledge-economy workers and its housing costs (Exhibit 2). According to our regression analysis of US counties, the higher a county’s ratio of knowledge-economy workers to other workers, the lower its average office attendance. (We define the knowledge economy as the professional services, information technology, and finance industries.) Similarly, the higher home prices are in an urban core relative to its suburbs, the lower the metro area’s average office attendance is (see Box E1, “How we define cities,” in the executive summary). Other characteristics of US counties with lower office attendance, according to our analysis, are a larger share of commuters and a smaller share of retail employees (which suggests a more limited retail presence). It seems reasonable to think that those relationships would also exist in superstar cities elsewhere in the world, but we were not able to confirm that.

Culture and government policy also play a role in office attendance. For example, Chinese cities’ high rates of office attendance today can probably be explained by the widespread “996” office culture (for “9 a.m. to 9 p.m. in the office, six days a week”). And Beijing’s and Shanghai’s citywide lockdowns reduced office attendance to near zero when they were in effect.

Exhibit 2

In the United States, office attendance is lower in expensive, knowledge economy–oriented counties.

Change in foot traffic near offices, January 2020 to October 2022, %



Note: This exhibit shows counties in the Atlanta, Boston, Chicago, Dallas, Houston, Los Angeles, New York City, Philadelphia, San Francisco, Seattle, and Washington, DC, metropolitan areas.
Source: Google’s Community Mobility Reports; US Bureau of Labor Statistics; US Census Bureau; Zillow Home Value Index; McKinsey Global Institute analysis

Office attendance is lower in large firms in the knowledge economy

Employees at larger firms report significantly lower office attendance than do those at smaller firms (Exhibit 3). For example, at firms with 1,000 to 9,999 employees, workers go to the office 3.3 days per week, on average; at firms with 50 to 99 employees, attendance averages 3.7 days. One potential reason is that larger companies tend to have more resources and technology to support working from home. Another is that the sense of community may be stronger at smaller companies, prompting more employees to visit the office.

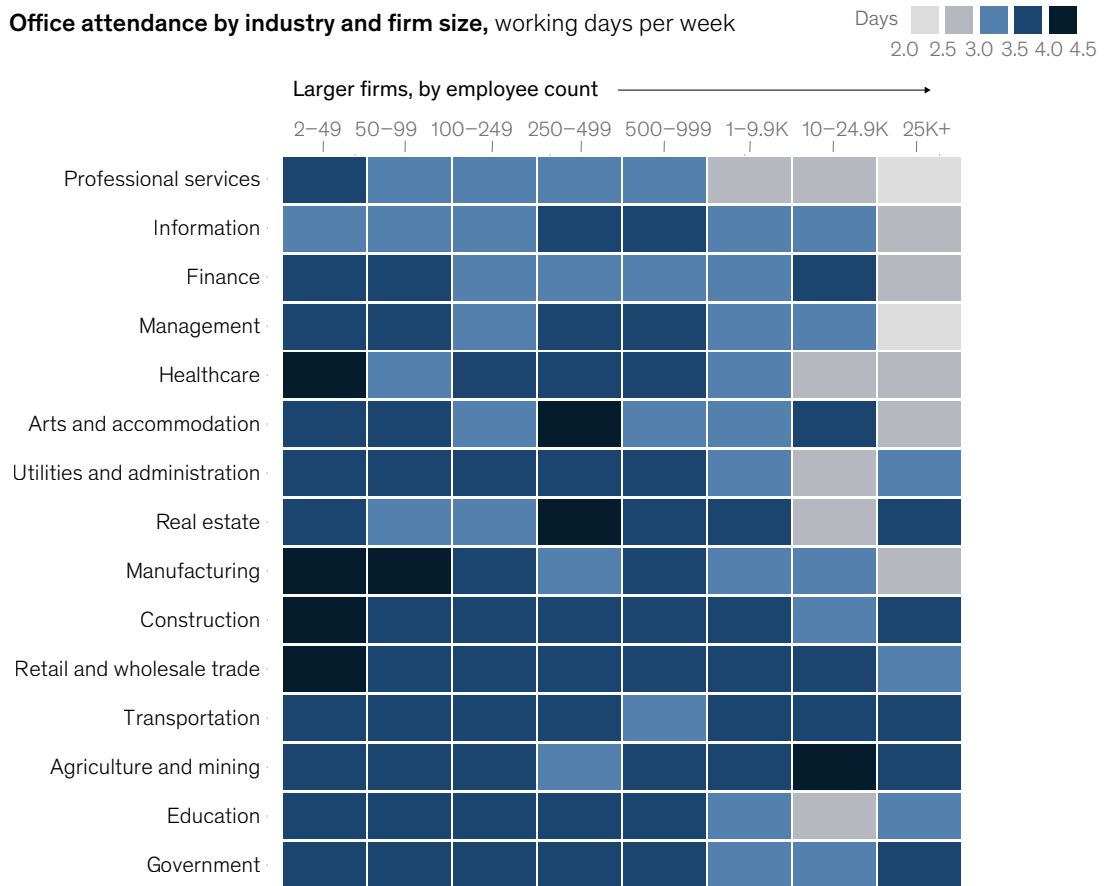
Also, client meetings are less of a reason to come to the office for employees at larger companies than for those at smaller ones. At companies with 1,000 to 24,999 employees, 25 percent of survey respondents ranked meeting with clients as one of the top three reasons to come to the office, whereas at companies with fewer than 100 employees, 32 percent did. A similar pattern exists for employees in client-facing roles: among salespeople at companies with 1,000 to 24,999 employees, 42 percent go to the office five days per week, a share that grows to 54 percent at companies with 2 to 99 employees.

And employees in the knowledge economy go to the office 0.2 fewer days per week than do those in other industries. One reason could be that knowledge-economy industries are highly digitized and therefore amenable to remote work. Another could be that employees in those

Exhibit 3

Office attendance is lower in large firms in the knowledge economy.

Office attendance by industry and firm size, working days per week



Note: Survey respondents were asked, "On average, how many days of the week do you work in the office currently?" These results exclude respondents who said that they were not "currently employed and in the office workforce." They also exclude respondents who said that they were not currently working full time. Source: McKinsey Global Institute analysis

industries therefore see less need for commuting and have a lower tolerance for it. Even though their commutes are no longer than those of other workers, they were much likelier than other workers to call saving commuting time one of their top three reasons for working from home.

Office attendance varies in subtle ways by age, income, and seniority

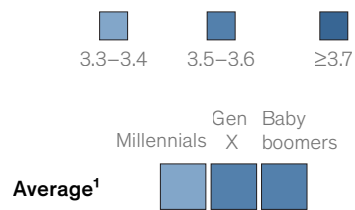
The average number of days that respondents work in the office does not vary much by age, income, or seniority (Exhibit 4, left side). For example, millennials reported working 3.4 days per week in the office, and members of Generation X and baby boomers reported 3.5. The starkest variation we found was among millennials in senior positions, who go to the office 3.7 days per week, more than any other group we studied.

However, there are some differences in the likelihood of those groups to go to the office a *particular number* of days per week (Exhibit 4, right side). Two differences in particular stand out. First, baby boomers are much likelier to go to the office five days per week than younger workers

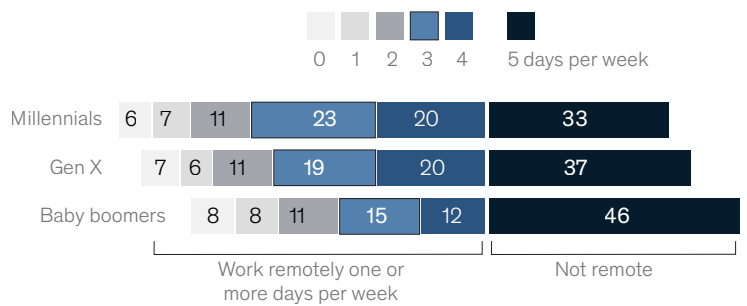
Exhibit 4

Office attendance varies in subtle ways by age, income, and seniority.

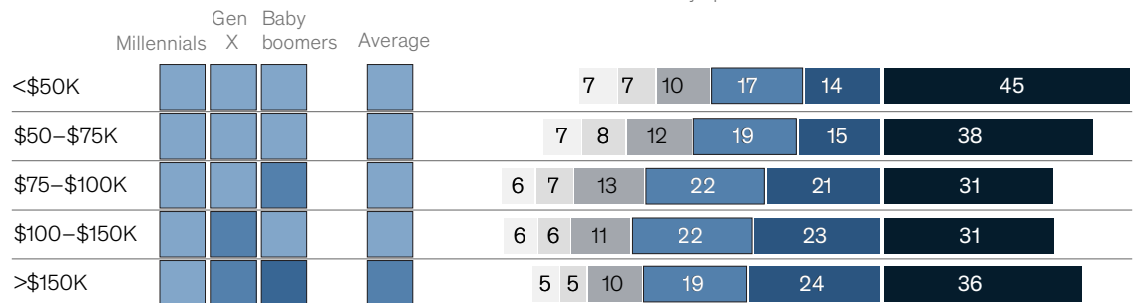
Reported attendance by age, working days per week



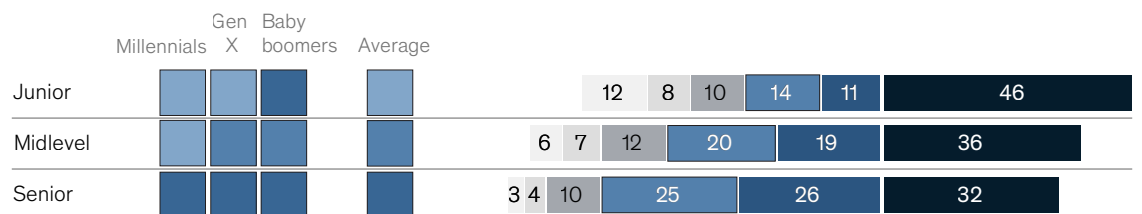
Distribution of survey respondents by reported attendance, %



By age and income



By age and job seniority²



Note: Survey respondents were asked, "On average, how many days of the week do you work in the office currently?" These results exclude respondents who said that they were not "currently employed and in the office workforce." They also exclude respondents who said that they were not currently working full time. Respondents who were 18 to 34 years old when the survey was conducted were classified as millennials, those who were 35 to 54 years old were classified as Generation X, and those who were at least 55 years old were classified as baby boomers.
¹These averages are unweighted. ²Junior roles include associates and analysts; midlevel roles include directors, managers, and team leaders; senior roles include C-suite executives and vice presidents.
 Source: McKinsey Global Institute analysis

are. Second, junior-level workers are much likelier to go to the office five days per week than midlevel and senior employees are; perhaps counterintuitively, they are also more likely to work entirely remotely, never going to the office at all.

Furthermore, cluster analysis of respondents in the United States reveals statistically significant groups among those who mostly go to the office and those who mostly work from home. There are two such groups among people who mostly go to the office: high-earning male C-suite employees and low-earning female junior employees. There are also two such groups among people who mostly work from home: knowledge-economy workers who earn over \$200,000 per year and, again, low-earning female junior employees.

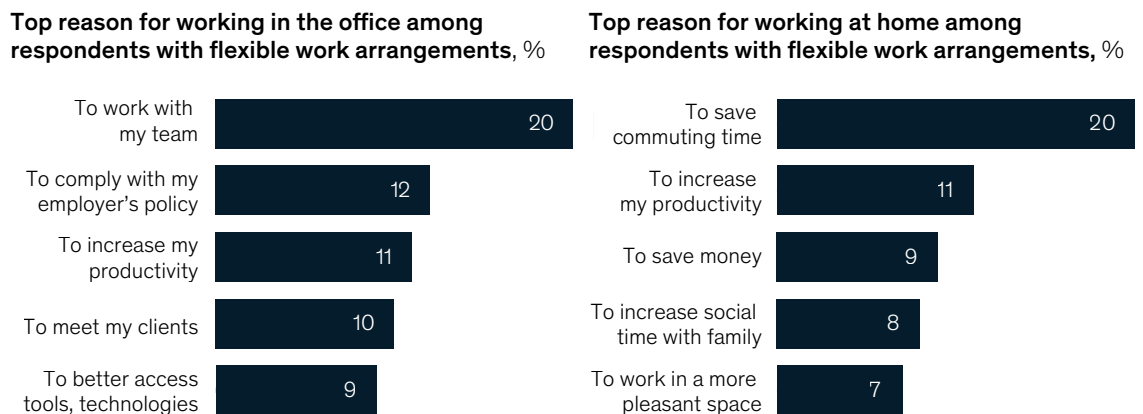
Employees work from home to save commuting time, and they work from the office to see their teams

When we asked survey respondents who were able to work from home what their top reason was for doing so, the most popular answer globally, as we expected, was to save commuting time, followed by increasing productivity and saving money (Exhibit 5). The answers varied by country, however. For example, 38 percent of respondents in Japan cited saving commuting time as their top reason, whereas just 11 percent of those in China said the same. Saving money was the top reason for 11 to 15 percent of respondents in Europe but for just 3 percent of those in Japan. In all countries, however, respondents called increasing productivity one of the top reasons.

The most popular reasons given by workers with flexible work arrangements for choosing to come to the office were to be able to work with their teams, to comply with an employer’s policy, and to increase productivity. (The fact that increasing productivity was cited as a top reason for both going to the office and working from home suggests that where employees feel most productive may differ by individual or task.) Those findings were substantially consistent in France, Germany, the United Kingdom, and the United States. In China and Japan, however, few respondents cited an employer’s policy as their top reason for going to the office.

Exhibit 5

Employees work from home to save commuting time, and they work in the office to see their teams.



Note: Respondents were asked to name their top reason. Only the five most popular responses are shown, so the percentages do not add up to 100. Also, responses are shown only from respondents who said that they were able to work from home more than one day per month. Source: McKinsey Global Institute analysis

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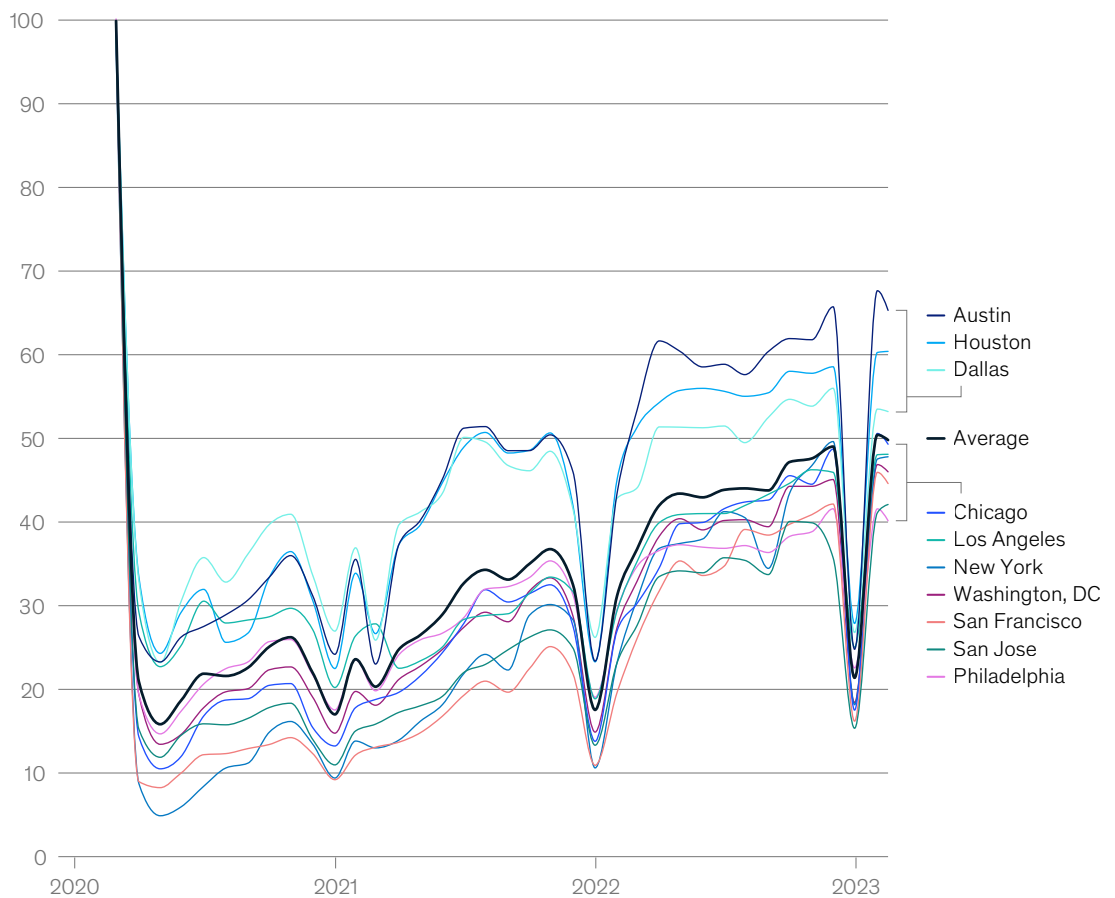
The current rate of office attendance may persist

Three indicators suggest that the current rate of office attendance may have stabilized. First, in ten of the most populous cities in the United States, office attendance has held roughly steady since mid-2022, aside from a normal seasonal dip around the winter holidays (Exhibit 6).¹⁰ Second, three numbers—the number of days per week that survey respondents go to the office, the number of days that they expect to go to the office after the pandemic ends, and their preferred number—are not far apart (Exhibit 7).

Exhibit 6

Office attendance appears to have stabilized, though it remains below pre-pandemic levels.

Office attendance in US cities, indexed to 100 in March 2020, %



Note: The access badges that these data are drawn from are mostly used in large, Class A office buildings.
Source: Kastle; McKinsey Global Institute analysis

McKinsey & Company

¹⁰ Data from Kastle. Note that the access badges that the data are drawn from are mostly used in large, Class A office buildings.

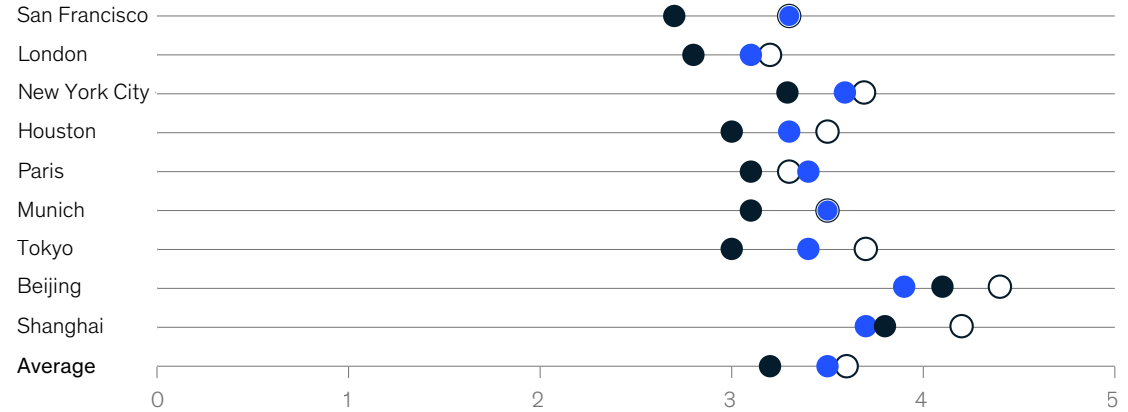
Exhibit 7

Employees already work nearly as few days in the office as they would like.

Reported number of days per week worked in the office

- **Ideal**
If it were entirely up to you, how many days each week would you work from the office, on average?
- **Current**
On average, how many days of the week do you work in the office currently?
- **Expected**
After the pandemic ends, what is your best estimate of how often your employer will require you to work in the office?

Metro area



Note: These results exclude respondents who said that they were not "currently employed and in the office workforce."
Source: McKinsey Global Institute analysis

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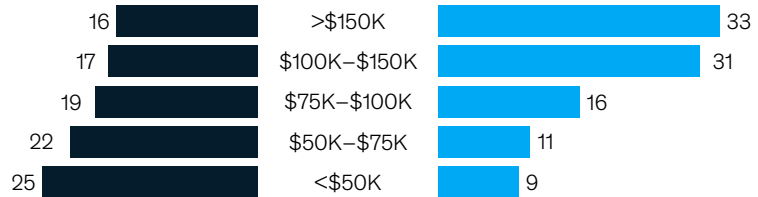
Exhibit 8

Employees who strongly prefer to work from home are comparatively senior and well paid.

Distribution of survey respondents, %

- All respondents
- Respondents who strongly prefer to work from home¹

By income



By job seniority²



¹Defined as respondents who said that they were both likely to quit their jobs if required to work at the office every day and willing to trade more than 20 percent of their compensation to work their preferred number of days from home.

²Junior roles include associates and analysts; midlevel roles include directors, managers, and team leaders; senior roles include C-suite executives and vice presidents.

Source: McKinsey Global Institute analysis

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Third, a sizable and influential group of office workers strongly prefer to continue working remotely. About 10 percent of respondents worldwide said that they were both likely to quit their jobs if required to work at the office every day and willing to trade more than 20 percent of their compensation to work their preferred number of days from home. That group is comparatively senior and well paid; 44 percent of them are in senior roles, and 33 percent of them earn more than \$150,000 per year (Exhibit 8). Their seniority and high incomes suggest that they are probably decision makers who can protect remote work at the team or company level.

Nevertheless, it is not certain that office attendance will stay at its current level. For example, employees might gain bargaining power and reduce the number of days they work in the office, or employers might gain bargaining power (in the event of a recession, for example) and increase that number. Improvements in hybrid work technology and processes could make it less necessary to come to the office.

Office attendance could also rise if employers find ways to attract workers back to the office. As pandemic restrictions loosened, employers often offered perks, such as free meals and in-office recreational areas, to encourage employees to return. But that approach appears to have succeeded only on a very limited scale; just 3 percent of respondents who were able to choose where to work called such perks their top reason for going to the office.

In the long run, what chiefly determines the rate of office attendance will be its impact on productivity. If research conclusively indicates either a negative or a positive relationship between hybrid work and productivity, that could push office attendance up or down, respectively. Studies conducted by companies and research institutions have so far shown no negative relationship between hybrid work and productivity.¹¹ For example, a previous MGI report found that about 20 to 25 percent of the workforces in advanced economies could work from home between three and five days a week without a loss of productivity.¹² Employees themselves seem to believe that hybrid work helps productivity; in our survey, 87 percent of survey respondents indicated that they would be more productive if they worked their desired number of days at home than if they had to work at the office five days per week.

Up to 7 percent of the people in urban cores left for good

For more than 20 years, superstar cities were the center of global growth. Just 1 percent of the Earth's surface was home to more than 50 percent of global GDP growth and population growth from 2000 to 2019.¹³ The two types of growth reinforced each other: "agglomeration economies" fueled economic and productivity growth in these cities, resulting in high-income jobs that attracted still more people.¹⁴ They came even though housing tended to be expensive—especially in superstar cities where the supply of housing was very constrained, such as San Francisco.

