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IS THE PANDEMIC CAUSING A RETURN TO URBAN SPRAWL?

Richard Peiser* and Matthew Hugel†

ABSTRACT

Urban sprawl is a catch-all term and a scapegoat for everything that is bad about urban growth today, such as congestion, blight, monotony, and ecological destruction. In recent decades, sprawl might have attenuated as America experienced a period of urban revival even as technology made working from home (WFH) and shopping from home possible nearly anywhere. The onset of the COVID-19 pandemic has accelerated the adoption of infrastructures and forced firms to rethink the necessity of workplaces. Retailers have accelerated the pace of online sales and home deliveries by years if not decades. These and other advances have decoupled people from their workplaces, shopping and other activities usually associated with density. Indeed, the sudden spurning of urban density attributable to the pandemic raises fundamental questions for the future of cities. While the pandemic has accelerated trends in people moving out of denser neighborhoods in metropolitan areas in favor of smaller metros, suburban, and exurban locations, the major shift in net migration is from a drop in people moving into central cities. This paper contextualizes pandemic era migration literature with prior studies of urban sprawl to derive a useful framework for planners, developers, and decision-makers to better understand how cities expand and to predict the lasting impacts that COVID-19 will leave on U.S. cities.

INTRODUCTION

Urban sprawl was one of the central topics on the urban agenda in the 1980s and 1990s as evidenced by the number of researchers doing work on the topic (Fishel, 1985; Nelson, 1992; Peiser, 1984; Peiser, 1989), but it receded as the return to the city movement became dominant in urban discourse. The onset of the COVID-19 pandemic has accelerated the adoption of digital infrastructures, driving a work from home (WFH) revolution with great implications for the future of cities and real estate. The functional closure of urban workplaces, schools, and amenities paused immigration into dense cities and led to a flattening of the bid-rent curve in many of the most expensive, coastal metros. This spurning of urban density spread throughout all facets of the public psyche and raises pressing questions for the

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future of cities. As the U.S. emerges from the pandemic, critical research is needed to assess the lasting impacts and to gauge whether we are in a return to sprawl.

The word ‘sprawl’ is often an unscientific, catch-all term used to describe any development that is undesirable. By decomposing sprawl into its underlying traits, Peiser (2001) parsed out truly deleterious effects of sprawl from those that are simply steps in the land development process. A brief review of the history of sprawl finds that, contrary to postwar narratives of incessant and gluttonous suburbanization, sprawl peaked in the mid-90’s and most metropolitan areas have been compacting since then. However, examining sprawl from strictly metropolitan perspectives depicts a superficial understanding of developmental paradigms.

By layering in knowledge about sprawl—and the related topic of migration—across the urban-rural gradient, the nuances and historical patterns are clarified. While stories of renaissance and revitalization have dominated the urban discourse over the last 20 years, the data itself does not support the narrative of a broad, nationwide return to the central cities. Beginning in the late 80’s and cresting around 2015, America experienced a period of urban revival, which was typified by the influx of young, educated, and affluent workers, and which revitalized significant swathes of inner-city real estate.

Most successful urban transformations were isolated to the urban cores of large cities and existed amid a broader environment of continued suburbanization, though the flow of urban migrants to suburbs was overshadowed in magnitude by the movement of rural migrants into metropolitan areas. These contemporaneous flows of population dramatically altered suburban landscapes, which are now much denser and more diverse, in many ways coming to resemble their historical urban cores. As metropolitan areas expanded, communities of “super-commuters” consumed land at the suburban fringe. With the knowledge that over 96% of rural net migration occurred in these new exurban enclaves, one can understand how national development patterns were overwhelmingly concentrative despite the continued metropolitan expansion.

Before speculating on the long-term impacts of COVID-19 on cities and metropolitan land consumption, this research takes stock of urban development, assessing the prevailing migration patterns leading up to the pandemic and contrasting them with migrations measured during the 2020 lockdowns.

