

From: [Sonja Wiser](#)
To: [Byran Halbert](#); [Eldon Wogen](#); [Jack Harroun](#); [Jeremy Baker](#); [Karl Johnson](#); [Mark Bergthold](#); [Steve Morasch](#); [Bryan Halbert](#); [Eldon Wogen \(Wogen5@msn.com\)](#); [Jack Harroun](#); [Jeremy Baker](#); [Karl Johnson](#); [Mark Bergthold](#); [Steve Morasch \(stevem@landerholm.com\)](#)
Subject: FW: For Planning Commission Consideration - 3.21.24 Hearing - 2025 Comp Plan Update
Date: Wednesday, March 13, 2024 3:26:00 PM
Attachments: [NYU Law Paper.pdf](#)
[image001.png](#)
[image002.png](#)

From: Sonja Wiser
Sent: Wednesday, March 13, 2024 3:24 PM
To: Ezra L. Hammer <elh@jordanramis.com>
Cc: James D. Howsley <jamie.howsley@jordanramis.com>; Oliver Orjiako <Oliver.Orjiako@clark.wa.gov>; Jose Alvarez <Jose.Alvarez@clark.wa.gov>; Christine Cook <Christine.Cook@clark.wa.gov>
Subject: RE: For Planning Commission Consideration - 3.21.24 Hearing - 2025 Comp Plan Update

Thank you; I will send to the PC Members

From: Ezra L. Hammer <elh@jordanramis.com>
Sent: Wednesday, March 13, 2024 2:54 PM
To: Sonja Wiser <Sonja.Wiser@clark.wa.gov>
Cc: James D. Howsley <jamie.howsley@jordanramis.com>
Subject: For Planning Commission Consideration - 3.21.24 Hearing - 2025 Comp Plan Update

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Good Afternoon Sonja,

Please include this email and the associated attachment in the public record for the above-referenced matter so that the Planning Commissioners can consider it in their deliberations.

Thank you.

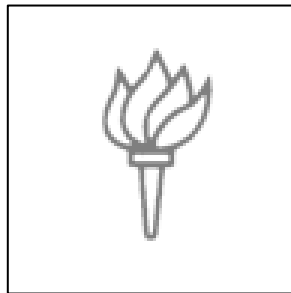
Hello Planning Commissioners,

As part of the Population, Housing and Employment Allocation for Clark County's 2025 Comprehensive Plan Update, some have raised the specter of an increased housing supply leading to increased housing costs. This represents a long-standing misconception about market economics generally, and the housing market specifically. As shown in Vicki Been, Ingrid Ellen, and Katerine

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Supply Skepticism Revisited

Vicki Been, Ingrid Gould Ellen, and Katherine O'Regan

March 2024

Supply Skepticism Revisited

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Katherine O'Regan is a Professor of Public Policy and Planning and Faculty Director at the NYU Furman Center for Real Estate and Urban Policy. She has written extensively on affordable housing policy and issues of segregation and neighborhood change. Her primary research interests are at the intersection of poverty and space –residential and racial segregation, areas of concentrated disadvantage and the role of housing in shaping neighborhoods. She has written extensively on a variety of affordable housing topics, with recent work focused on outcomes and reforms to the housing choice voucher program, fair housing aspects of the Low-Income Housing Tax Credit program, and eviction practices in New York.

Supply Skepticism Revisited

Abstract

Although “supply skeptics” claim that new housing supply does not slow growth in rents, we show that rigorous recent studies demonstrate that: 1) Increases in housing supply slow the growth in rents in the region; 2) In some circumstances, new construction also reduces rents or rent growth in the surrounding area; 3) The chains of moves sparked by new construction free up apartments that are then rented (or retained) by households across the income spectrum; 4) While new supply is associated with gentrification, it has not been shown to cause significant displacement of lower income households; and 5) Easing land use restrictions, at least on a broad scale and in ways that change binding constraints on development, generally leads to more new housing over time, but only a fraction of the new capacity created because many other factors constrain the pace of new development.