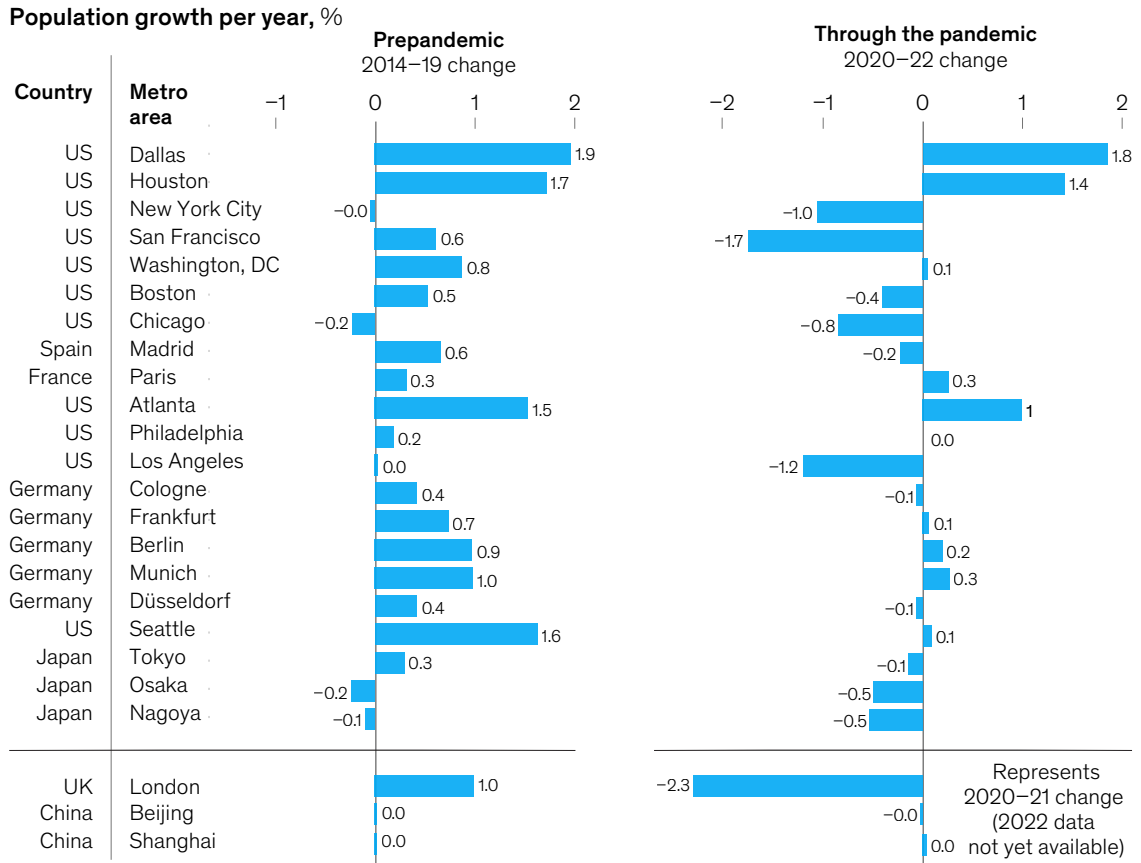
¹¹ See *The next great disruption is hybrid work—are we ready?* Microsoft, March 2021; *State of remote work 2020*, Buffer, February 2020; and Nicholas Bloom et al., "Does working from home work? Evidence from a Chinese experiment," *The Quarterly Journal of Economics*, volume 130, number 1, February 2015.

¹² *The future of work after COVID-19*, McKinsey Global Institute, February 2021.

¹³ *Pixels of progress: A granular look at human development around the world*, McKinsey Global Institute, December 2022.

¹⁴ See, among others, Greg Howard and Jack Liebersohn, "Why is the rent so darn high? The role of growing demand to live in housing-supply-inelastic cities," *Journal of Urban Economics*, volume 124, July 2021; Kathleen Bolter and Jim Robey, *Agglomeration economies: A literature review*, W. E. Upjohn Institute for Employment Research, June 2020; and Edward L. Glaeser, ed., *Agglomeration economics*, National Bureau of Economic Research, February 2010. Glaeser defines agglomeration economies as "the benefits that come when firms and people locate near one another together in cities and industrial clusters."

The pandemic reduced population growth in most cities.



Source: Beijing Municipal Bureau of Statistics; Eurostat; National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); E-Stat (Japan); Office for National Statistics (United Kingdom); Shanghai Municipal Bureau of Statistics; US Census Bureau; McKinsey Global Institute analysis

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Then the pandemic began, prompting a wave of households to leave superstar cities and thus driving down population (Exhibit 9). Munich’s population grew by 1.0 percent per year from 2014 to 2019, for instance, but it grew by only 0.3 percent per year from 2020 to 2022. In Boston, population growth during the first period turned into population decline during the second. Urban cores were particularly affected. For example, New York City’s urban core lost 5 percent of its population from mid-2020 to mid-2022, San Francisco’s lost 6 percent during the same period, and London’s lost 7 percent from mid-2020 to mid-2021.¹⁵ One reason for the surge of out-migration was hybrid work. Now that people were not working at the office, they cared less about living nearby and could instead prioritize better housing conditions.

Out-migration has since declined, but it has neither ended nor reversed, and it seems to remain higher than it was before the pandemic began. That is, the people who left the urban cores are not coming back, and many others are still leaving.

¹⁵ Data about changes in London’s population in 2022 are not available yet.

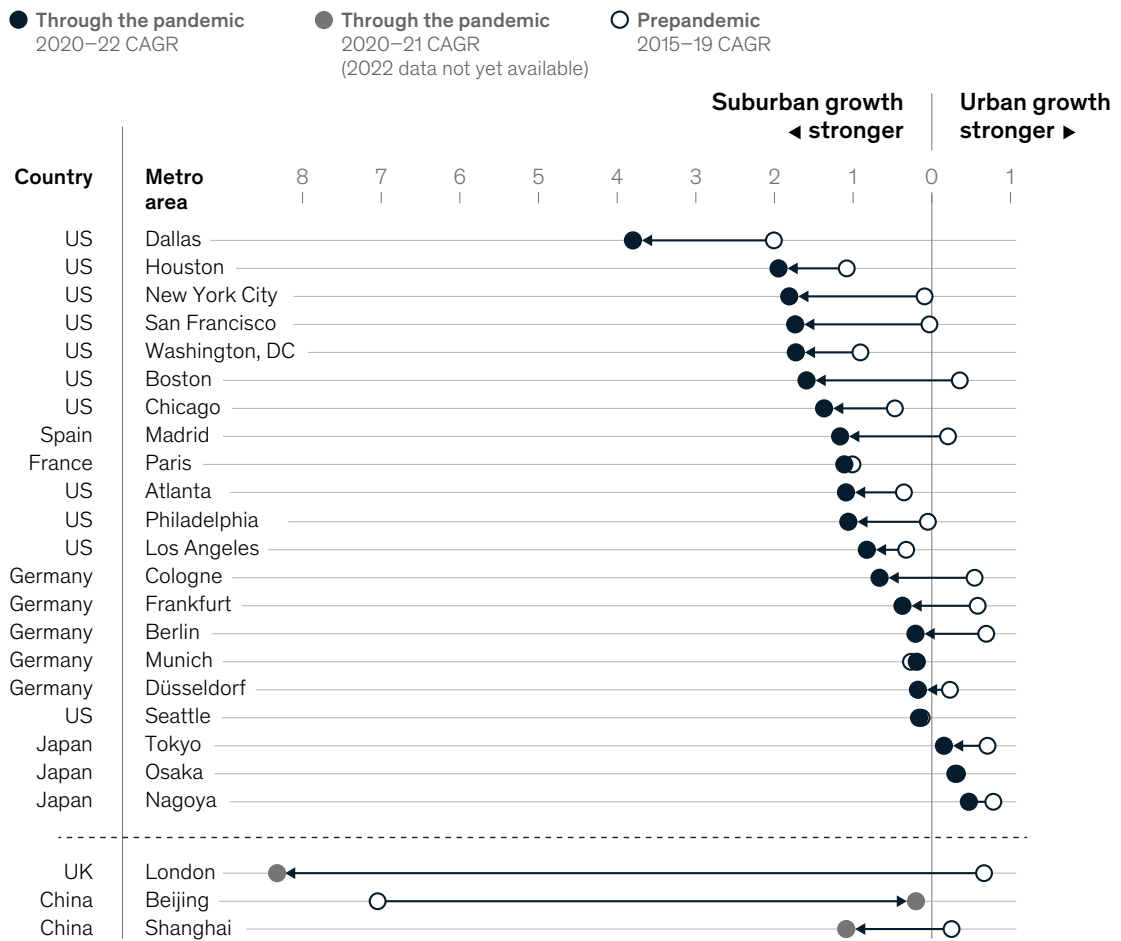
During the pandemic, a wave of households in superstar cities moved from the urban cores to the suburbs, a trend that was strongest in the United States

In all but two of the superstar cities we studied, after the pandemic began, the difference between urban and suburban population growth shifted to the suburbs' advantage (Exhibit 10).¹⁶ Exactly how much varied from city to city. The difference between urban and suburban population growth was largest in London, Dallas, Houston, New York City, and San Francisco. In most US cities, suburbanization had already been happening and was simply accelerated by the pandemic. By contrast, all the European cities that we studied except Paris and Munich had been urbanizing before the pandemic, so the suburbanization represented a reversal. The Japanese cities had also been growing more urban before the pandemic, but there, the trend continued even after the pandemic started.

Exhibit 10

During the pandemic, most suburbs grew more quickly than their urban cores.

Difference between urban and suburban population growth rates, percentage points



Note: Results shown for London are based on census revisions made for 2021 by the United Kingdom's Office for National Statistics. Source: Beijing Municipal Bureau of Statistics; Eurostat; National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); E-Stat (Japan); Office for National Statistics (United Kingdom); Shanghai Municipal Bureau of Statistics; US Census Bureau; McKinsey Global Institute analysis

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¹⁶ Those two cities are Beijing and Munich. The time in question is the 2020-22 period, except for Beijing, London, and Shanghai, where data about population changes in 2022 were not available; for those cities, we studied the 2020-21 period. Also, the month in which the 2020-22 period begins differs from country to country. For example, for the United States, the period begins in July 2020 and ends in July 2022, but for France, it begins in January 2020 and ends in January 2022.

Population trends in Beijing were very different from those in other cities. For years before the pandemic, the government had relocated Beijing's residents to suburban areas. During the pandemic, however, it imposed policies restricting movement; as a result, population growth in Beijing's urban core nearly matched that in its suburbs.¹⁷

The suburbanization effect may have been stronger in US superstar cities than in European and Japanese ones because the urban cores of US superstar cities tend to be office-dense and retail-poor, whereas the European and Japanese urban cores tend to follow a mixed-use model in which office, residential, and retail space exist alongside one another. Supporting that contention is our statistical analysis of US counties, which indicates that those experiencing the highest rates of out-migration during the pandemic tended to have four characteristics: expensive homes, high office density, a high share of workers in the knowledge economy, and a low share of workers in retail, which suggests a more limited retail presence (Exhibit 11).¹⁸

The same patterns held true at the zip code level during the pandemic. When we conducted an analysis of neighborhoods in San Francisco County, New York County (Manhattan), and Harris County (which is mostly Houston), we found that people moved out of expensive, office-dense zip codes and into cheaper ones with more mixed use of real estate.

The urban cores of US superstar cities tend to be office-dense and retail-poor, whereas the European and Japanese urban cores tend to follow a mixed-use model.

¹⁷ In 2020, domestic migration declined by 40 percent in 369 Chinese cities. See Debin Lu et al., "Spatiotemporal patterns and influencing factors of human migration networks in China during COVID-19," *Geography and Sustainability*, volume 2, issue 4, December 2021.

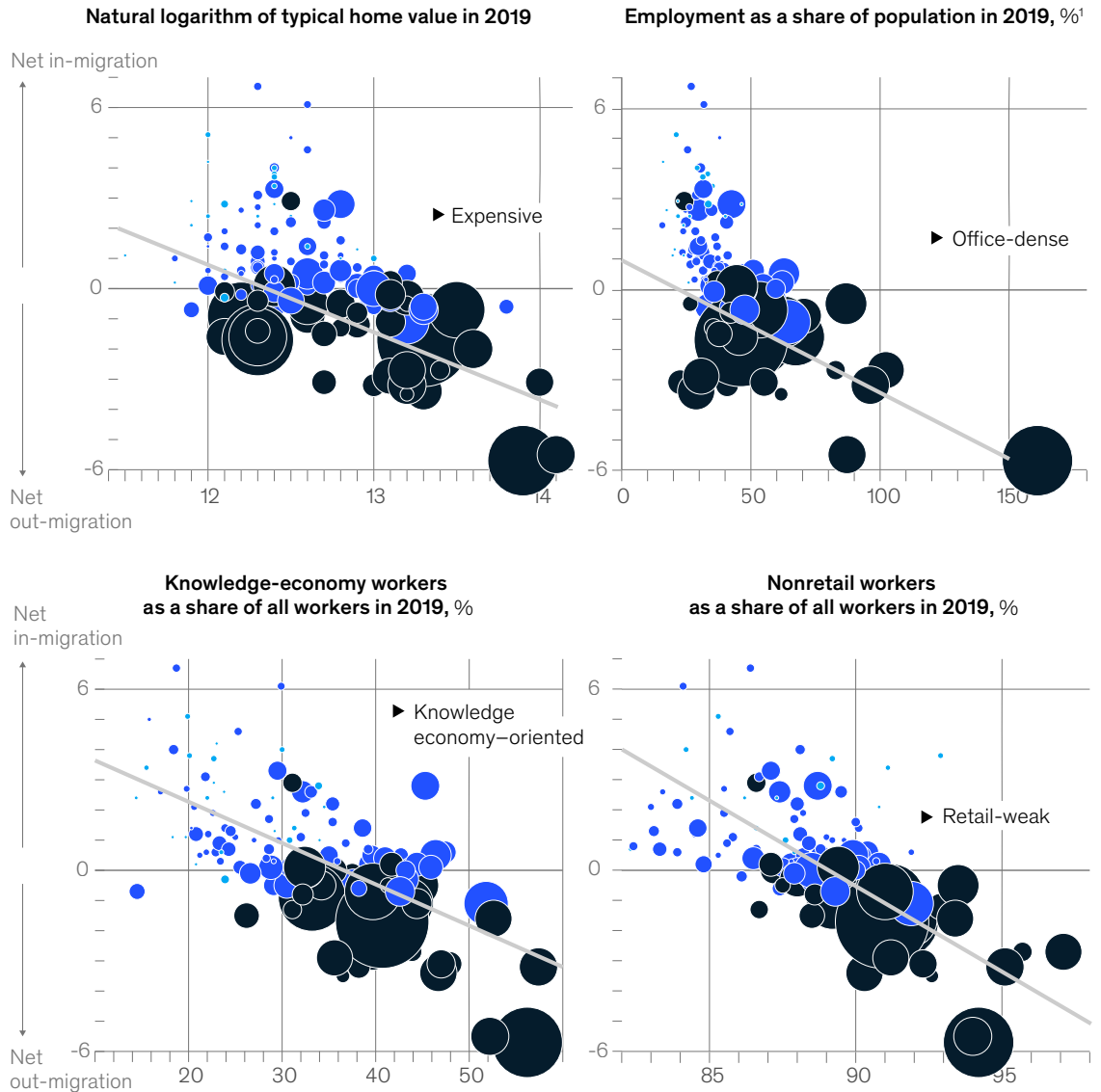
¹⁸ Specifically, we studied about 130 counties in the Atlanta, Boston, Chicago, Dallas, Houston, Los Angeles, New York City, Philadelphia, San Francisco, Seattle, and Washington, DC, metropolitan areas. As a proxy for home price, we used the Zillow Home Value Index at the county level; to measure office density, we used employment as a share of population.

Counties that were expensive, office-dense, knowledge economy-oriented, and retail-weak suffered greater out-migration during the pandemic.

Net migration, 2020–21, as a share of population, %

■ Urban ■ Rural ■ Suburban

● = 1 million employed workers



Note: This exhibit shows counties in the Atlanta, Boston, Chicago, Dallas, Houston, Los Angeles, New York City, Philadelphia, San Francisco, Seattle, and Washington, DC, metropolitan areas.

¹This measure is a proxy for the share of real estate occupied by office buildings. Higher employment as a share of population suggests a large population of commuters working in office-dense areas.

Source: US Bureau of Labor Statistics; US Census Bureau; Zillow Home Value Index; McKinsey Global Institute analysis

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Hybrid work encouraged the out-migration

To learn more about why people left urban cores during the pandemic, we identified survey respondents who had moved after March 2020 for pandemic-related reasons. They represented the majority of all respondents who had moved after March 2020 (Exhibit 12). Roughly a third of them said that their moves would not have been possible without remote work.

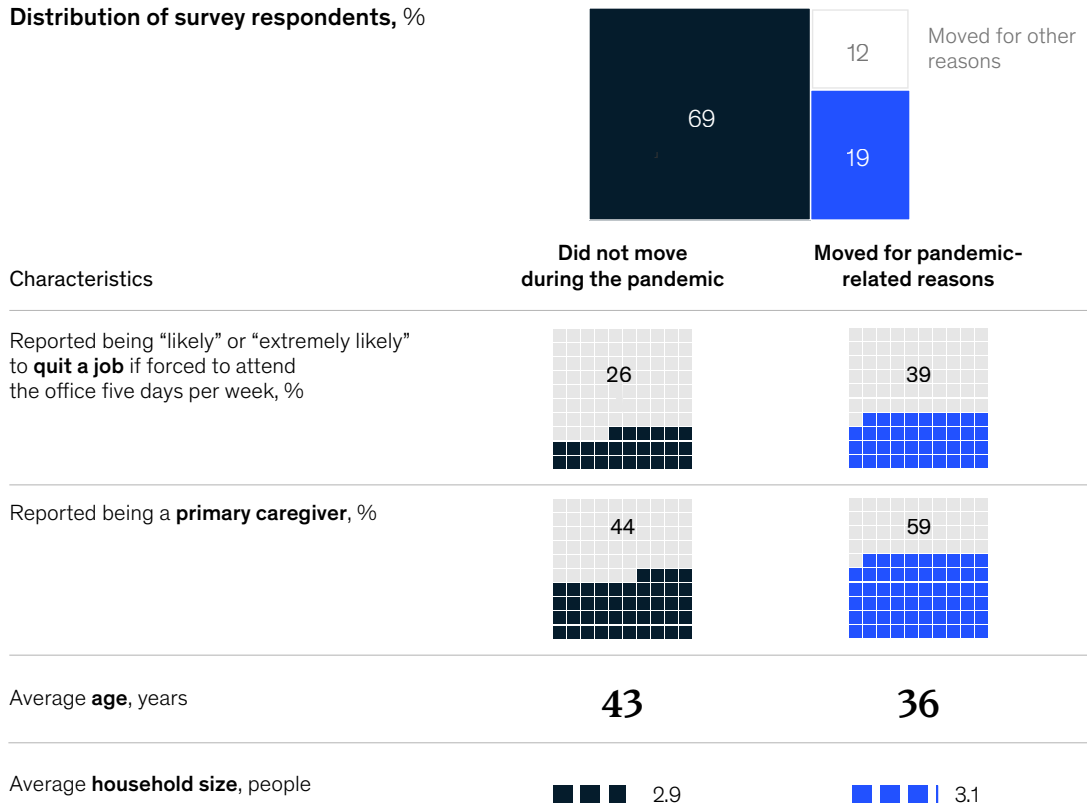
Pandemic-related out-migration after March 2020 was led by young households, and in particular by young people who had caregiving responsibilities and who valued remote work. Respondents who moved because of the pandemic were younger than those who did not move (averaging 36 years of age as opposed to 43); were more prone to say that they were “likely” or “extremely likely” to quit their jobs if forced to go to the office five days a week (39 percent versus 26 percent); were likelier to be caregivers (59 percent versus 44 percent); and had bigger households, on average (3.1 people versus 2.9).

Many of these moves happened because employees untethered from their daily commutes began to care less about how far they lived from the office. Of all survey respondents who went to the office less than five days per week, 38 percent said that remote work had made them more willing to live farther from the office. In the United States, 55 percent of respondents who moved during the pandemic went to places that were farther from the office than their previous homes had been, while just 33 percent moved closer.

Exhibit 12

Young caregivers who valued hybrid work drove pandemic-related moves.

Distribution of survey respondents, %



Source: McKinsey Global Institute analysis

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Out-migration has since slowed, but people are still leaving urban cores

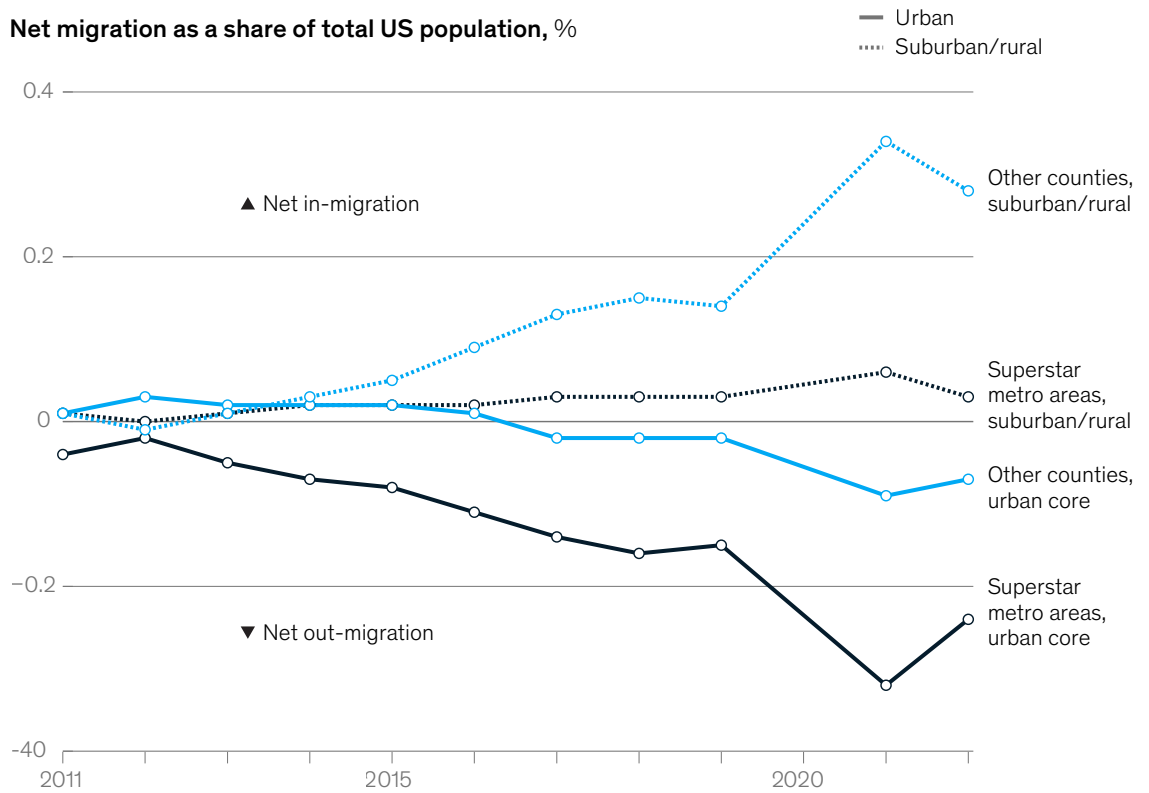
Out-migration from superstar cities' urban cores seems to have slowed of late. Between 2020 and 2021, 0.32 percent of the US population left superstar urban cores; the following year, that share fell to 0.24 percent (Exhibit 13).¹⁹ But that loss is still larger than it was before the pandemic. In other words, the people who moved out during the pandemic are not moving back, at least not yet. The main beneficiaries of out-migration seem to be rural and suburban areas near non-superstar cities.