During the pandemic of 2020, most of the noticeable changes in migration were accelerations rather than reversals of previous patterns. Americans moved, in aggregate, out of denser neighborhoods and larger metros, especially those metros with a greater portion of office jobs that could be done remotely. They overwhelmingly moved to smaller and mid-size metros, less dense parts of their home metros, and to states with lower housing costs. This significantly flattened

the bid-rent curve in metropolitan land markets, as suburban housing prices soared, and urban rents plummeted. However, despite media reports of exodus from cities, the biggest changes in urban migration patterns were driven not by outflows, but rather by plummeting inflows.

The long-term implications largely rest on the lessons learned during the WFH period and the policies that firms adopt regarding remote work once the pandemic is over. Our literature review finds that 20-25% of work is estimated to be done remotely following the pandemic, compared to around 5% before the outbreak. And though the pandemic has hit urban office markets the hardest, with demand plummeting 20-30%, there are reasons for cities to be hopeful. Many high technology companies are hastening moves back into cities, taking advantage of lower rents and generous terms to develop new buildings and expand campuses.

While the nascent body of pandemic era literature focuses mostly on employee preferences and the productivity of remote work, evidence suggests that future research should examine which types of remote firms can and cannot compete with physically present counterparts in the long run.

Nevertheless, COVID-19 is not causing a return to sprawl because in some ways cities have never stopped sprawling. Though this may be cause for alarm for many in the urban discourse, studies of metropolitan expansion find sprawl narratives to be misleading. Despite many metro areas continuing to consume land at the urban periphery, negative effects of sprawl are showing signs of abatement, as newer development tends to be more compact, more accessible, and less monotonous than earlier suburban developments. Nonetheless, an uptick in the urbanization of outer-suburban and exurban areas from the pandemic warrants renewed studies on urban sprawl.

This paper contextualizes pandemic era migration literature with prior studies of urban sprawl to derive a useful framework for planners, developers, and decision-makers to better understand how cities expand and to predict the lasting impacts that COVID-19 will leave on U.S. cities.

PERSPECTIVES ON SPRAWL

Sprawl has become a catch-all term and a scapegoat for everything that is bad about urban growth today—congestion, blight, monotony, and ecological destruction to name just a few. But sprawl is a complex and multi-dimensional concept that demands deeper understanding before provisions can be made to address its consequences.

Development that is uninterrupted and monotonous, leapfrogs vacant land at the urban periphery, and/or is designed around the automobile at the expense of walkability can be described as “sprawling”. When development is sprawling,

transport and public service costs increase as excess land is consumed, and demand is directed away from places with existing infrastructure. (Peiser, 2001; Ohls and Pines 1975, 233).

The blame for sprawl can be spread to all the creators of the built environment. Where planners adhere to outmoded zoning regulations, neighborhood groups resist higher density infill, or developers fail to design for accessibility, sprawl will persist. For many years, sprawl was fueled by government policy, through the funding of the interstate highway system and Federal Housing Administration (FHA) policies that provided mortgage insurance only to low-density, single family home subdivisions (Peiser, 2001).

Coherent anti-sprawl strategies often evade policymakers because they mistake normal functions of the land market for sprawl. Peiser (1989) found, for instance, that discontinuous development and land speculation can be healthy for cities as vacant space is left behind for future, higher density infill development. Limited amounts of strip retail can also provide critical services for new residential developments. In either case, a healthy land market with proper planning mechanisms should allow space to be denser and include mixed-uses in later stages of development. Further highlighting the dynamism of the built environment, even initially monotonous developments like Levittown, NY have developed rich character over time as housing is redesigned and rebuilt (Waldie, 1996). Cao and Cory's (1981) finding that mixed use land increases the value of residential property also suggests that market forces will diversify monotonous land-use patterns over time.

Urban sprawl is difficult to measure and perhaps even harder to control. The focus of most sprawl research has utilized density to depict the phenomenon. This is problematic because low density development is temporary and arguably the most fixable of sprawl's ills - density tends to rise as low-rise residential areas are brought to higher intensities of development and as accessibility improves (Peiser, 1989). Furthermore, Gordon and Richardson (1997) point out that Los Angeles had the highest population density of any of the 20 largest metro regions, and few people would describe the city as the paragon of functional urbanism. Controlling sprawl has proven difficult in practice because policies tend to misprice costs of development at the urban fringe without addressing sprawl's truly deleterious aspects, such as poor accessibility and the failure to provide open green spaces. While monotonous housing patterns tend to change over time, clearing space for roads, transit, trails, and parks is much harder after subdivisions are built.