Keywords: land use/zoning; affordability; gentrification; rental housing; multifamily; construction/building

Background

In 2019, we noted the phenomenon of “supply skepticism” – the increased “questioning [of] the premise that increasing the supply of market-rate housing will result in housing that is more affordable” (Been, Ellen, and O’Regan, 2019, p. 26). We sought to systematically – and sympathetically – assess each of the key arguments supply skeptics were making, and to dispassionately review what research showed about the effects increases in the supply of housing have on housing affordability. We ultimately concluded that both the theory and the then-existing empirical evidence supported the premise that adding new homes moderates price increases and therefore makes housing more affordable to low- and moderate-income families. We noted gaps in the evidence, however, and suggested additional research to better understand the relationship between supply and affordability, and to ensure that efforts to increase supply are most effective. We also emphasized that because the effects market-rate construction may have on rents may be slow to materialize and are unlikely to be sufficient to address the needs of very low-income households, local and state governments should seek to ensure that new supply (both “free-market” and subsidized affordable housing) comes on line at a range of price points, so that growth is balanced among the various income levels in the community.

Much has happened in the four years since we published our article. The housing affordability crisis has become even more acute, widespread, and salient, as evidenced by a number of metrics, such as the share of the housing stock affordable to the “average” household, the housing vacancy rate, and the amount of new housing that cities and metro areas around the country are permitting (metrics we review in Part One below). In response, a number of state legislatures across the nation, from a variety of political perspectives, have walked back their

deference to local governments somewhat, and intervened to remove local and state barriers to development.¹

Researchers have begun to fill gaps in the research, and have produced a substantial body of rigorous and nuanced evidence about the effects increasing supply has on prices, neighborhood composition, and neighborhood amenities. At the same time, however, resistance to new housing and land use changes continues to be both highly vocal and deeply felt. The new research, ongoing controversy, and growing affordability challenges make this an opportune time to revisit the arguments and evidence.

We proceed as follows: Part One presents the latest evidence showing that housing is increasingly unaffordable to a wide range of households, supply is not meeting demand, and local constraints on supply often are most extreme where demand (and rents) are high. Part Two reviews the arguments supply skeptics were making pre-pandemic and identifies some new concerns skeptics have raised. Part Three summarizes the new studies completed over the past few years, and assesses the answers they provide to the challenges the skeptics have raised. Part Four identifies gaps in the evidence that remain and concludes.

1. Trends in Rental Housing Affordability and Availability

Housing is unaffordable across the country – in states in the middle of the country, as well as on the coasts, in both smaller towns and big cities, and in areas that are not known for their

¹ States are using a range of strategies to require or nudge local governments to allow more construction (Been et al., 2023; Been et al., 2023; Kazis, 2023; Kazis, 2022). However, while many states have passed reforms, others have rejected or failed to take up reforms in the face of enormous resistance from local elected officials (Ferré-Sadurní & Zaveri, 2023). Further, some land use experts have expressed concern about the long term implications of the reforms (Schragger, 2021; Serkin, 2020).

locational advantages as well as in so-called “superstar” cities (Gyourko et al., 2013). Figures 1 through 3, from the Harvard Joint Center on Housing (2022), map the share of the census tracts in counties across different regions of the United States with a median rent that is affordable to households making the median income for that county in 2000 and in 2019 (McCue, 2022). They reveal just how much more difficult it has become over the past two decades for renters to find a place to live that they can afford.

Figure 1. Share of Tracts within County Affordable to Median Renter – Northeastern US.
Source. McCue, D., Harvard Joint Center for Housing Studies, *As Low-Cost Units Become Increasingly Scarce, Low- and Moderate-Income Renters Are Losing Access to Many Neighborhoods*, 2022, www.jchs.harvard.edu. All rights reserved.