Our survey suggests that the people who left urban cores in other countries are not coming back either. In China, 41 percent of pandemic-related movers said that they might move back, but that share was less than a quarter in France, Germany, Japan, and the United Kingdom. Pandemic-related movers' strong preference for hybrid work—and their professed willingness to quit their jobs if denied it—also implies that they are unlikely to move back.

Exhibit 13

Migration from US urban cores has slowed but not stopped since the start of the pandemic.

Net migration as a share of total US population, %



Note: The superstar cities included here are Atlanta, Boston, Chicago, Dallas, Houston, Los Angeles, New York City, Philadelphia, San Francisco, Seattle, and Washington, DC. Net migration in the four categories adds up to zero.
Source: US Census Bureau; McKinsey Global Institute analysis

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¹⁹ Data from the US Census Bureau.

Shopping remains depressed, especially in urban cores

Just as the shift to hybrid work has changed people's residential preferences, it has changed their shopping preferences. During the height of the pandemic, foot traffic near brick-and-mortar stores plummeted, especially in urban cores. The office workers who used to sustain those stores shopped there far less, shifting their purchases to the internet and to stores near their homes in the suburbs. More recently, foot traffic near urban stores has risen again, but it remains lower than it was before the pandemic, spelling problems for retailers.

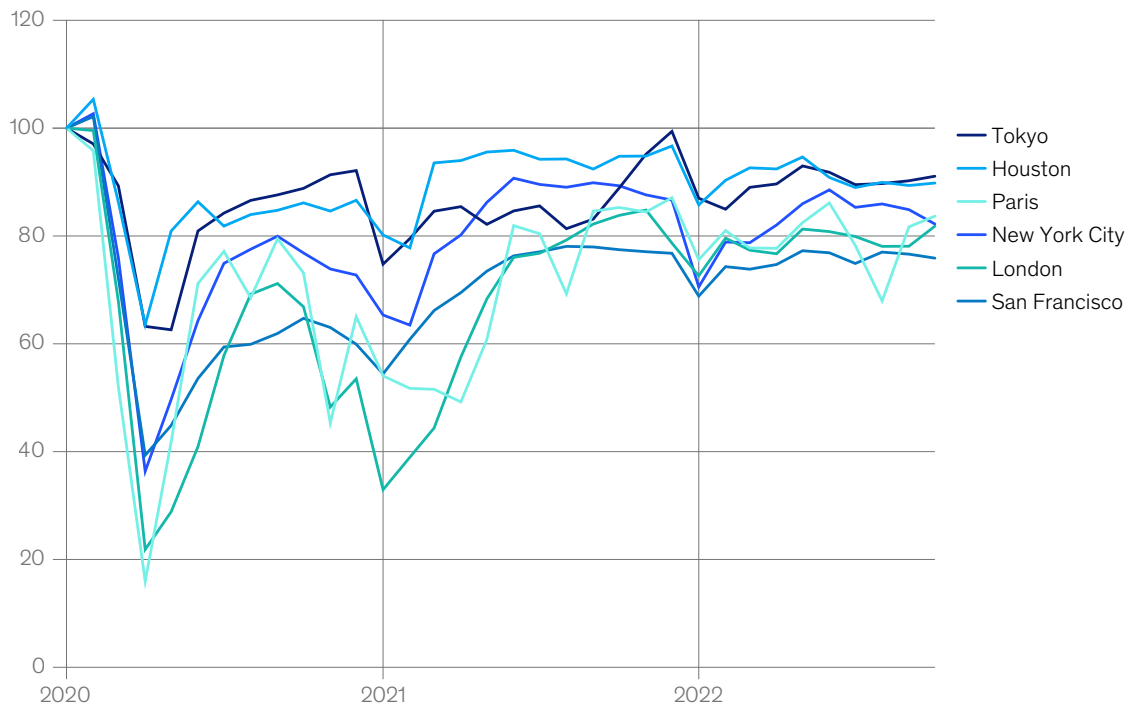
As people stayed home during the pandemic, they radically changed the way they shopped

In March and April 2020, as the pandemic began, foot traffic near stores plummeted in the superstar cities we studied (Exhibit 14).²⁰ The declines were starkest in London and Paris, where it fell by about 80 percent. In New York City and San Francisco, it fell by 50 to 60 percent during the same period, while in Houston and Tokyo, it declined by only about 30 percent. The different outcomes may have been due to variations in government policies, degrees of tourism, acceptance of remote work, and other cultural norms. For example, the strict lockdowns that London and Paris imposed in March may have contributed to those cities' precipitous declines.

Exhibit 14

Foot traffic near stores plunged at the start of the pandemic, particularly in London and Paris.

Change in foot traffic near stores, indexed to 100 in January 2020, %¹



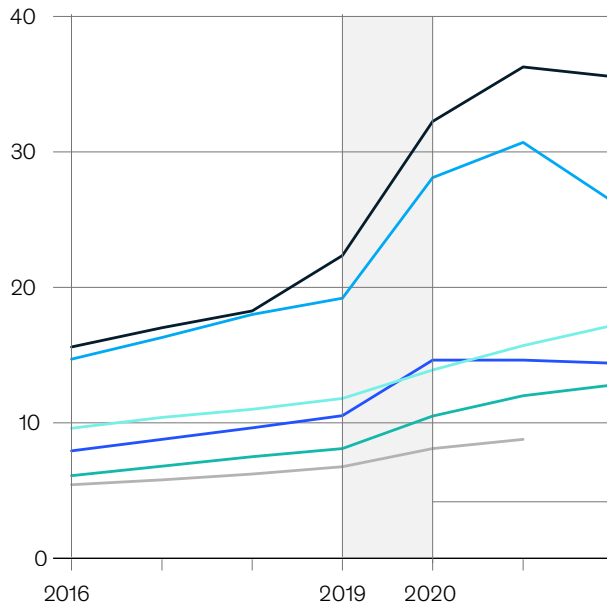
¹Stores include retail and recreation locations but not grocery stores or pharmacies.
Source: Google's Community Mobility Reports; McKinsey Global Institute analysis

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²⁰ Data from Google's COVID-19 Community Mobility Reports.

Online retail spending spiked in 2020, though it has since returned to prepandemic trends.

Online spending as a share of all retail spending, by country, %



Growth of online spending as a share of all retail spending, percentage points

	Average annual change, 2016–19	Change, 2019–20
China	↑ 2.2	↑ 9.9
UK	↑ 1.5	↑ 8.9
Germany	↑ 0.7	↑ 2.1
US	↑ 0.9	↑ 4.1
France	↑ 0.7	↑ 2.4
Japan	↑ 0.4	↑ 1.3

Source: Euromonitor; Ministry of Economy, Trade, and Industry (Japan); Beijing Municipal Bureau of Statistics; Office for National Statistics (United Kingdom); US Census Bureau; McKinsey Global Institute analysis

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One trend that helped consumers visit stores less often was a quickening shift to online shopping (Exhibit 15). Online spending as a share of all retail spending had already been growing; in the three years before the pandemic, that share grew by 0.4 percentage point per year in Japan and by 2.2 percentage points per year in China, for example. But then the pandemic began, and the share spiked from the end of 2019 to the end of 2020. The spike occurred in all the countries we studied; it was smallest in Japan (1.3 percentage points) and largest in China (9.9 percentage points). The pandemic effectively accelerated the use of online spending by three to four years.

An interesting fact is that the countries seeing the sharpest increases, China and the United Kingdom, were the ones where online spending represented the largest share of all retail spending before the pandemic. Perhaps those countries were the most primed for e-commerce growth—with greater customer awareness, more mature distribution, and more adept retailers—and were therefore best able to meet the surge in demand during the pandemic.

Shopping behavior has started to return to prepandemic trends, yet foot traffic and purchasing in stores remain lower

Although it spiked during the first year of the pandemic, online spending as a share of retail spending is now at the same level that it would have reached by now if the pandemic had not happened. It has done that either by growing more slowly (as in France and Germany) or by shrinking (as in China and the United States), though of course it remains higher everywhere than it was before the pandemic.

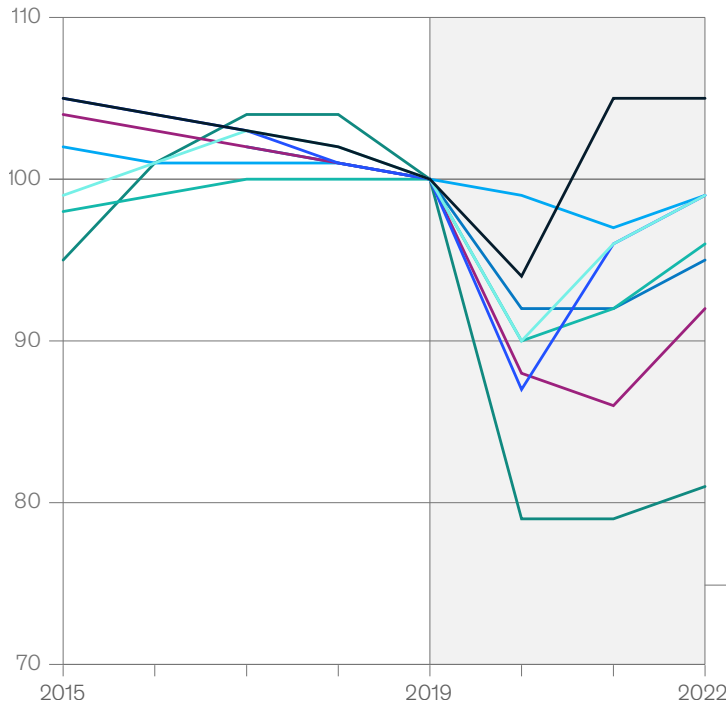
Yet foot traffic near stores remains down. As of October 2022, it appeared to have stabilized at a level 10 to 20 percent lower than the prepandemic level in the metropolitan areas we studied.

Spending in stores also remains down, though not as much as foot traffic (Exhibit 16). In most metropolitan areas, it was estimated to be as much as 10 percent lower in 2022 than it had been in 2019 in real terms—though in Beijing, where lockdowns remained in force through most of 2022, it was far lower. Although this is bad news for stores, at least the decline in spending has not been as steep as the decline in foot traffic: shoppers have consolidated trips, making purchases more frequently when they do visit stores and spending more per trip.

Exhibit 16

Spending in stores did not fall as quickly as foot traffic.

Spending in stores, indexed to 100 in 2019, %



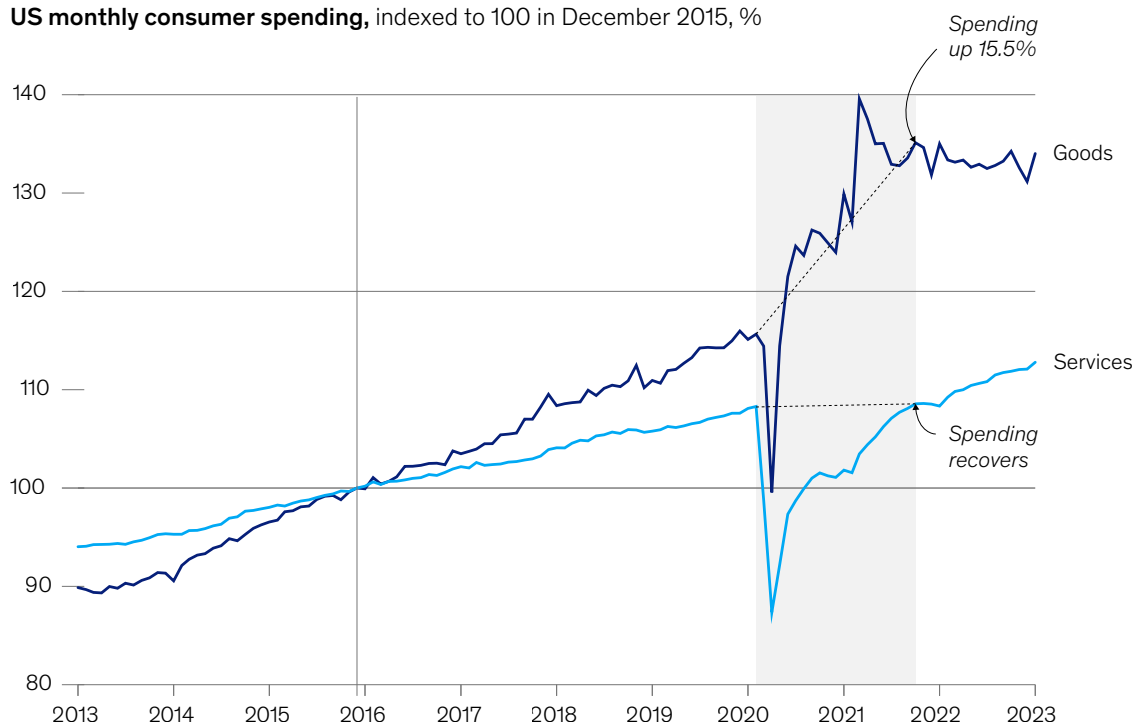
Average annual change, %

	2015–19	2019–22
Houston	↑ 1.3	↑ 1.7
Munich	↓ 0.5	↓ 0.3
San Francisco	↑ 0.2	↓ 0.5
New York City	↓ 1.3	↓ 0.4
Paris	↑ 0.4	↓ 1.3
Tokyo	No data	↓ 1.7
London	↓ 1.1	↓ 2.7
Beijing	↑ 1.2	↓ 6.9

Note: These numbers were adjusted for inflation. Values for 2022 are estimates.
 Source: Beijing Municipal Bureau of Statistics; Euromonitor; Ministry of Economy, Trade, and Industry (Japan); US Census Bureau; McKinsey Global Institute analysis

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The pandemic led consumers to spend more on goods, but since 2021, they have been shifting their spending to services.



Note: Numbers adjusted for inflation.
 Source: US Bureau of Economic Analysis; McKinsey Global Institute analysis

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And though consumers famously shifted their spending from services to goods during the pandemic, they have been slowly shifting it back to services since mid-2021. In the United States, for instance, spending on goods has stabilized since the end of 2021, but spending on services has continued to grow past prepandemic levels in real terms (Exhibit 17). In France, spending on services grew in 2021 in real terms; in 2022, it grew again, even as spending on goods fell.

Those trends will pose challenges for brick-and-mortar stores' sales. The upward march of online sales will eat away at the stores' revenues, even though that march has slowed since 2020. Lost foot traffic will do the same unless stores find ways to improve their marketing or encourage the customers who do visit to make more and larger purchases. (The most successful retailers are rethinking their store formats to support omnichannel experiences—those in which customers' in-store and online experiences, including the marketing aimed at them, are integrated.) The spending shift from goods back to services may further reduce foot traffic to stores selling goods. And other trends could further complicate stores' prospects. For example, "revenge spending," consumers' tendency to spend heavily after the pandemic to make up for lost time, will dissipate, or economies around the world could enter recessions.

Declines in foot traffic near stores have been particularly persistent in urban cores and office-dense neighborhoods

Retailers in urban cores confront even greater challenges. As of October 2022, foot traffic had recovered noticeably less near those stores than near suburban ones (Exhibit 18). In New York, for example, foot traffic near suburban stores was 16 percent lower than it had been in January 2020, but foot traffic near urban stores was 36 percent lower.

And retail traffic has been still lower in cities' office-dense neighborhoods. For example, the City of London, the borough in London with the highest ratio of office jobs to residents, experienced a nearly 50 percent decrease in foot traffic near stores from February 2020 to June 2022—by far the most severe and sustained decline of any borough in London. Foot traffic near stores was also hurt by declines in tourism, but more mildly; in London, boroughs that are popular with tourists, such as Kensington and Westminster, fared much better than the City of London.

Exhibit 18

Foot traffic near stores is recovering more quickly in the suburbs than in urban cores.

Change in foot traffic near stores from January 2020, %¹

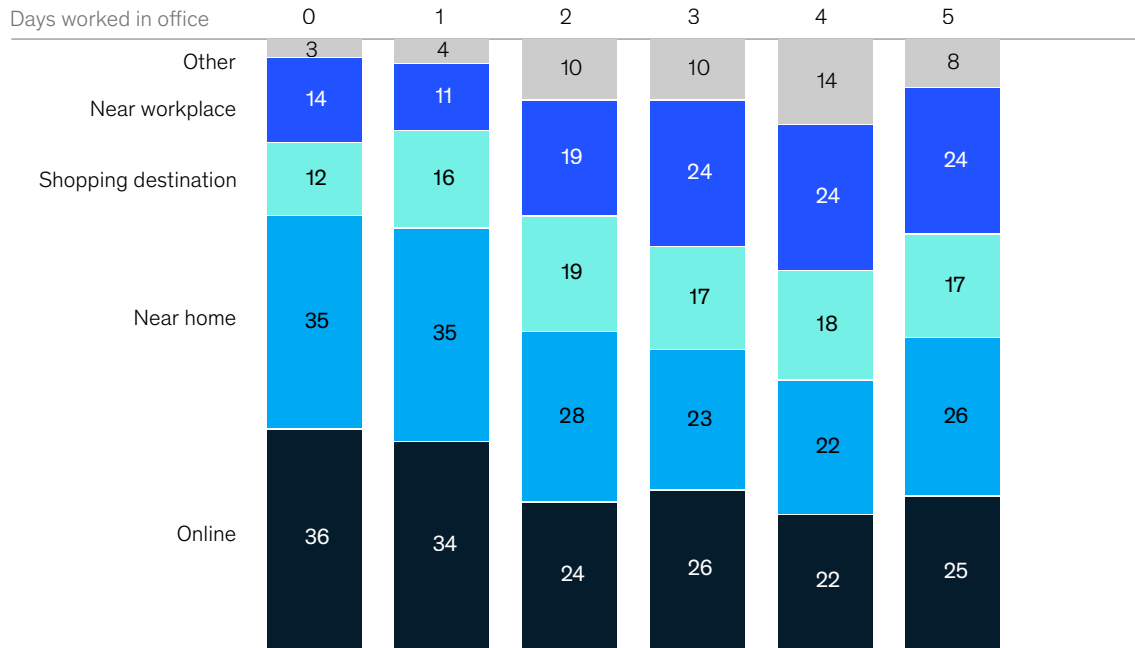


Note: Cities are defined as follows: the New York–Newark–Jersey City metropolitan statistical area (MSA); the Greater London area; Île de France; the San Francisco–Oakland–Hayward MSA; the Houston–The Woodlands–Sugar Land MSA; and the Kanto Region (Tokyo).
¹Stores include retail and recreation locations but not grocery stores or pharmacies.
 Source: Google's Community Mobility Reports; McKinsey Global Institute analysis

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In the United States, employees who work less in the office spend more online.

Share of weekly retail spending by number of days per week worked in the office, %



Note: Survey respondents were asked, "On average, how many days of the week do you work in the office currently?" and "What proportion of your weekly retail expenditure do you spend at the following locations currently?"
 Source: McKinsey Global Institute analysis

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Part of the reason for office-dense neighborhoods' declines in foot traffic seems to be that many of the employees who might shop there spend more time working from home than they used to. In our survey, respondents in the United States who worked at the office no more than one day per week reported doing much less of their total retail spending near the office than those who worked in the office for two to five days a week reported (Exhibit 19).

However, the struggles of stores in urban cores may present opportunities for those in the suburbs. The same survey respondents—those who spent less at stores near the office—also spent more at stores near home.



2. The impact on real estate

The pandemic had major effects on office workers in superstar cities, as the previous chapter described. Above all, the pandemic changed their working habits, encouraging many employees to work from home instead of in the office. As they abandoned offices in urban cores, they also started moving to the suburbs in search of larger homes in greener areas. And they shopped less at stores near the office and more online.

Those three changes could have equally significant effects on demand for office, residential, and retail real estate. To find out how large those effects might be, we built a model that projects demand for office, residential, and retail space in a number of scenarios, including a moderate one and a severe one. The model used information from the large global survey that we conducted. We also considered a wide variety of factors, including long-term population trends; employment trends, such as the ongoing effects of automation on employment; office attendance patterns by industry; employee coordination, defined as the maximum share of workers in the office at a given time that employers need to maintain; workers' ages and incomes; the share of a city's population that commutes from elsewhere; housing prices; and shopping trends, such as the ongoing increase in online shopping.

In the scenarios that we modeled, demand for office and retail space is generally lower in 2030 than it was in 2019, but the reductions are smaller than those projected by many other researchers. Residential space is less affected, though the price differences between urban cores and suburbs are narrower than they used to be. (For more about the modeling methods and differences among the scenarios, see the technical appendix.)

There will be less demand for office space

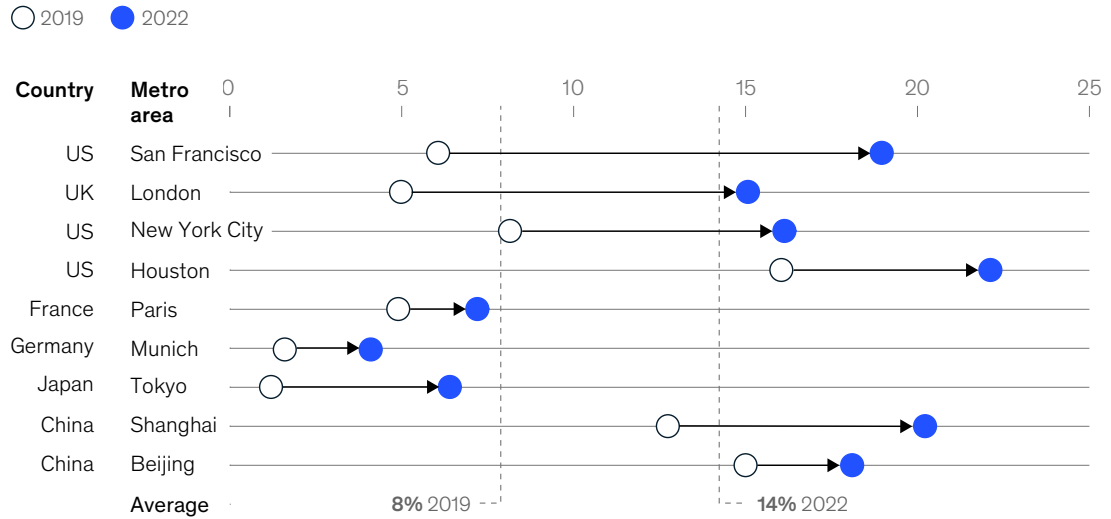
Demand for office space in superstar cities has been falling since the start of the pandemic as a result of lower office attendance. Our model suggests that the problem will only worsen over the next seven years, at least in most of the cities we studied.