Historical perspectives on sprawl are key to understanding the paradigms of metropolitan development. Barrington-Leigh and Millard-Ball (2015) provide a succinct history of sprawl in the U.S. Focusing on one measure of connectivity, the mean nodal degrees of intersections, the researchers find that sprawl began well

before private vehicle ownership became commonplace, it persisted throughout the 20th century, and it peaked around 1994. By 2012, national sprawl had fallen 9% from the 1994 peak (Barrington-Leigh and Millard-Ball 2015), which suggests the success of policy changes, such as reducing the preference for single-family detached housing starting in the 1980's (Peiser, 2001).

Barrington-Leigh and Millard-Ball (2015) found that the largest increases in connectivity (decreases in sprawl) occurred where policies promoted gridded, connected streets, for example by banning or discouraging cul-de-sacs. In places built with low-connectivity, streets tended to stay that way, implying that poor road design will lock in travel inefficiencies and emissions well into the future. However, even in places without codified anti-sprawl policies, the researchers find that recent suburban development is less sprawling than it was in the past, suggesting a growing preference of buyers and renters to live in mixed-use, walkable communities.

Contrary to sprawl research that uses metropolitan areas as a unit of study, Ewing and Hamidi (2014) measure the sprawling of urbanized areas (UZAs), geographical units which expand over time as land is consumed. Developing a “compactness score” that combined data on density, mix of uses, employment, and street design; the researchers found that sprawl increased “only slightly” from 2000-2010 with great divergences between regions. Cities in the southeast were found to be the most sprawling and had compactness scores that continued to decline over the decade. According to Ewing and Hamidi (2014), “Charlotte (is) now competing to be the next Atlanta.” On the other hand, Los Angeles rose from the 18th to the 8th most compact metro between 2000-2010 - nearly two-thirds of its development over the decade was urban infill (Ewing and Hamidi, 2014).

URBAN RENAISSANCE? (1990-2015)

National perspectives on sprawl are helpful to depict broad trends, but more granularity is needed to sense the movements of people and jobs that are shaping metropolitan form. Referencing data and narratives on migration patterns from the last three decades, our research distills an understanding that a renaissance of core cities prevailed from the early 1990's until about 2015. This revitalization of large central cities occurred amid broader growth of suburbs, exurbs, and smaller metros, especially those in the South and West.

There is a consensus that signs of inner-city revitalization were noticed in some U.S. cities as early as the late '80s. After suffering decades of declining populations and “white flight”, many cities began to grow again in the 1990's (Golding and Winkler, 2020). While earlier, more isolated urban renaissances were spurred by fringe communities, this movement was typified by the arrival of young, educated, and affluent workers. By the early 00's, fast-growing technology firms

started to move back into cities, repurposing post-industrial real estate and reactivating some of the most dilapidated parts of urban cores (Zakrzewski, 2017). Around this time, education and medicine—“eds and meds”—became a primary driver for spurring rebirth of urban cores.

One explanation for the population influx to urban cores is that, while prior generations of college-educated migrants prioritized good schools, low crime, and job density; the most significant explanation (40%) for young college-educated migrants between 2000 and 2010 was the density of non-tradable services - the restaurants, bars, and hair salons colloquially known as “third places.” (Zakrzewski, 2017)

Brombach et al (2017) analyzed four U.S. metros to see where population growth occurred within the metropolitan areas. (See Figure 1). The growth in urban cores – defined by the researchers as a 5 km radius from city center – *accelerated* until the early ‘00s. In each of the four U.S. metros, migration to cores was accompanied by declining migration in areas farther than 10 km from city center. In walkable cities like Boston and Philadelphia, declining growth rates in farther-out suburbs even fell below that of their rising center cities. This makes the case for the waning of sprawl in some mature coastal metros even while newer metros in the South and West continued to consume land at the periphery (Brombach et al, 2017).