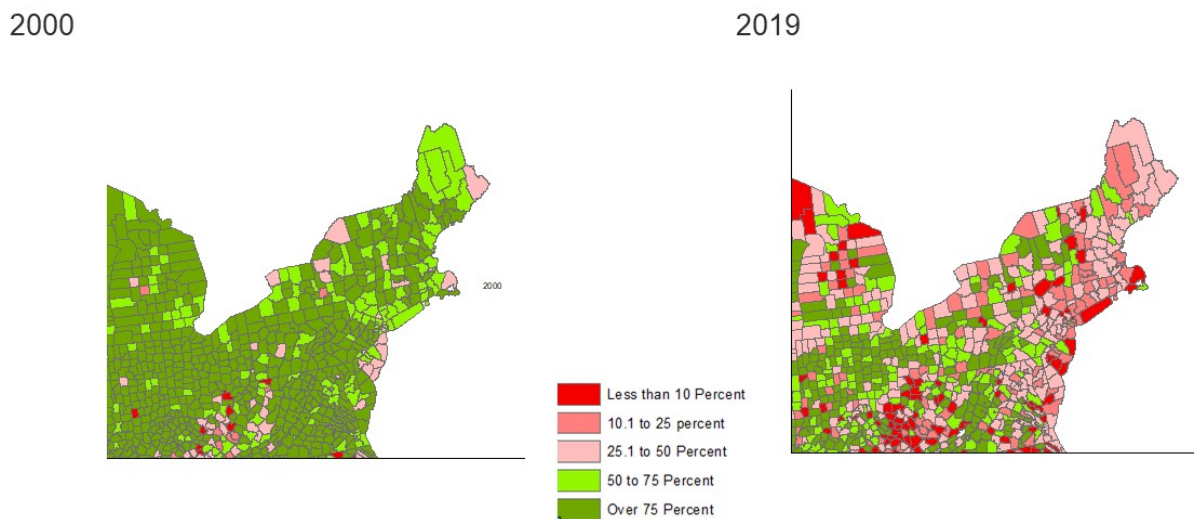


Figure 2. Share of Tracts within County Affordable to Median Renter – Western US.
 Source. McCue, D., Harvard Joint Center for Housing Studies, *As Low-Cost Units Become Increasingly Scarce, Low- and Moderate-Income Renters Are Losing Access to Many Neighborhoods*, 2022, www.jchs.harvard.edu. All rights reserved.

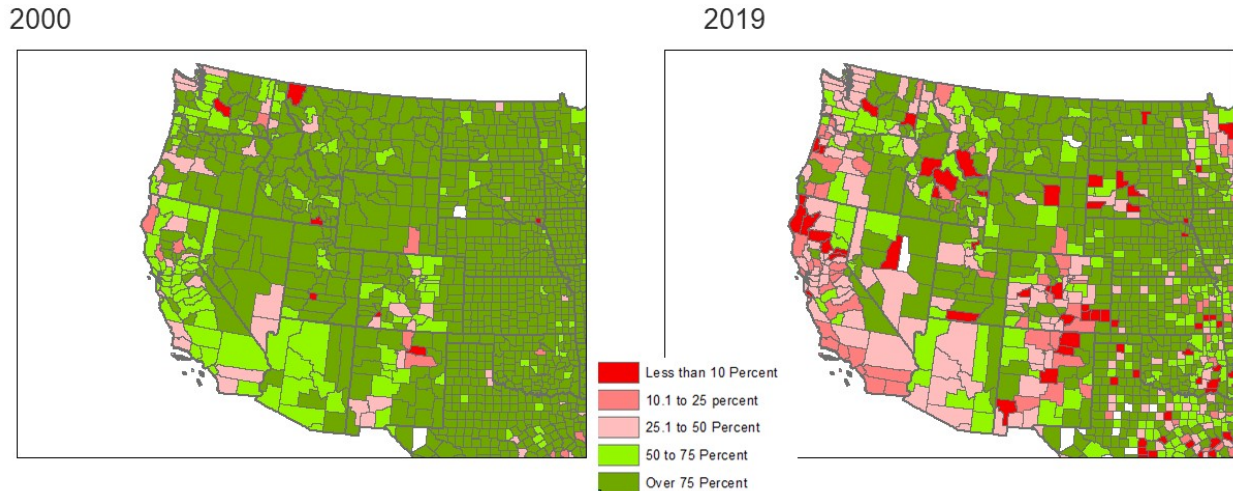
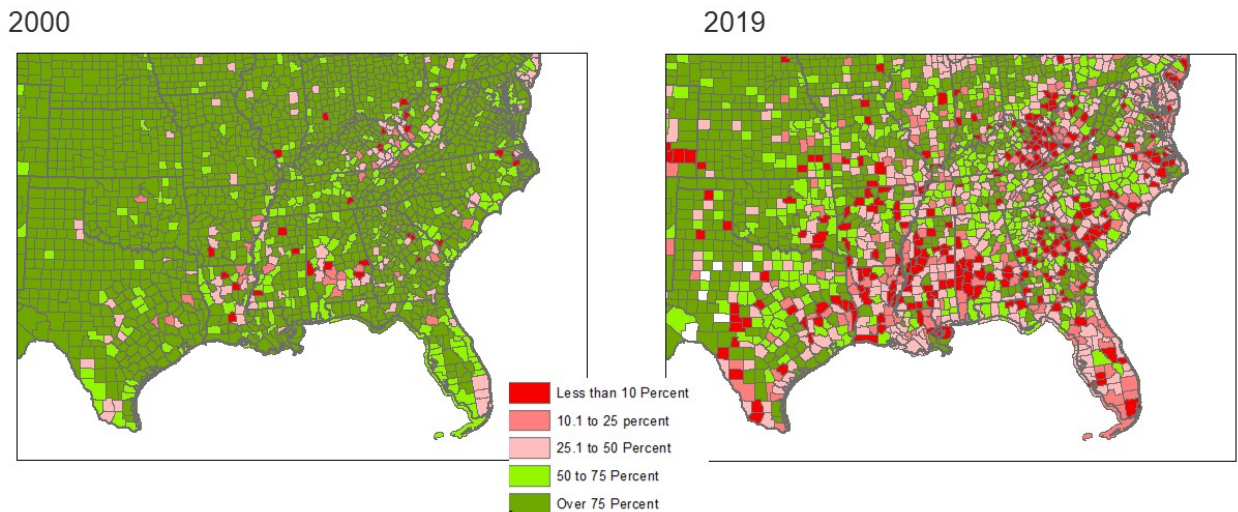