Demand for office space has already fallen, and vacancy rates have grown by as much as 13 percent in the cities we studied

Since the start of the pandemic, lower office attendance has driven demand for office space down and vacancy rates up. In every city we studied, the percentage of office space that was vacant rose from 2019 to 2022 (Exhibit 20). The increase ranged from two to 13 percentage points, depending on the city. Moreover, the size of the increase in the cities we studied correlated with the degree to which office attendance there fell, showing that the two phenomena were related. For example, in San Francisco, which experienced one of the steepest declines in office attendance in our study, office vacancy was more than ten percentage points higher in 2022 than it was in 2019. That change was the largest of the vacancy-rate increases we observed and seven percentage points higher than the national average. It was also a stark reversal of prepandemic conditions: San Francisco was the tightest US market in 2019, when just 6 percent of its office space was vacant (four percentage points below the national average).

Office vacancy rates in superstar cities increased between 2019 and 2022.

Share of office space that was vacant, %



Note: In this exhibit, the cities are defined as follows: the San Francisco–Oakland–Hayward metropolitan statistical area (MSA); the London region; the New York–Newark–Jersey City MSA; the Houston–The Woodlands–Sugar Land MSA; Île-de-France; the Munich MSA; the Tokyo region; the Shanghai region; and the Beijing region.
Source: BNP Paribas; Colliers; CoStar; E&G Real Estate; German Property Partners; Sanko Estate Company; McKinsey Global Institute analysis

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In most superstar cities, lower office attendance has similarly driven down asking rents in real terms.²¹ Rents in the US cities we studied fell especially sharply—for example, by 28 percent in San Francisco and by 18 percent in New York City from 2019 to 2022. Rents in the European cities we studied have been more resilient. In Paris, London, and Munich, they fell by 10 percent, 12 percent, and 9 percent, respectively. In only two of the cities we studied, Munich and Tokyo, did rents actually increase; they grew the most in Tokyo, increasing by 4 percent from 2019 to 2022.

Occupancy and rents may fall further still. Because their employees are coming to the office less often, many employers have downsized spaces to reduce costs. More will do so; thanks to the lengthy nature of leases in the office sector, nearly half of all tenants have not made a renewal decision since the onset of the pandemic, and macroeconomic uncertainty could give them further reasons to downsize. Indeed, some tenants have chosen not to wait for their renewal dates and instead have bought their way out of long-term contracts. Some landlords have offered tenants rent abatements and higher tenant improvement allowances (capital for physical improvements or alterations), but those actions, while they may have propped up occupancy, have reduced effective rent. And though office attendance seems to be stabilizing, tenants may remain hesitant to commit to new long-term leases, unsure of how much space they will need in a few years.

²¹ To determine rent changes in real terms, we adjusted rents for inflation in the country where each city was located.

There is historical precedent for rents' falling further than they have so far. During the global financial crisis of 2007 and 2008, and also when the dot-com bubble burst in the early 2000s, asking rents in London, New York City, and San Francisco fell by more than 30 percent. They dropped by 21 percent, on average, from their peak in the fourth quarter of 2019 to the fourth quarter of 2022.

The decline in demand has allowed tenants—wary about current macroeconomic conditions, uncertain about how much their workers will come to the office, and therefore uncertain about how much space they will need—to negotiate shorter leases from owners. Shorter leases, in turn, may make it more difficult for owners to obtain financing or may cause banks to adjust valuation models, which rely in part on the duration of existing leases.

Also, because of uncertainty about demand, transaction volume—the dollar value of all sales of office buildings—has fallen dramatically. The difference between the prices requested by owners and the bids placed by potential buyers remains wide, financing costs are higher than they were during a frenzied trading environment in 2021, and debt availability remains depressed.²² In 2022, global volume fell in each consecutive quarter, and the total for the year was nearly 28 percent lower than it was in 2019. At the city level, transaction volumes have broadly correlated with sale prices. For example, transaction volume in New York City was 36 percent lower in 2022 than in 2019, and the average sale price per square foot fell 13 percent over the same period. Conversely, transaction volume in Atlanta was 31 percent higher in 2022 than in 2019, and price per square foot grew by 37 percent over the same period.²³

Current owners of office buildings hope for a return to prepandemic levels of net operating income. But potential buyers may not share that hope, according to a common indicator of the market outlook for assets. Capitalization rates, which equal properties' net operating income divided by their current value, have been rising, and that is typically a sign of lower future valuations. In the fourth quarter of 2022, total returns for the office sector in one index were -4.80 percent, distinctly lower than the -3.50 percent returns for all asset classes.²⁴

Demand for office space in the median city we studied is projected to be 13 percent lower in 2030 than in 2019

According to our model, demand for office space in a moderate scenario will be 13 percent lower in 2030 than it was in 2019 for the median superstar city in our study. Remote work and flexible working arrangements drive that projected decline by reducing office attendance. Also, the amount of space allocated to each office worker is expected to shrink as pandemic-related concerns wane, further reducing demand. However, population growth may partly or fully offset the expected demand decline in some cities. (Our model does not consider price elasticity; that is, it does not account for the fact that when demand decreases, prices fall, pushing demand partway back up.)

In the scenarios we modeled, demand declines most precipitously in San Francisco (Exhibit 21). One reason is that before the pandemic, the share of employees who were office-based in San Francisco was among the highest in the United States, so office attendance there fell unusually sharply. Furthermore, San Francisco had an unusually large share of workers in technology and professional services, who were among the most able to work from home at the start of the pandemic and have subsequently been among those who go to the office least frequently. On their own, those pandemic-driven changes would push down demand for office space in 2030 by 22 percent in the moderate scenario. But population and office employment growth will push demand up and slightly offset that effect so that the net decline in demand is 20 percent.

²² In 2021, global office trading volume grew 27 percent each quarter and commercial real estate trading volume grew 38 percent each quarter.

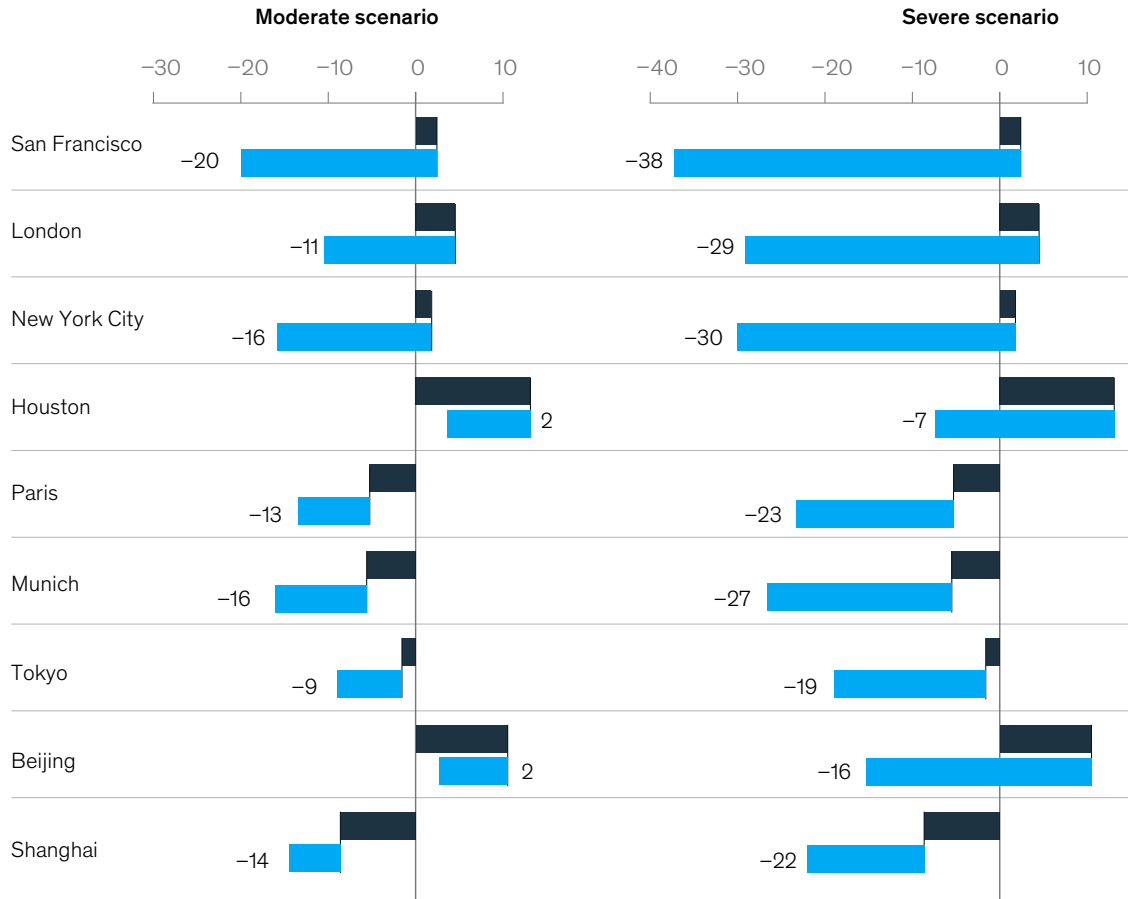
²³ Data from CoStar.

²⁴ That index is the NCREIF Property Index maintained by the National Council of Real Estate Investment Fiduciaries.

In most superstar cities, demand for office space will be lower in 2030 than it was in 2019.

Projected change in office space demand before prices adjust, 2019–30, %

- Change resulting from factors unrelated to the pandemic
- Change resulting from pandemic-driven behavior



Note: Cities are defined as follows: the San Francisco–Oakland–Hayward metropolitan statistical area (MSA); the London region; the New York–Newark–Jersey City MSA; the Houston–The Woodlands–Sugar Land MSA; Île-de-France; the Munich MSA; the Tokyo region; the Beijing region; and the Shanghai region. For more information about the scenarios, see the technical appendix.
 Source: BNP Paribas; Colliers; Commercial Real Estate Intelligence Solutions; CoStar; E&G Real Estate; Federal Statistical Office (Germany); German Property Partners; Kastle; Ministry of Beijing; Mitsui Fudosan; Sanko Estate Company; Tokyo Metropolitan Government; US Bureau of Labor Statistics; McKinsey Global Institute analysis

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Houston, by contrast, shows the strongest future demand for office space among cities in our study. In the moderate scenario, such demand is projected to grow by 2 percent between 2019 and 2030. That growth is partly owing to Houston’s high office attendance; pandemic-driven changes in people’s working behavior are thus projected to reduce demand for office space in Houston by just 10 percent, a smaller drop than in some other cities. But it is also owing to strong population growth. Houston has long benefited from a broader trend of migration to US Sunbelt cities, and that trend, by pushing up total office employment, should boost demand by a powerful 13 percent, more than offsetting the pandemic-driven changes.

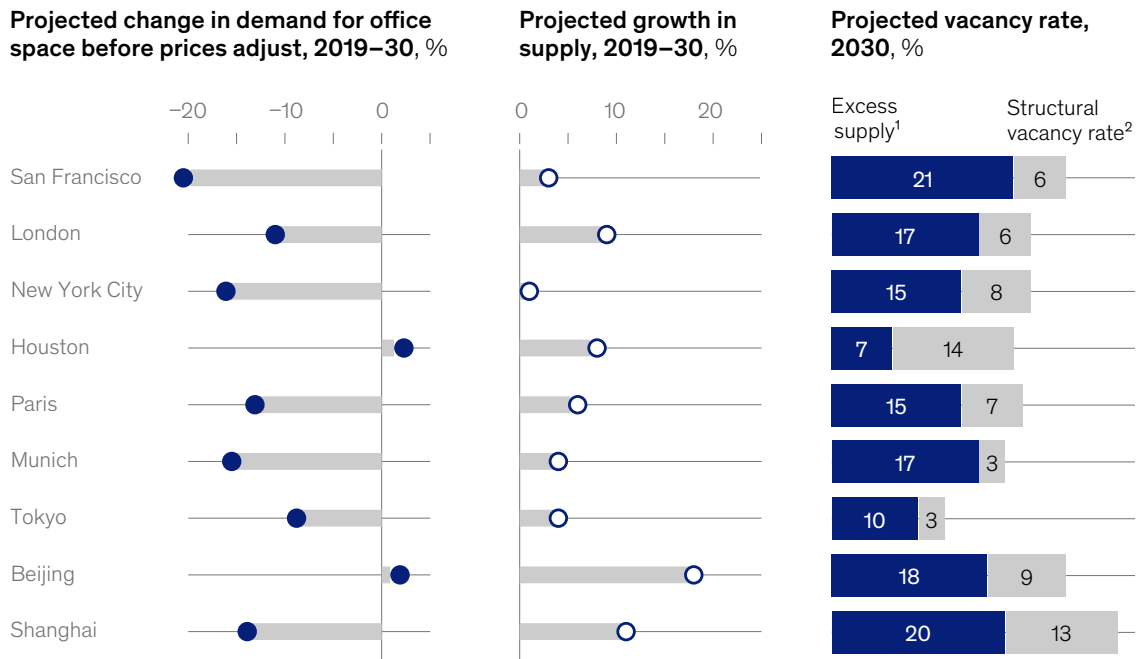
Our model also estimates a severe scenario for office-space demand, one in which office attendance remains at current levels indefinitely and out-migration from urban cores is higher. In that scenario too, San Francisco fares worst among the cities we studied and Houston best. In San Francisco, demand for office space would be 38 percent lower in 2030 than it was in 2019. In Houston, demand would be 7 percent lower.

The demand shortfall that we project, along with growing supply resulting from the completion of new office buildings, will boost vacancy rates. In 2030, in the superstar cities we studied, there will be excess supply of office space of 7 to 21 percent, according to our model's moderate scenario (Exhibit 22). We define excess supply as the percentage of office space that is vacant beyond structural vacancy (the average from 2014 to 2019). In essence, it represents the part of projected vacancies attributable to the pandemic. It will be at least 15 percent in more than half the cities we studied and be particularly high in San Francisco, Shanghai, Beijing, London, and Munich.

Excess supply is caused by two factors: decreasing demand for office space (discussed above) and continued supply growth (that is, new office buildings entering the market). For example, in Houston, excess supply is projected to be low (7 percent) because, although supply growth will be about as high as in several other cities, demand is actually expected to grow, thanks to employment growth and in-migration. By contrast, excess supply will be 20 percent in Shanghai, driven by a relatively severe decline in demand and relatively high supply growth.

Exhibit 22

Excess supply in superstar cities is highest in San Francisco, Shanghai, Beijing, London, and Munich.



¹The percentage of space that is vacant beyond the structural vacancy rate.
²For most cities, the average vacancy rate from 2014 to 2019; for Beijing, Paris, and Shanghai, the average from 2017 to 2019.
 Note: In this exhibit, the cities are defined as follows: the San Francisco–Oakland–Hayward metropolitan statistical area (MSA); the London region; the New York–Newark–Jersey City MSA; the Houston–The Woodlands–Sugar Land MSA; Île-de-France; the Munich MSA; the Tokyo region; the Beijing region; and the Shanghai region.
 Source: BNP Paribas; Colliers; Commercial Real Estate Intelligence Solutions; CoStar; E&G Real Estate; Federal Statistical Office (Germany); German Property Partners; Kastle; Ministry of Beijing; MitsuiFudosan; Sanko Estate Company; Tokyo Metropolitan Government; US Bureau of Labor Statistics; WFH Associates; McKinsey Global Institute analysis

The *total* vacancy rate in the cities we studied will be considerably higher than the excess supply. It will be more than 20 percent in all cities except Tokyo and Munich in 2030. Tokyo's projected vacancy rate, 13 percent, is the lowest in our study, which may be due to Tokyo's transit-oriented design and general resiliency against the pandemic's effects.

Excess supply can be reduced in only two ways: boosting demand (say, by attracting companies and jobs to fill vacant spaces) or shrinking supply (by demolishing office buildings or converting them to other uses). We discuss those possibilities in chapter 4.

In the cities we studied, \$800 billion in office-space value is at stake

In the nine cities we studied, a total of \$800 billion in office-space value (in real terms) is at stake by 2030 in the moderate scenario. On average, the total value of office space declines by 26 percent in the moderate scenario and by 42 percent in the severe one from 2019 to 2030. The impact on value could be even greater if rising interest rates compound it. Similarly, the impact could increase if troubled financial institutions decide to more quickly reduce the price of property they finance or own.

Although other factors could drive a decline in value, our model uses only the impact of changing demand. We assume in both scenarios that market capitalization rates will remain constant from 2022 onward. In the moderate scenario, we assume that rents will remain constant in real terms from 2022 through 2030. In the severe scenario, by contrast, we assume that rents will be 30 percent lower in 2025 than they were in 2019 and then remain constant in real terms until 2030.²⁵

The decline in value is already occurring: capitalization rates for office space in the United States have risen from 5.8 percent to 8.0 percent over the past three years, implying value erosion of more than 35 percent before accounting for net operating income decline.²⁶ In the worst case, falling property values could lead to a “doom loop” for some buildings. A doom loop begins when a building's value declines and its owner consequently holds less equity in relation to debt. That shifting capital structure makes it harder for the owner to secure financing. As a result, aging and low-quality properties may remain unrenovated or not repurposed, further reducing property values. That phenomenon could be exacerbated by office tenants' increased preference for higher-quality spaces (see Box 1, “The ‘flight to quality’ in office space”).

A ‘doom loop’ could be exacerbated by office tenants’ increased preference for higher-quality spaces.

²⁵ Also, our model used five-year rolling average rents to calculate value in order to account for traditionally long lease terms. However, tenants have started to opt for shorter and more flexible leases, both because they are uncertain about their workers' behavior and because providers of flexible office space have emerged, offering tenants more choices. Shorter leases without a commensurate rent premium can impair value, as an astute investor will pay less for lower certainty in cash flows. So if shorter leases become the norm, the value destruction that we have calculated may prove to be an underestimate.

²⁶ Green Street, 2023.

Box 1

The ‘flight to quality’ in office space

The decline in demand for office space has been accompanied by a shift in tenants’ preferences toward high-quality space. From 2020 to 2022, rents and demand for Class A space grew more quickly than those for Class B space in many major US cities (Exhibit 23).

While many tenants are downsizing to save money, others are paying more per square foot to provide attractive space to their employees. Some are doing both: a large professional services firm recently consolidated its footprint in New York City, closing two older spaces covering 800,000 square feet and setting up a new space in 450,000 square feet of top-quality space.

There are a number of reasons for this “flight to quality.” One is that older office space is often not suited to hybrid work; for example, it may have less sophisticated audiovisual equipment. Also, now that hybrid work has reduced the total amount of

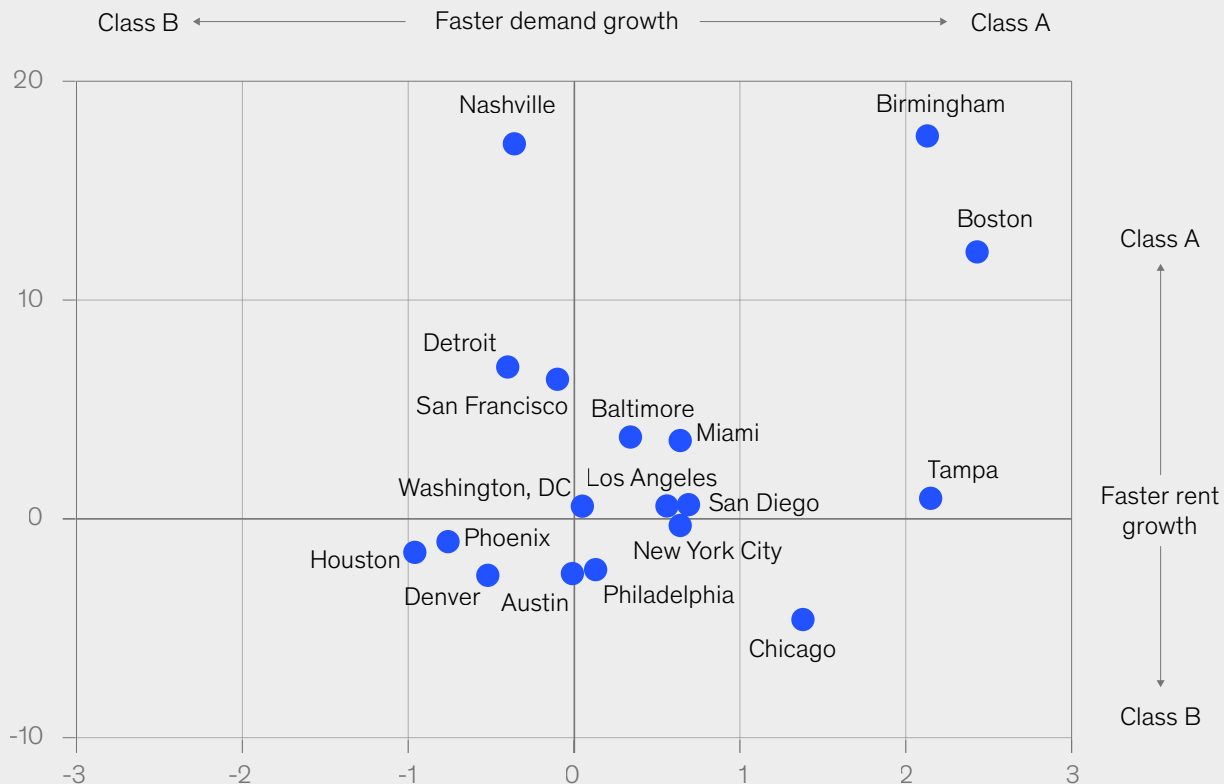
space that employers need, they can spend their budgets on smaller amounts of higher-quality space rather than larger amounts of lower-quality space. The main reason, though, is that many employers see high-quality space as a way to encourage office attendance among their employees. (Among other things, Class A buildings tend to be near transit and thus can reduce commuting time.)

The survey described in chapter 1 provides some evidence that the strategy could be successful. Among the respondents who said that they would be willing to trade more than 20 percent of their income to work their desired number of days in the office rather than go every day, one of the top reasons given for sometimes going to the office was to work in a more pleasant space. That is, even the people least inclined to work at the office seem to be attracted to quality space.

Exhibit 23

Since 2020, rents and demand have grown more quickly for Class A office space than for Class B in many US cities.

Difference in demand and rent growth between Class A and Class B office space, 2020–22, percentage points



Source: CoStar; McKinsey Global Institute analysis

Demand growth for residences will be muted, especially in urban cores

Before the pandemic, housing prices generally rose more quickly in superstar urban cores than in their suburbs. (For the definition of urban cores, see Box E1, “How we define cities,” in the executive summary.) The pandemic reversed that trend, making prices rise more quickly in the suburbs. Our model projects that housing demand in urban cores will nevertheless be greater in 2030 than it was in 2019.