Using county-to-county migration data, Golding and Winkler (2020) similarly find that there was a coherent urban renaissance that became measurable on a nationwide scale starting around 1995 (See Figure 2). Around 1995, migration started slowing to lower density places, such as mid-size metros, exurbs, and suburbs, nearly reaching breakeven in 2015. This slowing of metropolitan expansion was especially pronounced during and after the Great Recession (2008-2010) and bottomed out around 2015. Inflows to major metropolitan cores during the late 90’s and early 00’s were significant, but they were concentrated in relatively few census tracts with very high growth rates, supporting anecdotes of the widespread repurposing of previously industrial areas. Though these areas experienced explosive growth as the beneficiaries of targeted government investments and incentives, this was overshadowed by the prevailing growth in suburbs and exurbs.

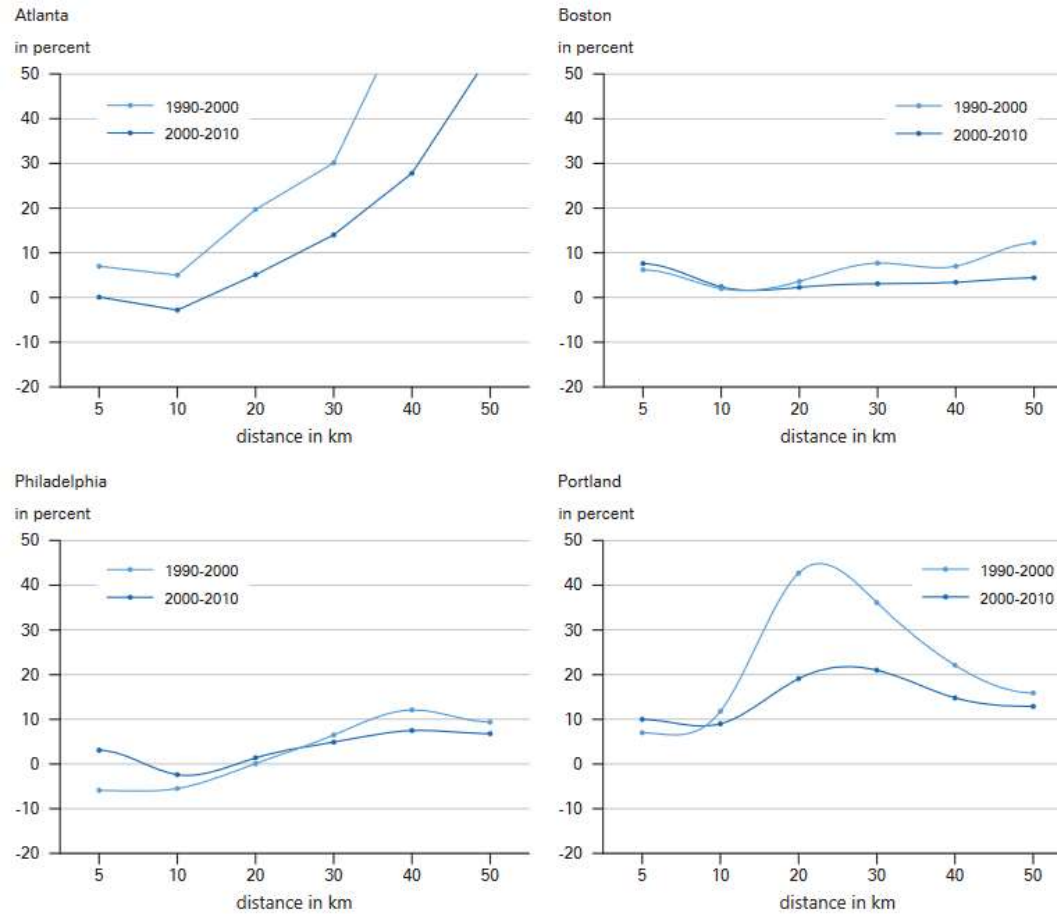


Figure 1
Population Change in Ring Zones of US Metropolitan Regions
Source: Brombach, Jessen, Siedentop and Zakrzewski (2017). Reproduced with permission.