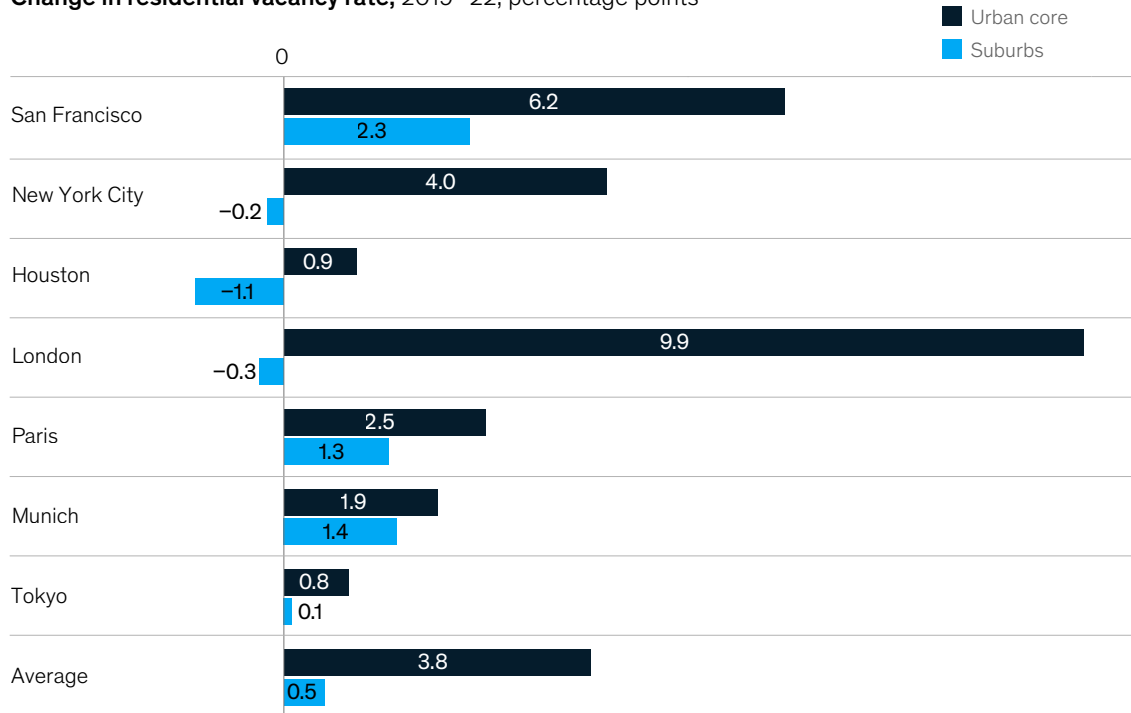
Demand and prices for residential real estate have grown more slowly in superstar urban cores than in suburbs and other cities

In every superstar urban core that we studied, the percentage of residential real estate that was vacant grew between 2019 and 2022. The increase varied from 0.8 percentage point in Tokyo to 9.9 percentage points in London (Exhibit 24).

Exhibit 24

Residential vacancy rates rose more quickly in urban cores than in suburbs during the pandemic.

Change in residential vacancy rate, 2019–22, percentage points



Source: Beijing Municipal Bureau of Statistics; Department for Levelling Up, Housing and Communities (United Kingdom); Eurostat; EW & Associates Realty; Federal Statistical Office (Germany); E-Stat (Japan); National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); Office for National Statistics (United Kingdom); RealAdvisor; Shanghai Municipal Bureau of Statistics; Statistics Bureau of Japan; US Census Bureau; McKinsey Global Institute analysis

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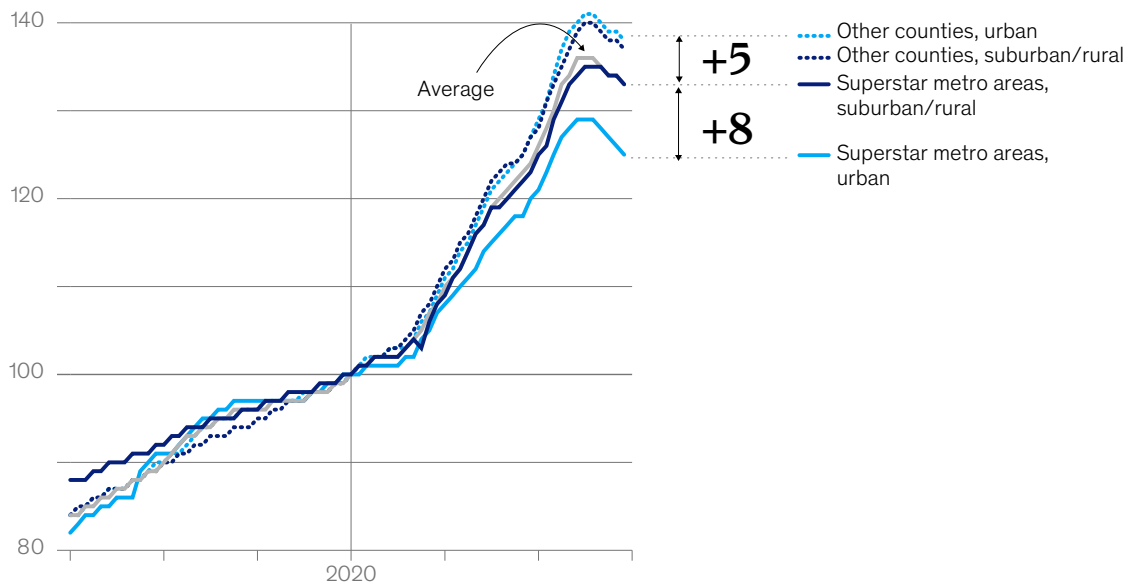
Furthermore, in every city we studied, the vacancy rate for residences rose more in the urban core than in the suburbs. A major reason was increased suburbanization. As we discussed in chapter 1, in most of the cities we studied, population growth in the suburbs relative to that in the urban cores sped up during the pandemic. In London, New York City, and San Francisco, where that phenomenon was especially severe, the difference in vacancy-rate increases between urban cores and suburbs was correspondingly large. In Munich, Tokyo, and Paris, where suburbanization was less dramatic, the vacancy rate increased at roughly the same rate in urban cores and suburbs, driven by pandemic-related deaths and lower immigration from other countries.

Home prices followed the same pattern, rising eight percentage points more slowly in US superstar urban cores than in their suburbs from the end of 2019 to 2022 (Exhibit 25). Prices also rose 13 percentage points more slowly in the US superstar urban cores than in non-superstar urban cores. It was not an exclusively American phenomenon; an OECD report found that the pandemic caused a global acceleration of home price growth outside major city centers.²⁷

Exhibit 25

Home prices in the United States have risen far more slowly in superstar urban cores than elsewhere.

Typical home price, indexed to 100 in January 2020, through December 2022, %¹



¹A smoothed, seasonally adjusted measure of the typical value of homes in the 35th to 65th percentiles. Source: US Census Bureau; Zillow Home Value Index; McKinsey Global Institute analysis

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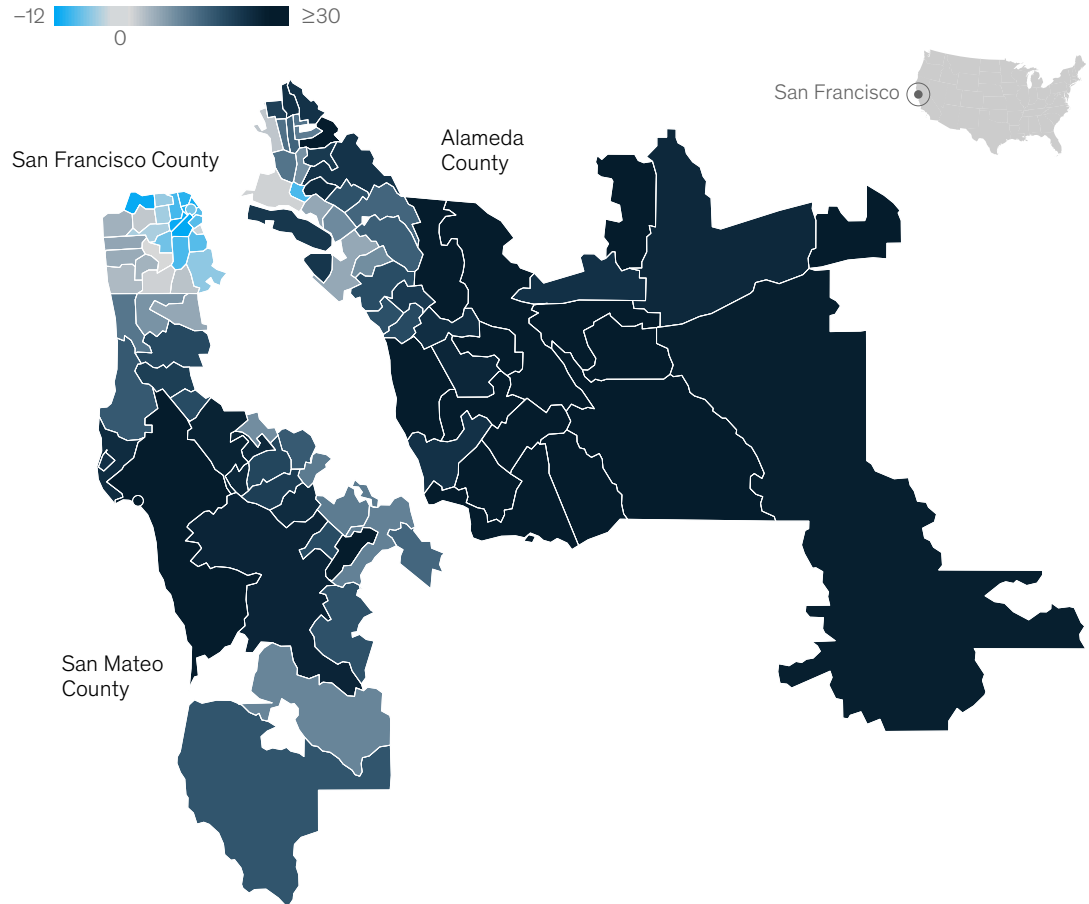
²⁷ Rudiger Ahrend et al., *Changes in the geography housing demand after the onset of COVID-19: First results from large metropolitan areas in 13 OECD countries*, OECD Economics Department Working Papers, number 1713, April 2022.

Similarly, prices grew more quickly in zip codes farther away from city centers, according to our analysis (Exhibit 26). In fact, many cities experienced what has been called the “doughnut effect”: rising prices in the suburbs and *falling* prices in city centers.²⁸ In San Francisco, nominal prices in the most strongly affected neighborhoods fell by 12 percent from the end of 2019 to 2022. Residences in San Francisco’s urban core are now worth \$750 billion less than they would have been if prices there had risen at the national average rate.

Exhibit 26

San Francisco has demonstrated the ‘doughnut effect’: rising prices in the suburbs and falling prices in city centers.

Typical home price growth by zip code, December 2019–December 2022, %¹



¹A smoothed, seasonally adjusted measure of the typical value of homes in the 35th to 65th percentiles. Source: Zillow Home Value Index; McKinsey Global Institute analysis

McKinsey & Company

²⁸ Arjun Ramani and Nick Bloom, *The donut effect: How COVID-19 shapes real estate*, Stanford Institute for Economic Policy Research, January 2021.

By 2030, projected demand for residential real estate in superstar urban cores is greater than it was in 2019, despite the pandemic

In most superstar urban cores, even though demand for residential real estate has been weak, it will be greater in 2030 than it was in 2019 in a moderate scenario, according to our model (Exhibit 27). Houston, Munich, and Tokyo experience the strongest projected demand growth. The two exceptions are Paris and San Francisco, where population in the urban core is shrinking; demand in those two cities is expected to be lower in 2030 than it was in 2019. Although the effects of the pandemic figure into all our demand projections, they are responsible for significantly lower demand by 2030 in only three cities—London, New York City, and San Francisco.

Exhibit 27

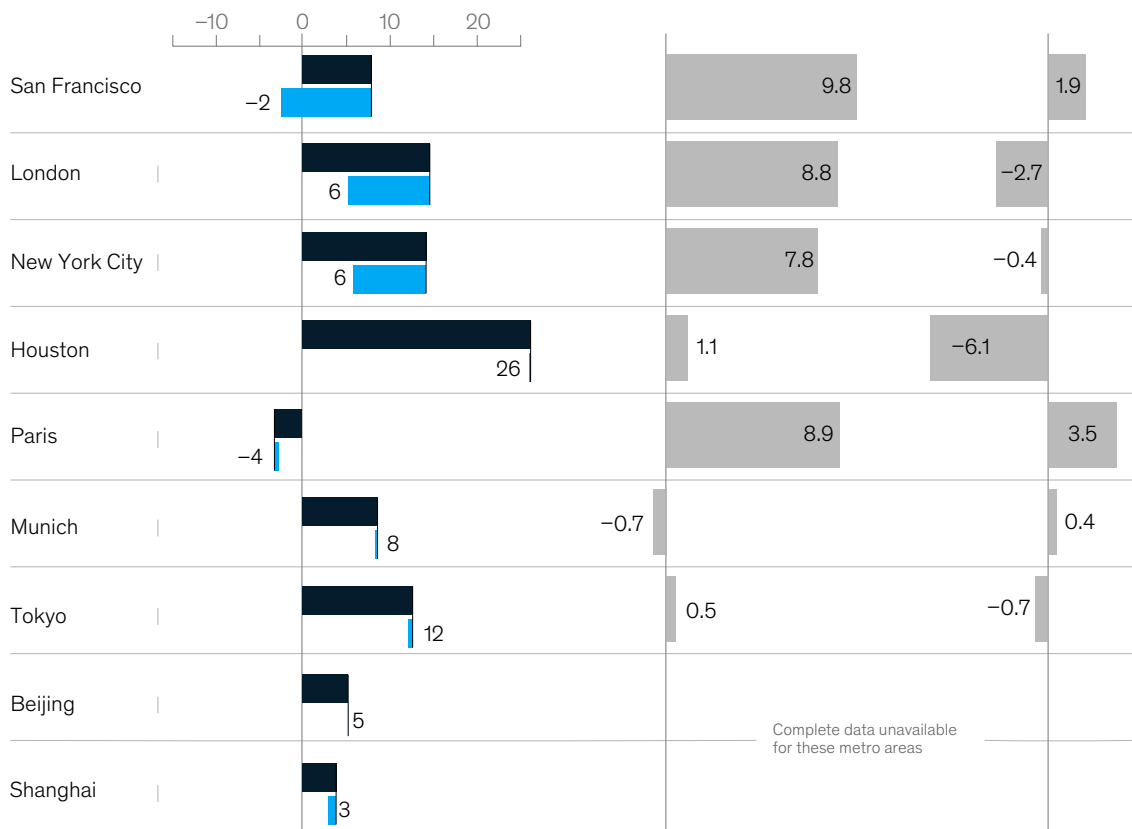
In a moderate scenario, demand for residential space is higher in 2030 than it was in 2019 in most superstar cities.

Projected change in residential space demand before prices adjust, 2019–30, %¹

Projected excess supply, 2030, %²

■ Change resulting from factors unrelated to the pandemic
 ■ Change resulting from pandemic-driven behavior

Urban core Suburbs



Note: For more information about the scenario, see the technical appendix.
¹Demand for residential space in superstar cities is highly price elastic, so in the long run, these shifts would probably lead to a rebalancing of prices rather than an actual reduction in demand.
²The percentage of space that is vacant beyond the structural vacancy rate (defined as the average vacancy rate from 2014 to 2019).
 Source: Beijing Municipal Bureau of Statistics; Department for Levelling Up, Housing and Communities (United Kingdom); Eurostat; EW & Associates Realty; Federal Statistical Office (Germany); E-Stat (Japan); National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); Office for National Statistics (United Kingdom); RealAdvisor; Shanghai Municipal Bureau of Statistics; Statistics Bureau of Japan; US Census Bureau; McKinsey Global Institute analysis

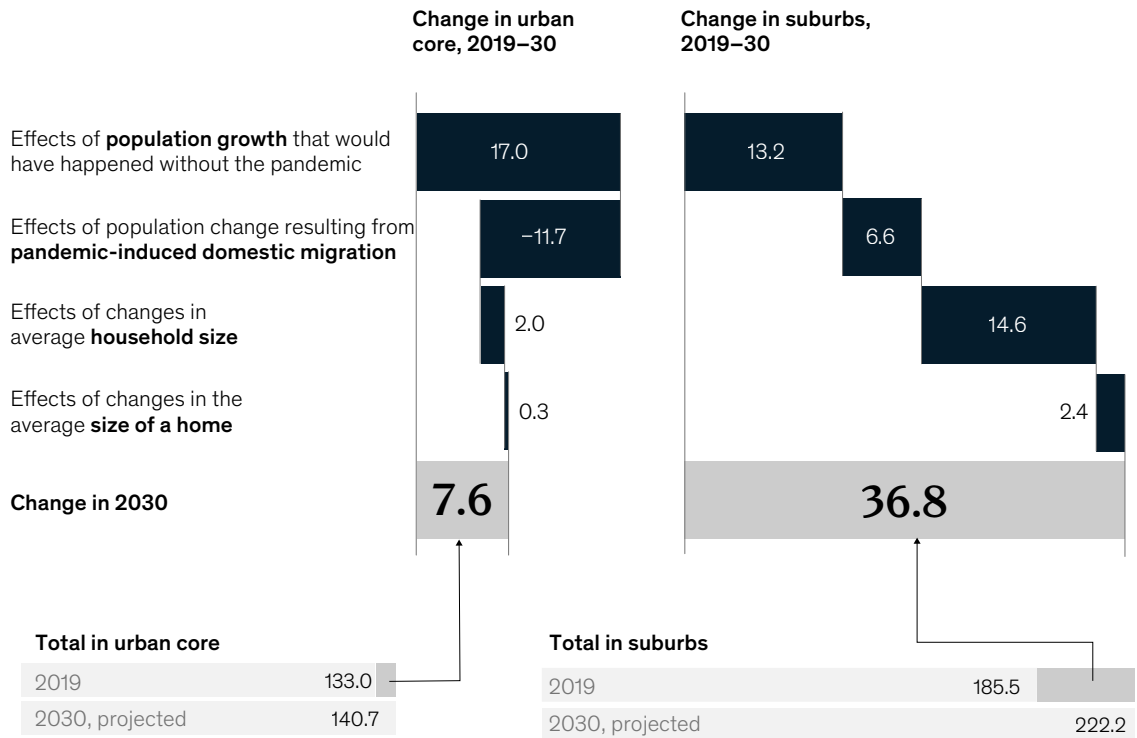
Although demand is projected to grow in most urban cores, it is projected to grow still more in the suburbs. As a result, excess supply in our model is far greater in the cores than in the suburbs. (Recall that we define excess supply as the percentage of space that is vacant beyond the average from 2014 to 2019—in essence, the part of projected vacancy that is attributable to the pandemic in our model.) The mismatch would lead to strong price corrections, ultimately reducing the difference in vacancy rates between the urban core and the suburbs.

To better understand how our model estimates demand, consider the moderate scenario for London (Exhibit 28). In both the urban core and the suburbs, the population and the size of the average home are expected to grow, adding to total demand. Furthermore, the number of people in an average household is expected to decline, also adding to total demand. But the effects of migration differ: migration out of the urban core is projected to drive down demand there, whereas migration into the suburbs is projected to drive up demand there.

Exhibit 28

Demand for residential space is largely driven by population growth, which has been affected by pandemic-induced out-migration.

Demand for residential space in London, moderate scenario, million square meters



Note: For more information about the scenario, see the technical appendix.
 Source: Office for National Statistics (United Kingdom); Department for Levelling Up, Housing and Communities (United Kingdom); McKinsey Global Institute analysis

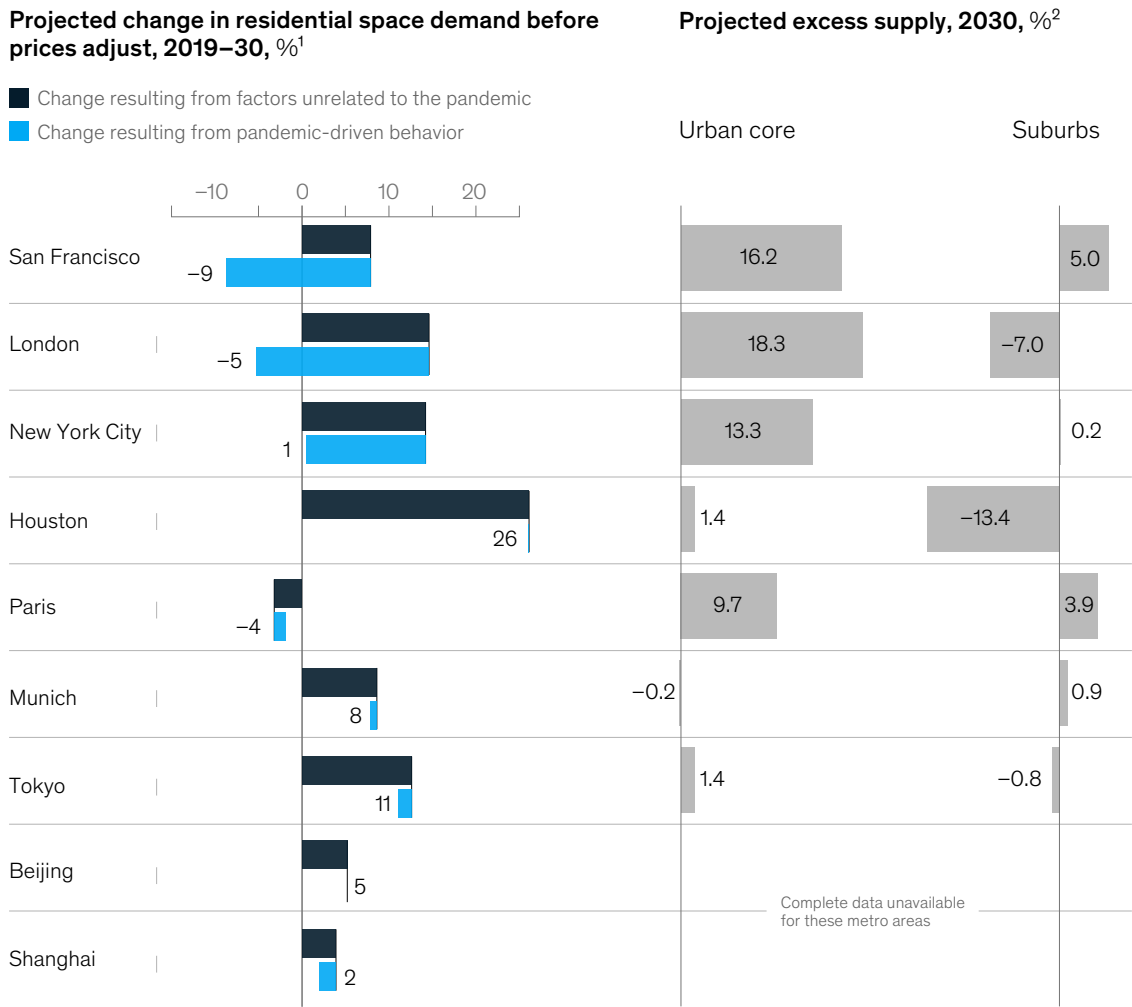
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In a severe scenario, pandemic-driven domestic out-migration is higher than in the moderate one. As a result, demand in 2030 is lower in that scenario than in the moderate one for most cities (Exhibit 29). But even in the severe scenario, net demand increases in most cities.