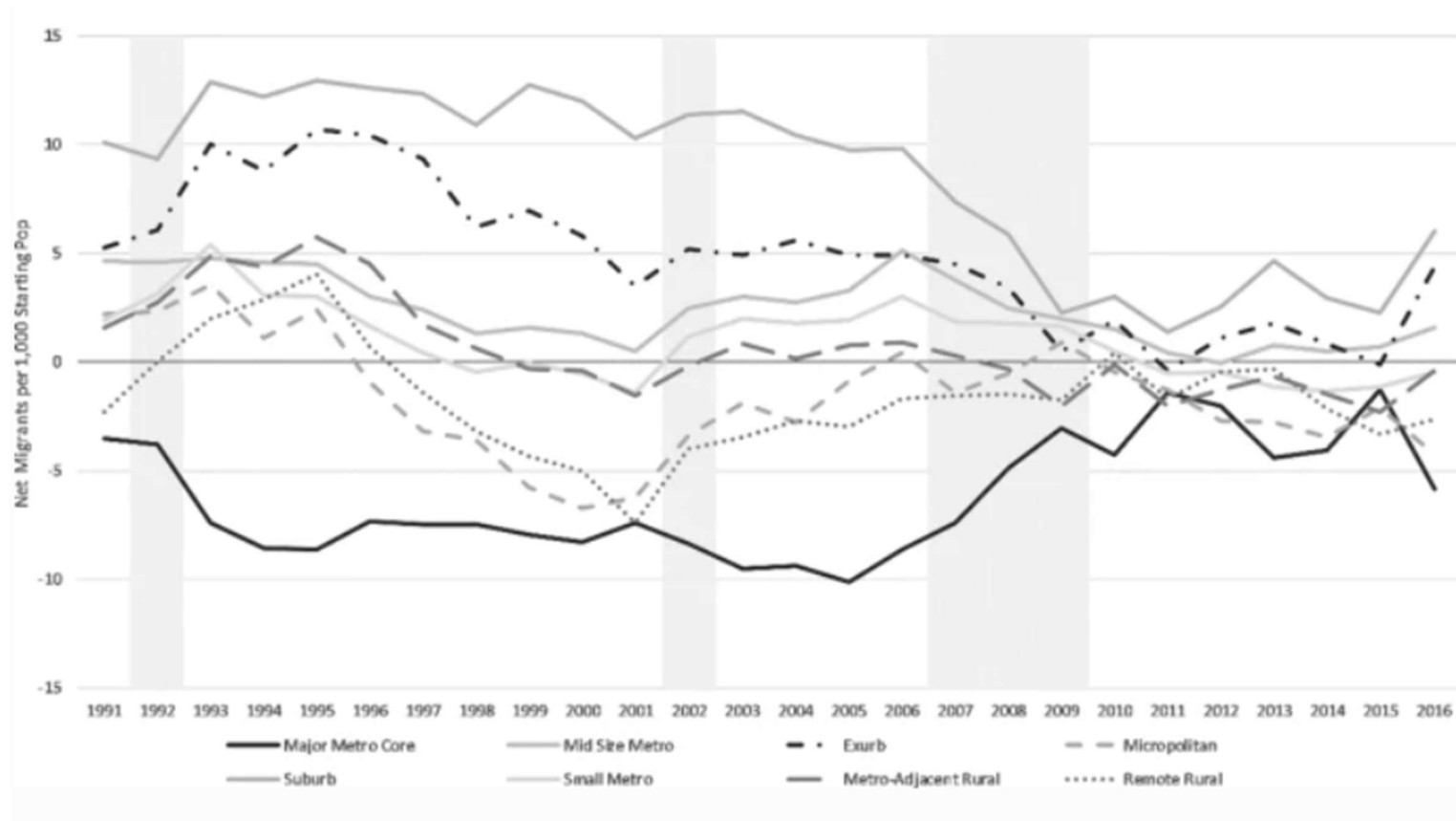


Figure 2
Average Net Migration by Rural-Urban Gradient Class (1990-2016)
Source: Golding and Winkler (2020). Reproduced with permission.