Both scenarios rest on the assumptions that out-migration will continue to be higher than it was from 2015 to 2019 and that the wave of residents who left cities in the past three years will not return. Those assumptions are supported by our survey results, as we discussed in chapter 1. But if they prove incorrect, housing demand in superstar urban cores could be greater than we have estimated.

Exhibit 29

Even in a severe scenario, demand for residential space is higher in 2030 than it was in 2019 in most superstar cities.



¹Demand for residential space in superstar cities is highly price elastic, so in the long run, these shifts would probably lead to a rebalancing of prices rather than an actual reduction in demand.
²The percentage of space that is vacant beyond the structural vacancy rate (defined as the average vacancy rate from 2014 to 2019).
 Source: Beijing Municipal Bureau of Statistics; Department for Levelling Up, Housing and Communities (United Kingdom); Eurostat; EW & Associates Realty; Federal Statistical Office (Germany); E-Stat (Japan); National Institute of Statistics and Economic Studies (France); National Statistics Institute (Spain); Office for National Statistics (United Kingdom); RealAdvisor; Shanghai Municipal Bureau of Statistics; Statistics Bureau of Japan; US Census Bureau; McKinsey Global Institute analysis

Also, recall that our model does not consider price elasticity. That is, the projections are for a situation in which prices have not yet adjusted. But ample research suggests that price elasticity in superstar cities is high, so any available floor space will probably be taken up quickly.²⁹ In other words, lower demand is likely to push down prices and rents, and those lower prices and rents would quickly attract new residents and encourage existing ones to buy or rent more space, preventing vacancy from growing.

Unfortunately, the downward pressure on prices and rents is unlikely to make residences in superstar cities—many of which suffer from expensive housing and homelessness—much more affordable. From December 2019 to December 2022, home prices in the United States rose by 40 percent, more than twice as fast as inflation. In US superstar cities' urban cores, prices grew more slowly, by 25 percent—but still faster than inflation. Housing there will probably become less expensive than it would have been without the pandemic, but home prices will continue to increase and will remain out of reach for many.

Retail space will continue to be challenged

A great deal of retail space in urban cores became vacant during the pandemic, and there is reason to think that vacancy rates will keep rising. Our model projects that demand for retail space in urban cores will be lower in 2030 than it was in 2019 and that some cities will be hit much harder than others.

Retail vacancy has increased and rents have declined, particularly in office-dense locations

Retail real estate has struggled since the start of the pandemic. From 2019 to 2022, vacancy rates in the urban cores we studied increased by an average of 3.3 percentage points (Exhibit 30). The increase was largest in London at 6.2 percentage points, albeit from a relatively low starting point. During the same period, asking rents decreased 5.4 percent, on average, in real terms. The rents that were actually paid may have fallen even more.

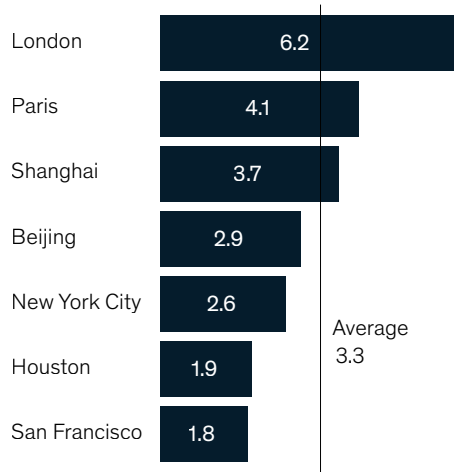
Those changes were less acute in the suburbs. From 2019 to 2022, vacancy rates in London's suburbs increased by just 0.2 percentage point. Similarly, vacancy rates increased by 3.0 percentage points in Manhattan but by only 0.7 percentage point in the surrounding suburbs. Lower foot traffic near stores in urban cores may help explain the variation.

A great deal of retail space in urban cores became vacant during the pandemic, and there is reason to think that vacancy rates will keep rising.

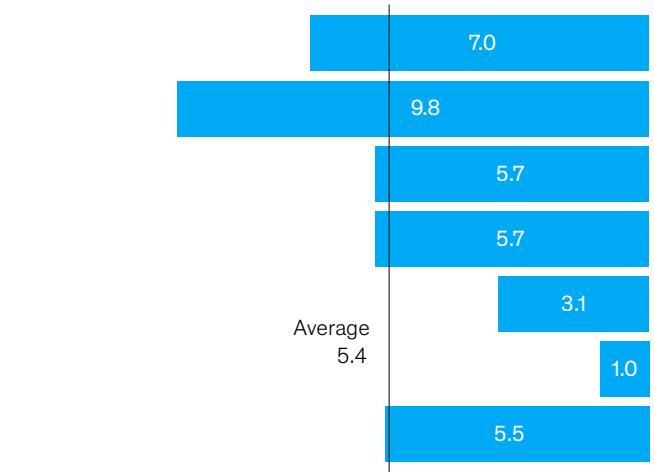
²⁹ See Greg Howard and Jack Liebersohn, "Why is the rent so darn high? The role of growing demand to live in housing-supply-inelastic cities," *Journal of Urban Economics*, volume 124, July 2021.

Retail space in urban cores became more vacant from 2019 to 2022, and rents fell.

Increase in retail vacancy rate for urban core, 2019–22, percentage points¹



Decrease in asking retail rents for urban core, 2019–22, in real terms, %¹



¹The 2022 values underlying these increases are official estimates for London and Paris and estimates for the remaining cities.
 Note: Urban cores are defined here as follows: the boroughs of Inner London, the department of Paris, the eight inner districts of Shanghai, the eight inner districts of Beijing, New York County, Harris County, and San Francisco County.
 Source: CoStar; Cushman & Wakefield; IVD–Gewerbe–Preisspiegel; Japan Real Estate Institute; Knight Frank; McKinsey Global Institute analysis

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From December 2019 to December 2022, home prices in the United States rose by 40 percent, more than twice as fast as inflation.

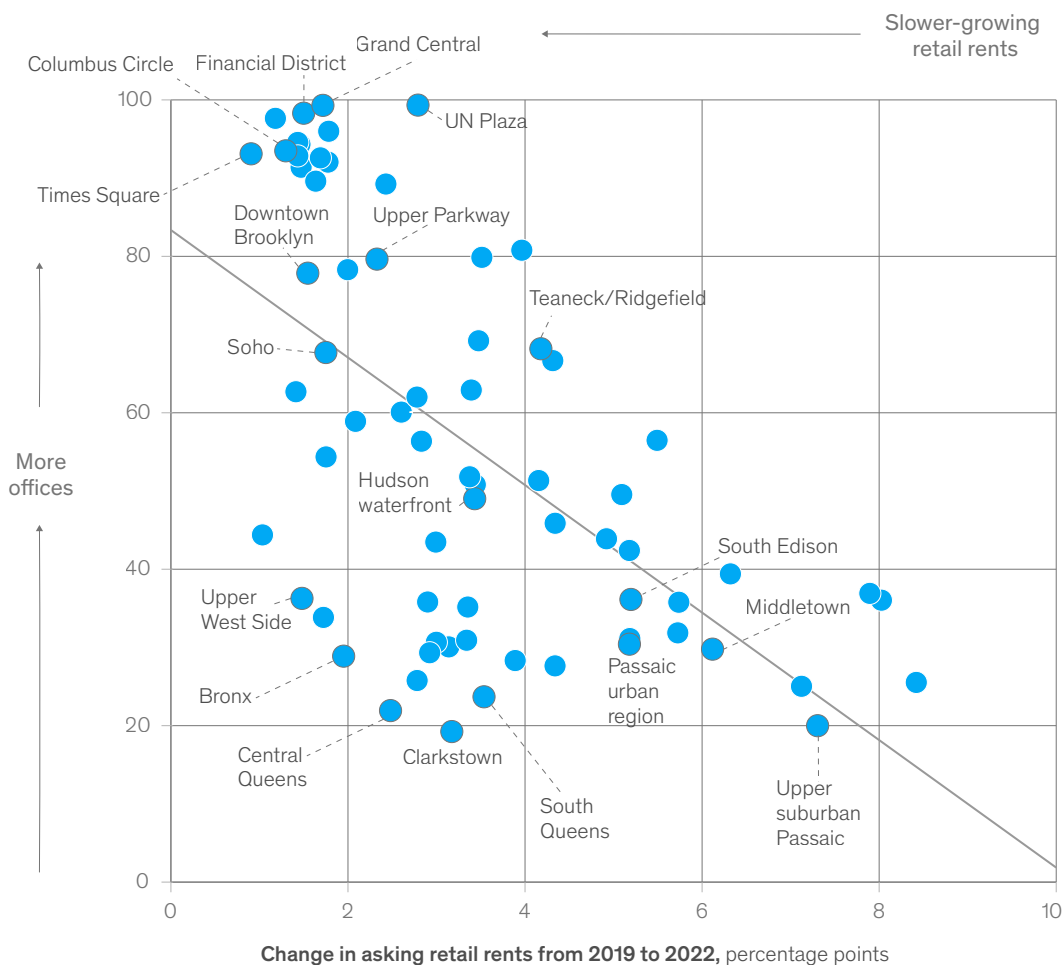
Asking rents for retail space grew the least in office-dense neighborhoods. In Manhattan, for example, the neighborhoods where office space represented the greatest share of all real estate, such as the Financial District and the area around Grand Central, had some of the smallest increases in asking retail rent from 2019 to 2022 (Exhibit 31).

There are several reasons to think that vacancy rates could keep rising. First, many retailers' leases have yet to reach their renewal date, so those retailers have not yet had an opportunity to downsize. Second, landlords have made concessions designed to keep stores from closing permanently, such as deferring rent payments and allowing retailers to pay rents calculated as a percentage of in-store sales. Those concessions have probably encouraged retailers to delay closing, despite drops in the profitability of their stores, but it is unlikely that they will delay forever. Third, though spending in brick-and-mortar stores rebounded in 2022, economic uncertainty and waning consumer confidence may slow such spending in the future.

Exhibit 31

In the New York City metropolitan area, retail rents grew most slowly in office-dense neighborhoods.

Share of real estate occupied by office buildings in 2019, %



Source: CoStar; McKinsey Global Institute analysis

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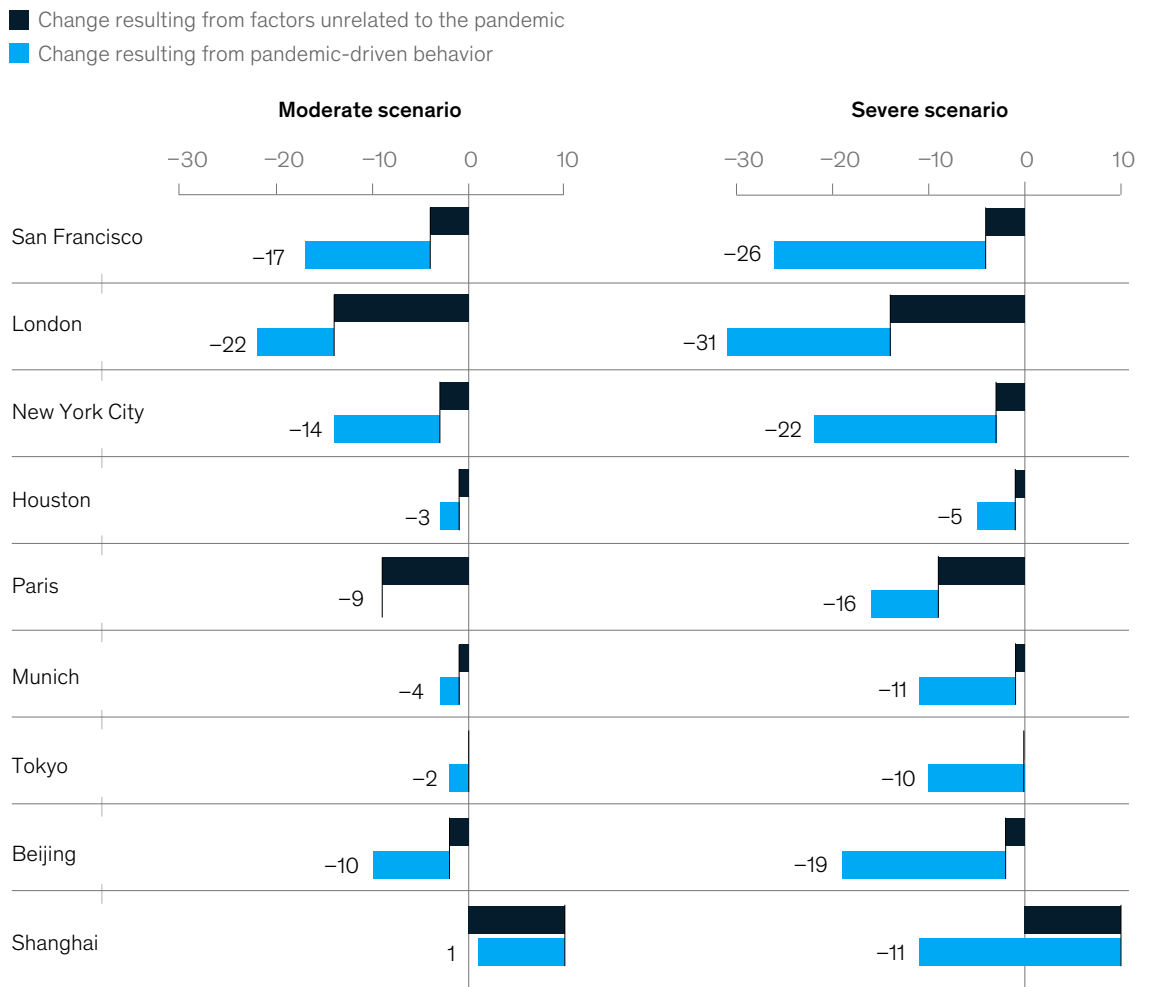
Demand for retail space in the median city we studied is projected to be 9 percent lower in 2030 than in 2019

According to our model, in the urban cores we studied, demand for retail space in 2030 will be as much as 22 percent lower than it was in 2019 in a moderate scenario (Exhibit 32). In a severe scenario in which various pandemic-driven effects are stronger, demand will be up to 31 percent lower. Once again, our model does not consider price elasticity.

Exhibit 32

In nearly all superstar urban cores, demand for retail space will be lower in 2030 than it was in 2019.

Projected change in retail space demand before prices adjust, 2019–30, %

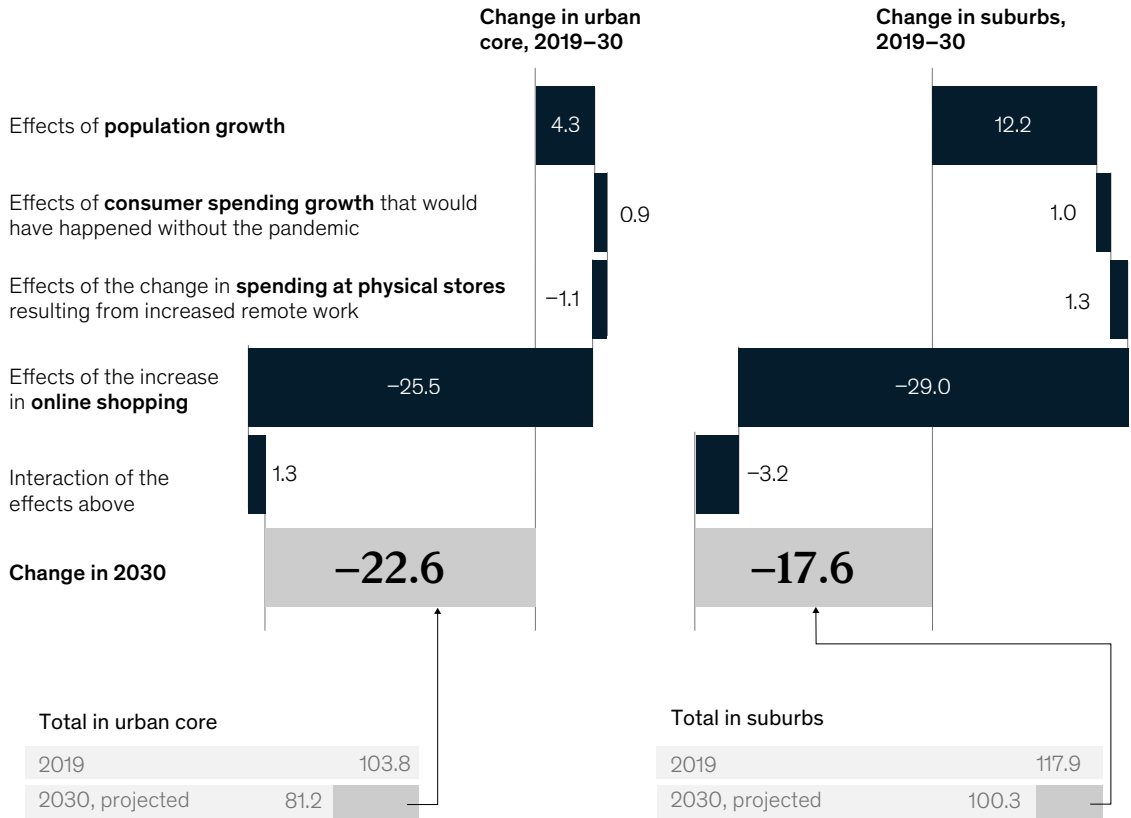


Note: Urban cores are defined here as follows: San Francisco County, the boroughs of Inner London, New York County, Harris County, the department of Paris, the city of Munich, the prefecture of Tokyo, the eight inner districts of Beijing, and the eight inner districts of Shanghai. For more information about the scenarios, see the technical appendix.
 Source: CoStar; Cushman & Wakefield; Euromonitor; IVD-Gewerbe-Preisspiegel; Japan Real Estate Institute; Knight Frank; National Institute of Statistics and Economic Studies (France); Office for National Statistics (United Kingdom); US Bureau of Labor Statistics; US Census Bureau; McKinsey Global Institute analysis

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In London, the main factor pushing down demand for retail space is the ongoing shift toward online shopping.

Demand for retail space in London, moderate scenario,
million square meters



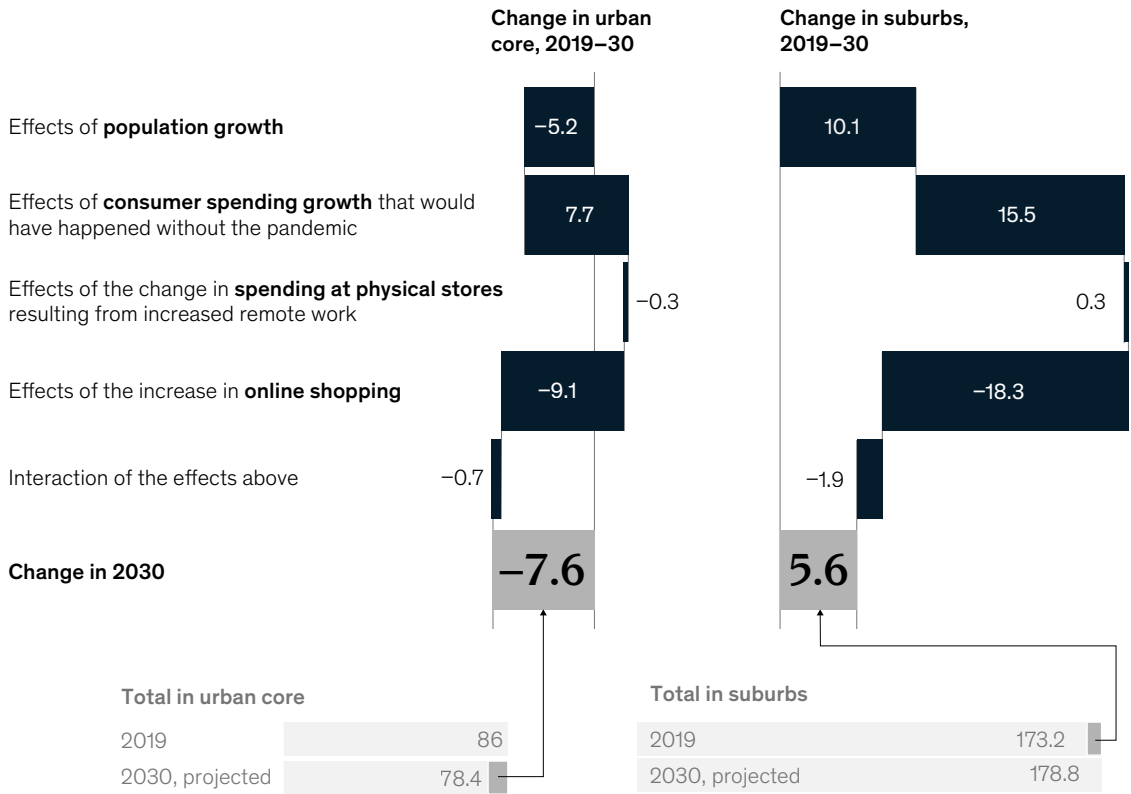
Note: For more information about the scenario, see the technical appendix.
Source: McKinsey Global Institute analysis

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Differences in projected demand among cities can be attributed to the relative contribution of the growth drivers that our model used, including population growth, per capita retail spending, and online spending as a share of all retail spending. For example, in London's urban core, population outflows from 2019 to 2022 were among the largest that we studied, so population growth is not projected to boost demand much (Exhibit 33). And per capita retail spending in London is projected to decrease by 2.7 percent per year through 2030, more slowly than in any other city in our sample. As a result, such spending does not contribute much to demand for retail space in London. What does have a major effect on demand is online spending as a share of all retail spending, which is higher in the United Kingdom than in any other country we studied except China.

In Paris, a shifting population reduces demand for retail space in the urban core but increases it in the suburbs.

Demand for retail space in Paris, moderate scenario,
million square feet



Note: For more information about the scenario, see the technical appendix.
Source: McKinsey Global Institute analysis

McKinsey & Company

Demand for retail space may also vary between urban cores and their suburbs. For example, in Paris, projected demand decreases by 7.6 million square feet in the urban core but increases by 5.6 million square feet in the suburbs (Exhibit 34). Net out-migration from urban cores to suburbs is a strong driver of this variation; the differences in foot traffic and spending discussed in chapter 1 are others. In some superstar cities, as office attendance declined, workers shopped less near the office. However, in Paris, that behavioral shift was muted and did not drive significant differences in demand between the urban core and the suburbs.



3. What strongly affected neighborhoods and cities have in common

In the previous chapters, we described the behavioral shifts that the pandemic has caused in superstar cities and analyzed their impact on real estate demand. Although the shifts have happened everywhere we looked, the degree of change and the pace of recovery have varied significantly from city to city. A review of various components of this research—regression analyses, survey responses, and literature reviews—suggests that cities where the pandemic has strongly affected real estate demand tend to have certain characteristics. (We were unable to determine which of those characteristics correlated most strongly with the impact on demand.)

Here, we take a closer look at a few neighborhoods and cities, focusing on those characteristics, which fall into two categories. Some of them are related to the **business mix** in a city. Specifically, cities with a larger share of workers in the knowledge economy, a higher number of large firms, a higher ratio of commuters to residents, and more cultural acceptance of remote work tended to experience a greater impact on demand.³⁰ Those factors lead to lower rates of office attendance, which reduce demand for office space directly, reduce demand for retail space by diminishing the number of office workers shopping at urban stores, and reduce demand for residential space by prompting people to move out of urban cores.

The other characteristics that correlate with the impact on demand are related to the **urban structure** of a city. Specifically, cities with office-dense real estate and little mixed-use development, as well as expensive housing and little green space, tended to experience greater impact on demand.³¹ Such characteristics make places less desirable for working, living, and shopping.

Two of those characteristics correlate with the impact on demand not just at the city level but also at the neighborhood level. We examined neighborhoods (defined by zip codes) in Manhattan, San Francisco County, and Harris County (home of Houston). According to our analysis, the larger the share of real estate in a neighborhood that was occupied by offices, the more out-migration from that neighborhood. Similarly, home prices correlated with out-migration: pricier neighborhoods experienced more out-migration. (Data limitations prevented us from finding out whether the other characteristics also correlated with demand at the neighborhood level.)

In this chapter, we focus on two Manhattan neighborhoods to see how those effects worked at the local level. We then study them in San Francisco, Paris, and Tokyo, cities whose real estate was affected very differently by the pandemic.

³⁰ In this chapter, we define the knowledge economy as the finance and insurance, professional services, real estate and rental leasing services, and information industries, as well as the industry that the US Census Bureau calls “management of companies and enterprises.”

³¹ The relationship between demand and green space in cities is described in Rudiger Ahrend et al., *Changes in the geography housing demand after the onset of COVID-19: First results from large metropolitan areas in 13 OECD countries*, OECD Economics Department Working Papers, number 1713, April 2022.

Business mix and urban structure make a difference at the neighborhood level

Two very different Manhattan neighborhoods show that business mix and urban structure correlate with demand at the neighborhood level. The business mix of the first neighborhood, the Financial District, is heavily skewed toward the knowledge economy; 50 percent of all office space there is occupied by knowledge-economy tenants, especially those in business services. The Financial District's urban structure is office-dense: 80 percent of real estate is dedicated to offices, 17 percent to residences, and just 2 percent to retail. The average price of a home is roughly \$1.5 million.

Now consider the nearby Lower East Side. The business mix is very different from the Financial District's: just 22 percent of office real estate space is dedicated to the knowledge economy. The urban structure is different as well. Just 7 percent of all space on the Lower East Side is dedicated to offices, while 84 percent is residences and 9 percent is retail. The average home price, about \$1.0 million, is considerably lower than in the Financial District.³²

Those factors help us understand why the two neighborhoods were affected so differently during the pandemic. The domestic out-migration rate from the start of 2020 to the start of 2022 was 2.2 times higher in the Financial District than on the Lower East Side, for example. It stands to reason that residents of the Financial District could easily work from home, as the prevalence of the knowledge economy there suggests, and were therefore likelier to move to bigger homes far from their offices; meanwhile, expensive housing gave them another reason to leave.

At the city level too, business mix and urban structure drive differences

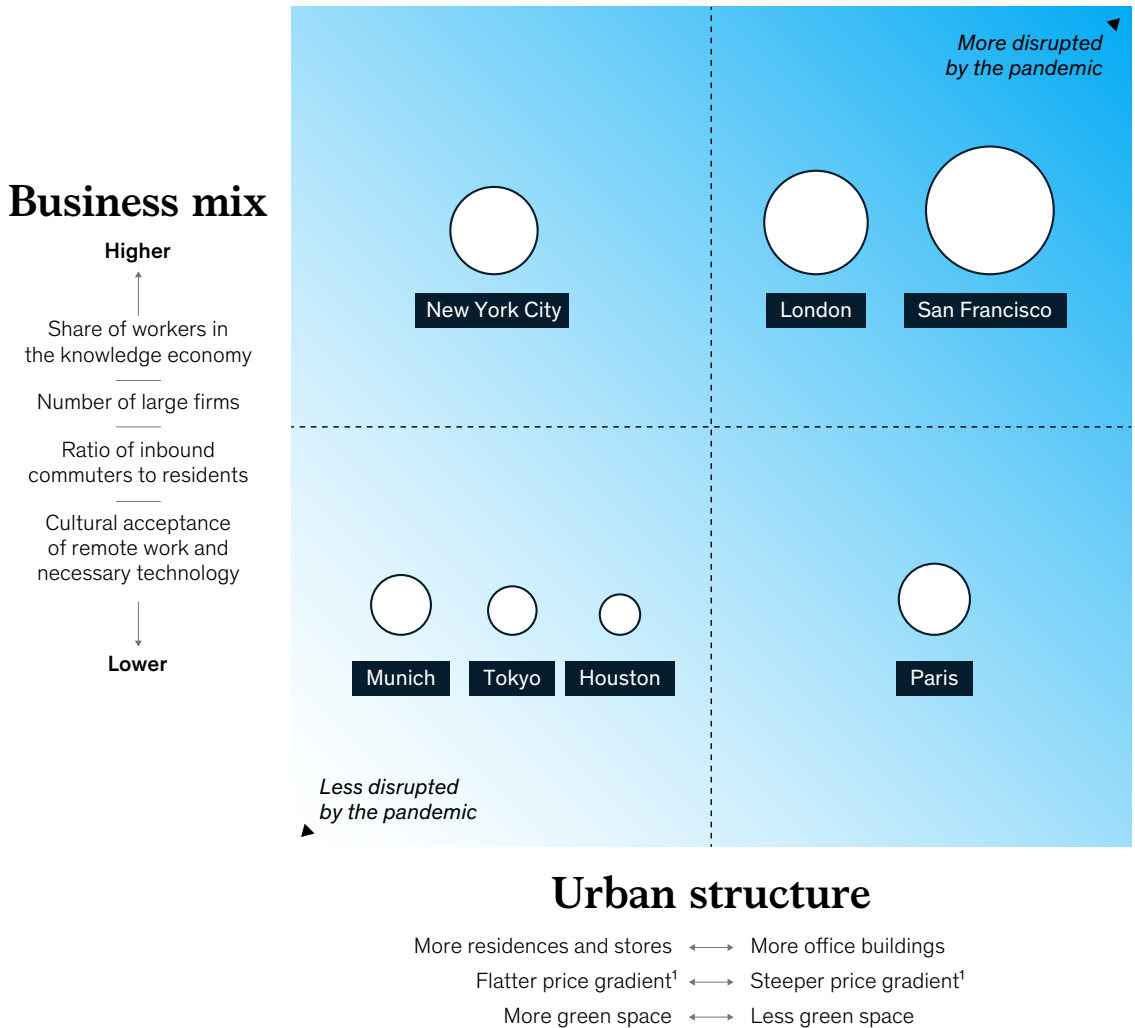
Three cities whose real estate was affected very differently by the pandemic—San Francisco, Paris, and Tokyo—demonstrate how business mix and urban structure explain pandemic-driven differences in demand for real estate (Exhibit 35). For example, in San Francisco, a city where the proclivity for remote work was high and mixed-use development was rare, demand was affected strongly. In Tokyo, a city different in both respects, the reverse was true.

In San Francisco, a city where the proclivity for remote work was high and mixed-use development was rare, demand was affected strongly by the pandemic.

³² Data about office space and real estate classes in these two paragraphs are from CoStar and the US Census Bureau's American Community Survey; data about home prices are from Zillow's Home Value Index.

Differences in the business mix and urban structure of cities help explain why they were affected differently by the pandemic.

○ Circle size = magnitude of impact on demand for office, residential, and retail real estate



¹A flatter price gradient means that the difference in home prices between urban cores and suburbs is smaller. A steeper price gradient means that the difference is larger.
Source: McKinsey Global Institute analysis

San Francisco, a bastion of the knowledge economy, has been strongly affected by the pandemic

In San Francisco, the pandemic has led to particularly strong behavioral shifts. Office attendance has stabilized at about 50 percent of the prepandemic level, the third-weakest recovery among the ten largest US metropolitan areas.³³ Migration out of San Francisco's urban core reduced the population by a cumulative 5.8 percent from mid-2020 to mid-2022, and even the suburbs suffered out-migration and a population decline of 0.6 percent. Foot traffic near stores in the San Francisco metro area remains 24 percent below prepandemic levels.

As a result, real estate has experienced higher vacancy rates in San Francisco than in most of the cities we studied. From 2019 to 2022, the vacancy rate for office space increased by 13 percentage points (the largest change among the cities we studied), and the vacancy rate for residential space increased by 5.0 percentage points (a far larger change than the US average of 0.4 percentage point). Furthermore, during the same period, home prices grew by just 13 percent in San Francisco, much more slowly than they did in the United States as a whole (43 percent).

San Francisco's business mix helps explain the impact. The city has long cultivated a technology-focused economy with a large population of office workers, especially knowledge-economy workers. It has many inbound commuters, as the employment-to-population ratio shows: that ratio, a proxy for the prevalence of commuters, is 0.87, starkly higher than the national average of 0.48. Furthermore, San Francisco's employers, many of which are in the technology industry, may have been more likely to be aware of and adopt remote work technology when the pandemic began. And in our survey, respondents in San Francisco said that their ideal number of days to work in the office was 2.7, the lowest number in the cities we studied.

San Francisco's urban structure also helps explain why the pandemic affected its demand so strongly. Home prices in San Francisco County are five times higher than the national average and almost twice as high as prices in the suburbs. And San Francisco has limited mixed-use development: offices represent 30 percent or more of all real estate in nine of San Francisco's 26 neighborhoods, a far greater share than in Houston, where that is the case in only five of 39 neighborhoods.

Our model shows a dire outlook for San Francisco's future. Residential vacancy rates there could be at least seven percentage points higher than their 2010–19 average by 2030. Demand for office space could be 17 percent lower than it was in 2019, and demand for retail space could be 11 percent lower. Demand for residential space could be just 5 percent higher in 2030 than it was in 2019—the smallest such increase among the cities we modeled. (The model does not consider price elasticity; that is, it does not account for the fact that when demand decreases, prices fall, pushing demand partway back up. For more about the model, see chapter 2 and the technical appendix.)

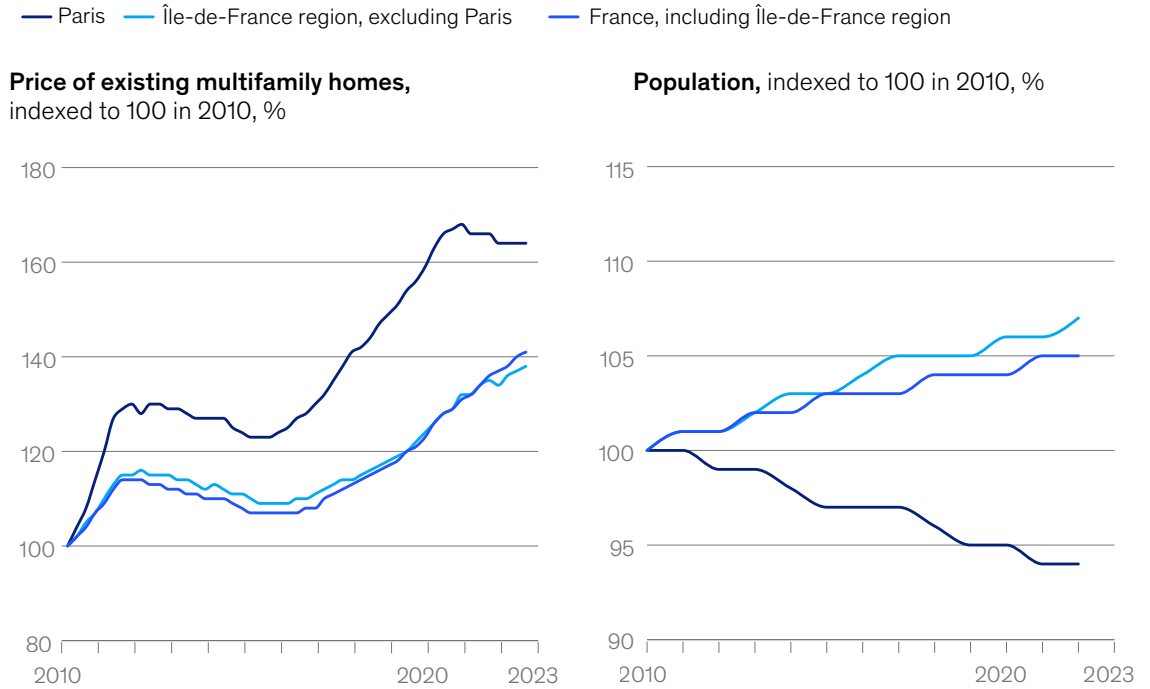
Paris, more diversified and less expensive than San Francisco, was less strongly affected

Pandemic-caused behavioral shifts have been less striking in Paris than in San Francisco. Office attendance in Paris has dropped to an average of 3.4 days per week, only slightly below the overall average in our survey (3.5 days). Net out-migration during the pandemic was not much greater than before. The city's overall population trends have not changed much either; population continues to decline in the urban core and grow in the suburbs. But foot traffic near stores in the metro area remains 16 percent below prepandemic levels.

The behavioral shifts have increased vacancies and reduced projected real estate demand in Paris, though not as sharply as in San Francisco. From 2019 to 2022, vacancy rates in Paris increased by two percentage points for office space, two percentage points for residential space, and five percentage points for retail space.

³³ Based on data from Kastle. The ten metropolitan areas are Austin, Chicago, Dallas, Houston, Los Angeles, New York City, Philadelphia, San Francisco, San Jose, and Washington, DC.

Expensive housing in Paris’s urban core gives people a reason to move elsewhere.



Source: National Institute of Statistics and Economic Studies; OECD; McKinsey Global Institute analysis

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Business mix helps explain why Paris was affected less severely by the pandemic than San Francisco was. Paris’s industry composition is diverse. Unlike San Francisco, which is heavily dependent on the knowledge economy, Paris is home to companies that are global leaders in a wide variety of industries, such as beauty, hospitality, consumer retail, defense, and finance.³⁴

But Paris’s urban structure has features that push residents away as well as those that pull them in. On the one hand, home prices are twice as high in Paris’s urban core as in its suburbs and four times higher than the national average, perhaps explaining the out-migration from the urban core that has been happening since at least 2010 (Exhibit 36). On the other hand, Paris has a great deal of mixed-use development.

According to our model, demand for office space in Paris in 2030 could be 13 percent lower than it was in 2019, and demand for retail space could be 8 percent lower. Demand for residential space in the suburbs could be 9 percent higher in 2030 than in 2019, while demand in the urban core could fall by 4 percent.

³⁴ Paris region facts & figures 2022, Choose Paris Region, L’Institut Paris Region, and Paris Île-de-France Regional Chamber of Commerce and Industry, March 2022.

Tokyo, industrially diverse and relatively inexpensive, was affected only lightly by the pandemic

The pandemic-induced behavioral shifts in Tokyo have been among the smallest we studied. As in Paris, office attendance has dropped to 3.4 days per week, only slightly below the overall average of 3.5. From October 2020 to October 2022, Tokyo's urban core and suburbs grew at about the same pace—in stark contrast with most of the cities we studied, where the suburbs grew much more quickly. However, despite those relatively small shifts in office attendance and migration, foot traffic near stores remains 9 percent lower than it was before the pandemic in Tokyo as a whole. It is down 4 percent in the suburbs and 20 percent in the urban core.

Demand for real estate has therefore been affected less in Tokyo than in most of the cities we studied. While the vacancy rate for office space increased by six percentage points, residential vacancy was unaffected. Strong home demand in Tokyo's urban core led home prices there to grow slightly faster than the national average rate from 2020 to 2022 (Exhibit 37).

Tokyo's business mix is partly responsible for the city's muted behavioral shifts and relatively rosy outcomes. The most common industry for workers to be employed in is wholesale and retail trade, in contrast with technology-dependent San Francisco.³⁵ Like Paris, Japan has a culture that values being present in the office, in particular among employees of small and medium-size businesses; in our survey, respondents in Tokyo said that they expected to be required to be in the office 3.7 days per week, higher than Paris's 3.3 days. Loyalty to employers is also common in Japan, as are lower rates of technology adoption than in San Francisco.³⁶ Furthermore, online spending as a share of retail spending was lower in Japan than in any other country we studied; that may have contributed to higher office attendance and continued in-person retail shopping.

And with regard to urban structure, while Tokyo suffers from the same affordability problems that other superstar cities do, they are somewhat less severe. In Tokyo, home prices in the urban core are 2.1 times higher than the national average. In Paris, they are 4.1 times higher, and in San Francisco, they are 5.0 times higher.

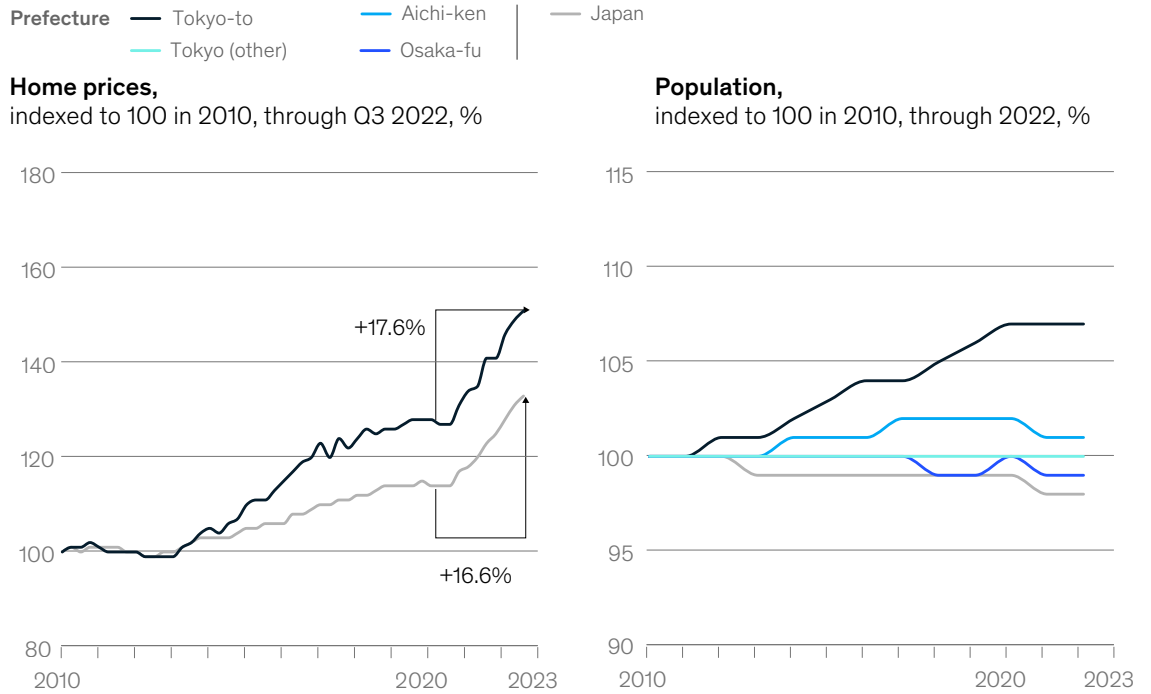
Our model estimates that future demand for real estate will be healthier in Tokyo than in most of the cities we studied. Demand for office space is projected to fall by just 9 percent from 2019 to 2030. Projected demand for residential space grows by 12 percent from 2019 to 2030 (lagging behind only Houston and New York City), and projected demand for retail space falls by just 2 percent (lagging behind only Shanghai and Houston).

Tokyo's business mix is partly responsible for the city's muted behavioral shifts and relatively rosy outcomes.

³⁵ *Industry and employment in Tokyo: A graphic overview*, Bureau of Industrial and Labor Affairs, Tokyo Metropolitan Government, August 2022.

³⁶ Peter A. Hall and David Soskice, *Varieties of capitalism: The institutional foundations of comparative advantage*, Oxford University Press, 2001.

Housing prices in Tokyo have grown only slightly faster than the national average rate since the start of the pandemic.



Source: OECD; E-Stat (Japan); McKinsey Global Institute analysis

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In Tokyo, home prices in the urban core are 2.1 times higher than the national average. In Paris, they are 4.1 times higher, and in San Francisco, they are 5.0 times higher.



4. Thriving in hybrid places

The pandemic has dramatically changed the way people work, live, and shop in superstar cities. As we described earlier in this report, the rise of hybrid work has encouraged people to work at the office less, move to homes that are farther from the office, and shop less in urban cores. The result is higher vacancy rates, which threaten the vibrancy of neighborhoods and make urban cores less attractive to employers, employees, and residents (see Box E1, “How we define cities,” in the executive summary).

These are challenges, to be sure, but they also present an opportunity for historic transformation in superstar cities. To adapt to a new reality in which hybrid work is widespread and permanent, urban stakeholders could consider adopting more hybrid approaches themselves. At the neighborhood and building levels, and even in the design of the floors of buildings, choosing diversity, adaptability, and flexibility rather than uniformity can help cities thrive.

At the neighborhood level, consider mixed-use development

One way cities could adapt is through mixed-use neighborhoods—that is, neighborhoods that are not dominated by a single type of real estate (especially offices) but instead accommodate a diverse mix of office, residential, and retail space. Such hybrid neighborhoods were becoming more popular even before the pandemic. And now that the pandemic has reduced demand for offices, cities have been left with vacant space that could be converted to other uses. Furthermore, our research shows that mixed-use neighborhoods have suffered less during the pandemic than have office-dense neighborhoods. That resilience gives investors, developers, and cities still more reason to engage in placemaking.

Redeveloping neighborhoods is an enormous undertaking, of course, so mobilizing the many stakeholders is important. Governments may be particularly helpful in reforming restrictive zoning policies. Investors would be needed to finance redevelopment (see Box 2, “Investing in the future of urban real estate”). And developers would be the ones to turn mixed-use visions into realities. Before they break ground on a mixed-use project, leading developers carefully consider the different types of journeys they want to enable for residents, employees, and shoppers—for example, how a resident might proceed from her apartment to a café to a subway station in the morning, or how an office employee might shop for groceries on his way home from work.

To adapt to a new reality in which hybrid work is permanent, urban stakeholders could adopt hybrid approaches themselves.