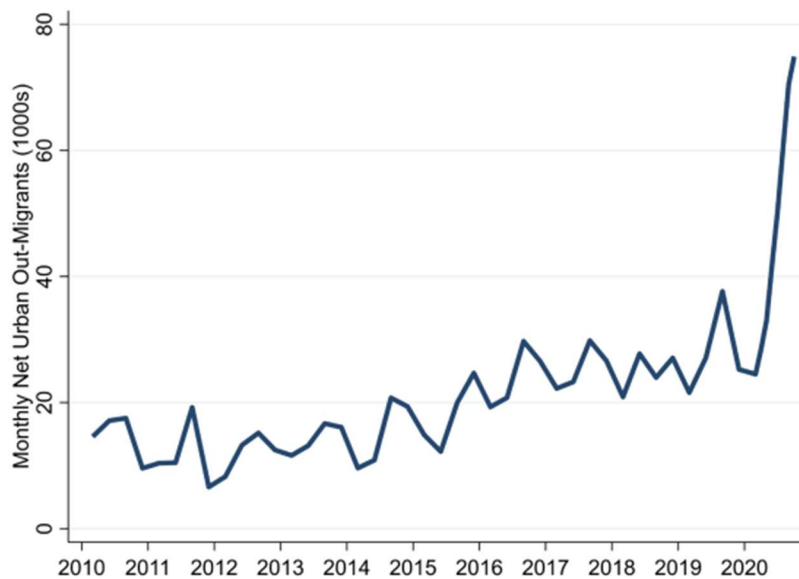
In the years leading up to the pandemic, there were signs that the urban renaissance had crested and that the broader movement to less dense and more affordable places had resurfaced. Despite just 5 big cities losing population in 2011-2012, 14 big cities shrank in 2015-16, with Chicago losing more than any other city. Of the 10 fastest growing metros in 2017, all but Charleston, SC experienced comparably rapid growth in the 80's and 90's, and many of the slowest-growing metros were also near the bottom in the earlier decades (Kolko, 2017).

The literature holistically supports that a period of urban renaissance lasted roughly from 1990-2015 albeit with some qualifications. Although some parts of cities experienced significant influxes of people in their prime earning years (age 25-50), the return to the American city was largely childless (Brombach et al, 2017; Zakrzewski, 2017) with the share of children in cities declining precipitously from 1990 to 2010 (Brombach et al, 2017). Kolko (2017) solidifies the point, claiming that the "...Urban revival is real, but it has mostly been for rich, educated people in particular hyper-urban neighborhoods rather than a broad-based return to city living." (Kolko, 2017) Nevertheless, historic paradigms of de-densifying metropolitan migrations started reasserting themselves in earnest 3-5 years before the start of the pandemic. Rising crime has also been cited as a driver of suburbanization (Peiser, 2001; Cullen and Levitt, 1996; Rusk, 1995), and it is likely that crime contributed to urban outflows in the later 2010's as well.

IMPACT OF THE PANDEMIC

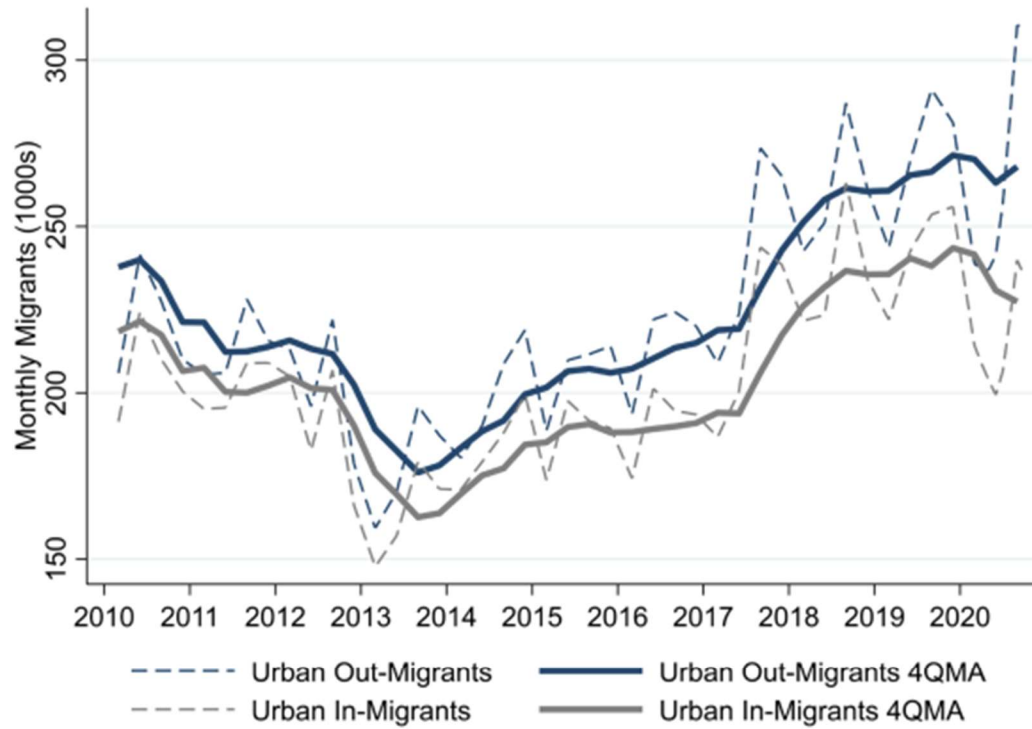
Though the pandemic is still unfolding as of January 2022, the most recent literature supports that the migration patterns of 2020 broadly resemble those in decades prior. Urban-suburban migration research is complicated because suburban counties often have recognizably urban areas while core cities have neighborhoods that are topologically suburban. Whitaker (2021) categorizes census tracts as urban if they are in a metro with at least 500,000 people where the density exceeds 7,000 per sq. mi. or if the majority of the housing stock was built before WWII. Figure 3 shows how net outmigration has accelerated since 2015 and skyrocketed in 2020, but a closer look at the changes between years 2019 and 2020 in Figure 4 reveals that a fall in inflows is a primary driver of this delta.

During the pandemic, people moved out of denser neighborhoods in metropolitan areas where a higher share of people work in jobs that could be done from home. The biggest pandemic shifts were related to people moving out of the urban parts of a few large metros at higher rates, and more people moving into smaller metros. This was especially pronounced in New York's Hudson River Valley, rural parts of New England, and other places viewed as an escape from nearby cities (Kolko et al, 2021).



Source: Federal Reserve Bank of New York/Equifax Consumer Credit Panel, American Community Survey, and author's calculations.

Figure 3
Estimated Net Out-migration from Urban neighborhoods
Source: Whitaker (2021).



Source: Federal Reserve Bank of New York/Equifax Consumer Credit Panel, American Community Survey, and author's calculations.

Figure 4
Estimated Gross Migration into and From Urban Neighborhoods
Source: Whitaker (2021).

Despite the media narratives, postal service change of address data does not support New York or California-specific exoduses nor a remote-working boon for declining communities (Kolko et al, 2021). While some smaller metro areas and vacation hubs saw increases in migrants, data suggests that the greatest beneficiaries of urban outmigration were other communities relatively close by. Areas that had been attracting people since 2015 kept attracting them, while those that were losing people lost more (Tavernise and Mervosh, 2020).