Box 2

Investing in the future of urban real estate

Declines in demand for urban real estate could have an enormous financial impact, lowering prices substantially—and the impact could be magnified by rising interest rates and expanding capitalization rates. In a recent report, MGI showed that the total market value of US real estate grew by 3.1 percent a year in real terms between 2000 and 2022. Such growth could continue, but different outcomes are also plausible, as several scenarios modeled in that report make clear. In a scenario in which inflation and interest rates stay elevated, total property values in the United States shrink by 1 percent per year in real terms between now and 2030. They shrink by as much as 4 percent per year in a scenario in which strong interest rate hikes and growing financial and economic uncertainty lead to sharp asset corrections.¹

Facing this reality and recognizing any property losses—either by selling properties at a loss or by marking down the value of those properties on their balance sheets—will be the critical first step in redevelopment. That is because owners who ignore losses are not investing in properties in the meantime. But some will be reluctant to recognize their losses because doing so requires them to raise fresh equity. They may prefer to wait, hoping for prices to recover and meanwhile smoothing out their losses over a long period. Even when owners are prepared to recognize losses, they sometimes feel pressure not to do so from

shareholders or partners. Policy makers may want to consider encouraging loss recognition by regulating it or by offering owners incentives and recapitalization support to accelerate it.

Recapitalization will need to follow. Any losses—especially once they are recognized—could challenge the balance sheets of banks and other financial-services firms that have lent heavily to real estate projects. Those institutions already face rising interest rates, which push down the value of property and make defaults on loans more likely. If banks also suffer deposit withdrawals on a large scale, they might be forced to conduct a fire sale of their assets, making existing problems worse. Financial institutions and governments should closely monitor the situation.

This can be both a challenge and an opportunity for investors and financiers. Significant capital will be needed to finance redevelopment and to heal damaged balance sheets. However, in a world of widespread hybrid work, they will need to rethink the way they appraise the value of properties. At a minimum, they should continue investing in analytical capabilities—for example, to understand which properties are salvageable and which are not. Neither historical trends nor traditional analyses of market comparables will be enough to make accurate forecasts.

¹ For a more detailed description of the scenarios, see *The future of wealth and growth hangs in the balance*, McKinsey Global Institute, May 2023.

Lower Manhattan might serve as a model of how to encourage mixed uses. After the September 11 attacks there, many newly vacant office buildings were converted into residential buildings. The city and state governments encouraged those conversions by streamlining the zoning and permitting processes and by providing tax incentives. But not every attempt to diversify a neighborhood needs to be that ambitious, as is shown by another New York example—the High Line, an old railroad slated for demolition that was converted into a widely acclaimed urban park.

Suburbs can benefit from hybridity as well. City dwellers, untethered from their daily commutes and thus less concerned about living far from urban cores, are increasingly seeking larger homes in greener areas. More housing and retail in the suburbs could help satisfy their preferences. More multifamily housing could be particularly beneficial because it would accommodate more people than single-family homes do. So long as the apartments are larger and more comfortable than apartments in urban cores, they could attract urbanites seeking space. Suburban policy makers could consider encouraging multifamily development by adjusting zoning, offering incentives to developers, and reexamining regulations that prevent housing from being built, such as those governing minimum dwelling sizes. Furthermore, denser suburbs would bring social and environmental benefits (see Box 3, “Affordable, sustainable real estate after the pandemic”).

Box 3

Affordable, sustainable real estate after the pandemic

Affordability and sustainability are two of the most pressing problems of our time. Housing shortages in superstar cities have long resulted in prices that many people cannot afford. And buildings generate a large share of global carbon emissions.

The pandemic-induced shifts that we discuss in this report could be good news on both fronts if well handled. Begin with affordability. Residents are shifting their housing preferences toward suburbs and non-superstar cities, where prices are lower—and where new units can be created more easily and at lower cost. In urban cores, in turn, developers could convert newly vacant office buildings into residences, boosting the supply of housing there. But the scale of such conversions, and

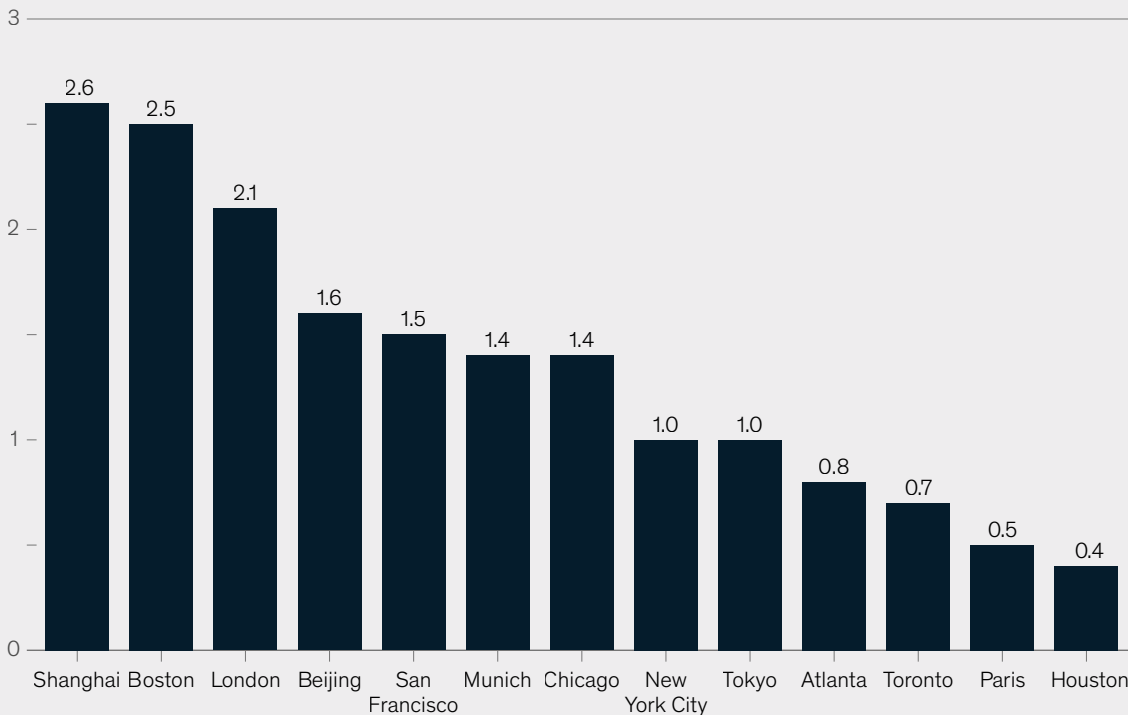
hence the impact on overall affordability in cities, will be limited. In the cities we studied, even if all excess office space were converted into housing, the amount of residential space would grow by less than 3 percent (Exhibit 38).

On the sustainability front, redevelopment resulting from the pandemic is an opportunity to replace older buildings with new ones that are more energy-efficient. And fewer days in the office mean fewer commutes. Yet pandemic-induced migration to suburbs also means longer commutes and lower-density units that tend to be less energy- and transit-efficient. Transit-oriented, walkable, multifamily, and mixed-use developments in suburbs could help.

Exhibit 38

If all excess office space were converted into residences, housing stock in superstar cities would grow by less than 3 percent.

Increase in housing stock if all excess office space were converted into residences by 2030, %¹



¹Excess office space means space projected to be vacant beyond what would result from the structural vacancy rate (defined as the average vacancy rate from 2014 to 2019).
Source: McKinsey Global Institute analysis

At the building level, construct space that is adaptable and flexible

To adapt to declining demand for traditional office and retail space, developers could create hybrid buildings. The most ambitious vision is a universal, “neutral-use” building whose design, infrastructure, and technology could be easily modified to serve different uses. Imagine a medical building that could be easily converted into, say, a hotel or an apartment building if customers’ preferences changed. More modestly, buildings could be designed to accommodate different degrees of collaborative and individual work or different arrangements of open and closed offices. They could also include technology that promotes flexibility, such as sensors to track patterns of usage, which can inform an employer’s approach to hybrid work.

Hybrid buildings would bring at least two advantages. One, of course, is that they would protect owners from shifts in preferences that are impossible to predict now. The second relates to a trend toward shorter leases in the office sector. Because tenants will now be moving in and out more frequently, buildings might become more valuable if they grow more adaptable.

Developers could also try to convert offices into kinds of space for which there is more demand, such as apartments, hotels, and schools. Conversions are very hard, however. Obstacles include rezoning, renegotiating existing lease commitments to allow for renovations (for example, if just a few tenants remain in a building but they have a lot of time left on their leases), and dealing with physical limitations (for example, the usual layout of office buildings, which is difficult to divide into apartment-sized dwellings that receive natural light). Conversions are also not a panacea: even a large number of them would not meaningfully improve affordability (see Box 3, “Affordable, sustainable real estate after the pandemic”). Still, for owners facing the prospect of lower occupancy and lower rents in their office buildings, the opportunity cost of conversion has fallen, and the number of successful conversions may grow.

Developers of retail space too could keep adaptability in mind. Of late, retail tenants have been evaluating their footprints with a stricter eye, shutting down stores or moving into smaller spaces. For example, the average size of a store fell from about 3,400 square feet in 2019 to about 3,000 square feet in 2021.³⁷ That shift was probably caused partly by the closure of large stores and partly by the opening of new store types, such as the mix of “grab and go” stores, pharmacy-focused stores, and “general stores” that a leading drugstore chain has recently launched to cater to different customer segments. If developers built more adaptable spaces, they would be likelier to remain relevant to tenants’ shifting needs. Developers might also offer new store formats, such as spaces intended for delivery and fulfillment or for logistics rather than traditional retail. Or they might design buildings that are more integrated with their environments—for example, with dining spaces that extend onto sidewalks.

Office-to-housing conversions are not a panacea: even a large number of them would not meaningfully improve affordability.

³⁷ Brandon Svec, “Doing more with less: Average retail lease size continues to decline,” CoStar, November 12, 2021.

At the floor level, design space that is modular and multiuse

Tenants in urban cores—both the employers who rent office space and the merchants who rent retail space—may have to start “earning the commute” from office workers and shoppers who would otherwise visit less often. They can do that by providing more attractive experiences. Here too, thinking flexibly and adaptably can help.

For example, the office does not have to be just a place to work; it can also be a place where employees enjoy amenities provided by their employers, such as outdoor communal spaces and compelling events. Office tenants might try to attract them by building magnetic, hospitality-oriented workplaces. (Those that find it difficult to create such an environment in their own offices might rely on providers of coworking space or landlord-provided community workspaces.) Office tenants might also design more modular spaces that can adapt to changes in work patterns from week to week. And the most forward-thinking tenants will provide an efficient, digital way to organize hybrid work patterns and preferences.

Retailers too may have to “earn the commute” by designing spaces that cater to many different uses. A prime example is stores that easily accommodate omnichannel retail—a single, seamless experience for customers, whether they shop online or in person. The omnichannel experience is quickly becoming the industry standard. Similarly, stores can provide experiential retail. For example, a leading US sporting goods company is testing a new type of store that doubles as a community sports center, and a department store brand is launching smaller stores where customers can pick up products bought online, get clothes altered, find style advice, and patronize a beauty salon.

Indeed, it is not hard to imagine more “hybrid floors” in which offices, residences, and stores exist side by side. For floors—as for buildings and neighborhoods—turning empty spaces into hybrid places may not simply be a way to counter the damage wrought by the pandemic. It could be a way to transform superstar cities and prepare them for a dynamic, prosperous future.

Retailers may have to ‘earn the commute’ by designing spaces that cater to many different uses.



Technical appendix

This appendix offers information about two important components of our research: the survey that we conducted to understand the behavioral shifts caused by the pandemic, and the models that we built to project demand for office, residential, and retail space in several scenarios.

Our survey

In chapter 1, we describe many pandemic-induced behavioral shifts. We deduced some of those shifts from a large international survey that we conducted in October and November 2022 to learn how office workers' behavior had changed—in ways that could affect real estate—during the pandemic. We surveyed nearly 13,000 full-time office workers, all of them at least 18 years old, in six countries: China (about 2,600 people), France (1,400), Germany (1,900), Japan (1,700), the United Kingdom (2,300), and the United States (3,200).

We ensured that the initial set of respondents who received the survey had the same distribution of age and sex as their country did. In the United States, where we had more information about potential respondents, we were also able to account for income, ethnicity, and region (that is, the Northeast, Midwest, South, and West).

We considered responses only from people who met certain requirements, such as being full-time office workers or remote workers performing office-related duties. That group was called the target audience.

Then, in order to increase the number of responses, we sent the survey to a larger set of respondents, one whose demographic characteristics matched those of the target audience. We then weighted respondents from each country to reflect the country's distribution of age and sex within the population of office workers (a distribution that we determined by examining the target audience's responses). Once again, we were able to weight US respondents by income, ethnicity, and region as well. Where we present global averages, we simply averaged results from the countries we studied rather than weighting those results by population.

We intentionally overrepresented certain groups. First, we overrepresented respondents from 17 cities of particular interest to make sure that we had enough information about those cities. The cities were Atlanta (where we surveyed about 480 people), Beijing (540), Berlin (400), Chicago (460), Chongqing (70), Hong Kong (500), Houston (440), London (840), Los Angeles (440), Munich (550), New York City (440), Osaka (490), Paris (730), San Francisco (410), Shanghai (560), Shenzhen (490), and Tokyo (560).³⁸ Second, we overrepresented people who had moved after the pandemic began to make sure that we had enough information about migration patterns.

³⁸ Those numbers do not add up to 13,000 because we also surveyed people from other cities.

The questions that we asked covered the following areas:

- **Respondents' personal characteristics** (for example, "What is the highest degree or level of school you have completed?").
- **Employment information** (for example, "What is your typical commute time to the office, one-way?").
- **Office attendance and factors motivating working from home** (for example, "On average, how many days of the week did you work in the office pre-COVID [late 2019]?" and "Why do you typically choose to work in the office, on days you do not work from home?").
- **Trade-offs related to working from home** (for example, "How much of your compensation [as a percentage of your pretax salary and bonus] would you be willing to forgo to be able to work from home for your ideal number of days per week versus being in the office every day?").
- **Space needs** (for example, "For the time that you are in the office today, how has your allocation of time among types of spaces changed relative to how you utilized spaces before the pandemic [that is, late 2019]?").
- **Retail spending** (for example, "How has your share of retail expenditure at the following locations shifted today [fall 2022] versus pre-COVID [late 2019]?").
- **Most recent move and motivating factors** (for example, "In what ways did the pandemic influence your move?").
- **Impact of move on preferences and persistence** (for example, "In what ways has working from home changed your preferences around where you live and what kind of space you need?").

Finally, we ensured that each part of our analysis had a sufficiently large sample. For example, every industry shown in Exhibit E1 had at least 300 respondents.

Our models

In chapter 2, we offer projections of demand for real estate in 2030. Those projections were generated by three interrelated models we built, one apiece for office, residential, and retail space. We used each model to project demand in three scenarios—called reversion, moderate, and severe—in which the pandemic's effects were increasingly strong. The factors that each model took into account (some of which were drawn from another model's output) and the ways the scenarios differ from one another are described below.

Office space model

Our model for projecting demand for office space considered the following four factors:

- **Office employment**, defined as the total number of office workers in an urban core.
- **Office attendance**, defined as employees' current office attendance as a percentage of their office attendance before the pandemic. For example, if an employee went to the office five days a week before the pandemic but now goes to the office three days a week, that employee's office attendance is 60 percent.

- **Employee coordination**, defined as the maximum share of workers in the office at a given time that employers need to provide space for. This factor is important because office attendance figures alone may overstate the degree to which demand for office space has fallen. If all employees go to the office only once a week, but all are present on Tuesday, demand will be no smaller than it was when they worked in the office daily. By contrast, if all employees go to the office three days a week, but the company coordinates attendance so that no more than 60 percent of employees are present on any day, demand for space is reduced by 40 percent. Our model assumes that employers will enforce coordination to capture half of the space savings from reduced office attendance. For example, if attendance decreases by 40 percent, the model assumes that demand for square footage will drop by 20 percent.
- **Space per seat**, defined as the total usable square footage allocated to each office worker. Space per seat was declining even before the pandemic.

We varied the values for the first two of those four factors to estimate demand in three scenarios.

- **In the reversion scenario**, we essentially assume that the world will revert to its condition before the pandemic. Office attendance returns to its prepandemic level by 2022 and stays at that level through 2030. Office employment growth is based on the historic rate of population growth as well as shifts in labor force participation rates and in the share of office workers. Employee coordination and space per seat are held constant at their current levels.
- **In the moderate scenario**, the pandemic's effects on population, and therefore on office employment and office attendance, are stronger. (The effects on population are drawn from the moderate scenario in our model for residential space, which is described below.) By 2025, office attendance is higher than it is now but still lower than it was before the pandemic, and that partial recovery continues indefinitely. Employee coordination and space per seat are again held constant at their current levels.
- **In the severe scenario**, the pandemic's effects are long-lasting and reduce population growth, so the effects on office employment and office attendance are even stronger. (The effects on population are drawn from the severe scenario in our model for residential space.) Office attendance remains at current levels indefinitely. Employee coordination and space per seat are again held constant at their current levels.

Residential space model

Our model for projecting demand for residential space considered the following three factors:

- **Population**, defined as the current number of residents in an area. We modeled population separately for the urban core and suburbs of each city (see Box E1, "How we define cities," in the executive summary). During the pandemic, increased out-migration from urban cores to suburbs disrupted population growth.
- **Average household size**, defined as the average number of members in each household. We assumed that through 2030, average household size would change at its historical rate from 2010 to 2020.
- **Average size of home**, defined as the average number of rooms per home in the United States and the average number of square feet per home in the other countries we studied. Here too, we assumed that through 2030, average household size would grow at its historical rate from 2010 to 2020.

We varied the values for the first of those three factors to estimate demand in three scenarios.

- **In the reversion scenario**, people who moved during the pandemic return to their original residences in urban cores or suburbs by 2025, driven by a full return to prepandemic rates of office attendance. Because of their return, excess migration, which we define as out-migration from urban cores during the pandemic that exceeded the 2015–19 average, falls below zero. After 2025, population growth returns fully to its prepandemic rate (that is, the annual rate from 2010 to 2020).
- **In the moderate scenario**, people who moved during the pandemic do not move back, because hybrid work is now the standard working model. Excess migration continues, but it is small and gradually falls to zero, and population growth in most cities returns to its prepandemic rate by 2030.
- **In the severe scenario**, people who moved during the pandemic do not move back. Excess migration continues, is high, and does not fall to zero until after 2030. As a result, population growth in most of the cities we studied is much lower than it was before the pandemic.

Retail space model

Our model for projecting demand for retail space considered the following six factors:

- **Population**, defined as the current number of residents in an area. We modeled population separately for the urban core and suburbs of each city.
- **Impact of remote work on spending**, defined as the change in retail spending in physical stores resulting from changes in office attendance as commuters come to workplaces less often and spend less money in stores near them.
- **E-commerce penetration**, defined as online spending as a share of total retail spending. In the early years of the pandemic, e-commerce penetration grew more quickly than it had historically because of quarantines, social distancing, and increased remote work.
- **Sales productivity**, defined as in-store retail sales per square foot of occupied retail space. For example, if a store with 100 square feet of space generated \$1,000 in annual sales, sales productivity would be \$10 per square foot.
- **In-store retail sales**, defined as annual retail sales that occur in a physical store within a metropolitan area. To determine the growth of in-store retail sales, we began with the projected rate of general consumer spending at the city level through 2030 and adjusted it for population change, the impact of remote work on spending, and e-commerce penetration.
- **Commuters**, defined as the number of people who commute to the urban core for work. We assumed that the ratio of commuters (but not the number of commutes) to the population of the urban core would remain constant at its 2019 value through 2030.

We varied the values for the first four of those six factors to estimate demand in three scenarios.

- **In the reversion scenario**, as a result of employees' full return to the office, office commuters' retail spending near the office returns to prepandemic levels by 2025. The population assumptions are drawn from the reversion scenario in our residential space model, and the office attendance assumptions that inform the impact of remote work on spending are pulled from the reversion scenario in our office space model. E-commerce penetration returns to its prepandemic trend line by 2025. Sales productivity remains at its 2019 level.
- **In the moderate scenario**, employees engage in only a partial return to the office. The population assumptions are drawn from the moderate scenario in our residential space model, and the office attendance assumptions that inform the impact of remote work on spending are pulled from the moderate scenario in our office space model. E-commerce

penetration again returns to its pre-pandemic trend line by 2025. Sales productivity remains constant at its 2019 level in all cities except Beijing and Shanghai, where recent growth gives us reason to expect a future increase.

- **In the severe scenario**, retail spending remains at its current level. The population assumptions are drawn from the severe scenario in our residential space model, and the office attendance assumptions that inform the impact of remote work on spending are pulled from the severe scenario in our office space model. Pandemic-induced increases in e-commerce penetration continue, except in cities where e-commerce penetration has already returned to pre-pandemic rates of growth. Sales productivity grows slightly in all cities.



Acknowledgments

This report is a collaborative effort by the McKinsey Global Institute and McKinsey's Real Estate Practice.

The research was led by Jan Mischke, an MGI partner in Zurich; Ryan Luby, a senior knowledge expert and associate partner in New York; Brian Vickery, a McKinsey partner in Boston; Jonathan Woetzel, an MGI director and senior partner in Shanghai; Olivia White, an MGI director and senior partner in San Francisco; Aditya Sanghvi, a McKinsey senior partner in New York City; Rob Palter, a McKinsey senior partner in Toronto; André Dua, a McKinsey senior partner in Miami; and Sven Smit, a McKinsey senior partner in Amsterdam and MGI chairman. The project team was led by Jinnie Rhee, a consultant in San Francisco; Anna Fu, a consultant in New York; Isabella Mayorga, an alumna; and Chris Longman, an alumnus. The team included Cristina Barrantes, Maclaine Fields, Lily Highman, Ricardo Huapaya, Marty Kang, Gaby Pierre, Jose Maria Quiros, Akanksha Raina, Surya Tahliani, Paula Trejos, Valeria Valverde, Caitlin Wischermann, and Cody Wollin.

We thank Nicholas Bloom, professor, Stanford University; Michael Joyce, senior managing director, Greystar; Jonathan Lurie, managing partner, Realty Corporation; Janet Pogue McLaurin, global director of workplace research, Gensler; Andrew Min, senior vice president, RXR; Alan M. Taylor, professor, University of California, Davis; and Ko Wang, professor, Johns Hopkins Carey Business School, for kindly sharing their insights.

The project benefited immensely from the expertise and perspectives of many McKinsey colleagues especially Colleen Baum, Gemma D'Auria, Kevin Heidenreich, Phil Kirschner, Dymfke Kuijpers, Adrian Kwok, Daniel Läubli, James Patchett, Ben Safran, Anthony Shorris, and Alex Wolkomir.

The report was edited by MGI senior editor Benjamin Plotinsky, together with senior data visualization editor Chuck Burke and editorial operations manager Vasudha Gupta. We also thank our colleagues David Batcheck, Cecilia Bayer, Tim Beacom, Amanda Covington, Shannon Ensor, Vero Henze, Karen Jones, Stephen Landau, Janet Michaud, Diane Rice, Rebeca Robboy, Rachel Robinson, Katie Shearer, and Nathan Wilson for their support.

This research contributes to MGI's mission to help business and policy leaders understand the forces transforming the global economy. As with all MGI research, it is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

McKinsey Global Institute

July 2023

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