CONCLUSIONS

The WFH movement has had complex implications for migration and land consumption patterns, but mostly reinforced trends that were underway long before the outbreak in the U.S. Researchers concur in predicting that 20-25% of the 160 million U.S. workers will stay fully remote long term (Florida and Ozimek, 2021; Barrero et al, 2021), compared to 5% before the pandemic. Davis et al (2021) agrees, finding through surveys that, once the pandemic subsides, workers expect to approximately triple their WFH time compared to pre-pandemic levels. If this permanent shift to WFH comes to fruition, spending on meals, entertainment, personal services, and shopping in major city centers could decline by 5-10% (Barrero, 2021; Medici, 2021)

As of late December 2021, 242 million people (74%) in the U.S. have received at least one vaccine dose and 205 million people (63%) are fully vaccinated. Much of the country is accelerating towards full reopening, although the delta and omicron variants are causing surges in COVID that are stalling this progress. From Wall St. to Main St., firms are actively reconsidering their WFH policies, balancing the impacts to productivity with the location preferences of their workforce. Some companies have embraced remote work, citing savings on office leases and access to a broader pool of talent (Florida and Ozimek, 2021). And research suggests that the average worker *is* willing to take a small pay cut to continue working from home two or three days a week (Barrero, 2021; Medici, 2021). Remote employees at some firms, like San Jose-based VMWare are already making less than their cubicled counterparts (Kolakowski, 2020).

But there are limits to this focus on employee preferences and remote work productivity gains, approximately 80% of which accrue through commute-related savings (Barrero, 2021; Medici, 2021). The future of work and the relevance of standard urban models is not decided by workers or even their managers—in the long run this will be a question of competitiveness. Some firms may be better suited for a remote environment, and their shareholders will enjoy the savings of plummeting operating costs. Other firms may capitalize on decentralized labor pools and attract top talent who have decamped to places like Bozeman, MT; Truckee, CA; or New York's Hudson Valley to live a more bucolic life. Invariably some remote firms will lose their edge. Creative synergy may atrophy in the

absence of spontaneous relationships between coworkers. Less productive, in-person workers could get promoted ahead of more qualified remote workers. Remote firms run the risk of stifling their own innovation, as short-sighted cost-saving decisions lead to reduced market share or even obsolescence.

There is growing evidence of this innovation divergence at play. Amid the broader trend of metropolitan job decentralization, firms in innovative and creative industries have continued their move into urban cores with many taking advantage of lowered rents and generous terms to accelerate their plans (Matsuda, 2021; Haag, 2020).

According to Branson (2020), "What we have seen over the past 25 years is that those businesses that have been the most able to work remotely have done precisely the opposite. They have clustered in the center of successful cities." Literature predicts that after the pandemic, ambitious young people will once again migrate into cities at high rates (Florida and Ozimek, 2021), and models paint an optimistic picture of a new urban revival, with rent growth in cities expected to outpace suburbs for the foreseeable future (Gupta, 2021; Oklobzija, 2020; Beilfuss, 2021). One likely outcome from an increase to WFH acceptance is the rise of satellite communities, those areas within a reasonable commute of a metropolitan office, but from which a daily commute would be impractical (Kolko, 2021). Planners and developers should pay particular attention to this possibility, as the rise of satellite cities could strain lower-capacity regional transportation systems and eventually propagate labor markets distinct from their original metropolitan context.

FUTURE RESEARCH

Following two decades of predominant research on renaissances, the pandemic has repositioned the urban sprawl debate at the forefront of the urban agenda. While stories abound about urban dwellers relocating to the suburbs and to more distant exurban and rural communities where they work from home, future research should analyze not only where population growth and decline has taken place but also how patterns of density and urban concentration and de-concentration have occurred. Anecdotal evidence suggests that new suburban patterns of development are promoting mixed use and higher density urban infill. Whether this evidence is supported by the data needs further investigation, especially after the nation has moved on from the pandemic.

As noted by the urban academic, Chris Nelson, while market demand for new forms of suburbs is well known, entrenched suburban planning institutions usually sap the creativity out of well-meaning developers wanting to meet that

demand.¹ There are also important equity lenses through which these developmental questions must be examined. Nelson points out that although three quarters of all new household formations are non-White, approximately three-quarters of pandemic-era homebuyers have been White. Climate change also is a critical factor affecting both where people will choose to live and whether sprawl will persist. It is possible that the rising cost of new housing as well as disincentives for driving will support demand in higher density urban and suburban development, thereby mitigating a return to sprawl. The housing choices that underserved parts of the market make will effectively determine whether we see a return to patterns of urban sprawl.

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