Figure 3. Share of Tracts within County Affordable to Median Renter – Southeastern US.
 Source. McCue, D., Harvard Joint Center for Housing Studies, *As Low-Cost Units Become Increasingly Scarce, Low- and Moderate-Income Renters Are Losing Access to Many Neighborhoods*, 2022, www.jchs.harvard.edu. All rights reserved.



These figures only report on affordability through 2019. But in 2021, more households were rent-burdened or severely rent-burdened (paying more than 30 or 50 percent, respectively, of their income for housing expenses) than at any time in at least several decades (Joint Center for Housing Studies, 2023). Rent growth across the country reached record high rates in early 2022, and while it cooled in early 2023 across the country, “[n]early 50% of wage earners” still could not afford “a modest one-bedroom rental home at the fair market rent while working one full-time job” (Aurand et al., 2023, p. 3).

Figures 4 and 5 provide suggestive evidence about how supply shortfalls affect that affordability crisis: rental vacancy rates in most areas of the country have tightened considerably even over the past decade. A healthy rental vacancy rate is generally considered to be between 7 and 8 percent (Belsky et al., 2007, p. 4). As Figure 4 shows, average metropolitan area rental vacancy rates met this threshold in 2021 in only one US Census region, the South. Further, in each of the four US Census regions, the average rental vacancy rate declined significantly between 2011 and 2021. Figure 5 shows that the share of metropolitan areas across the country in which the vacancy rate was below 7 percent rose from 42 percent to 68 percent between 2011 and 2021. Vacancy rates decline if housing supply does not adjust to meet changes in housing demand. Rates could fall for example, if housing supply does not keep up with population and employment growth. Rates also could decline if supply does not accommodate changing demographic shifts that lead to smaller households (such as a growth in adult-only households, or increasing household formation as younger people form their own households), or adapt to changing tastes that lead to a growth in the amount of space that each person consumes (as people demand additional rooms to accommodate working from home, for example). But

whatever the reason, persistently low vacancy rates suggest that too little housing is available to meet demand.

Figure 4. Vacancy Rates in Rental Housing.

Source. U.S. Census Bureau American Community Survey 5-year estimates (2007-2011, 2012-2016, 2017-2021), NYU Furman Center. Note. Year on the x-axis represents the end year of the 5-year estimates. Percent vacant reflects the population-weighted averages of MSA-level vacancy rates.

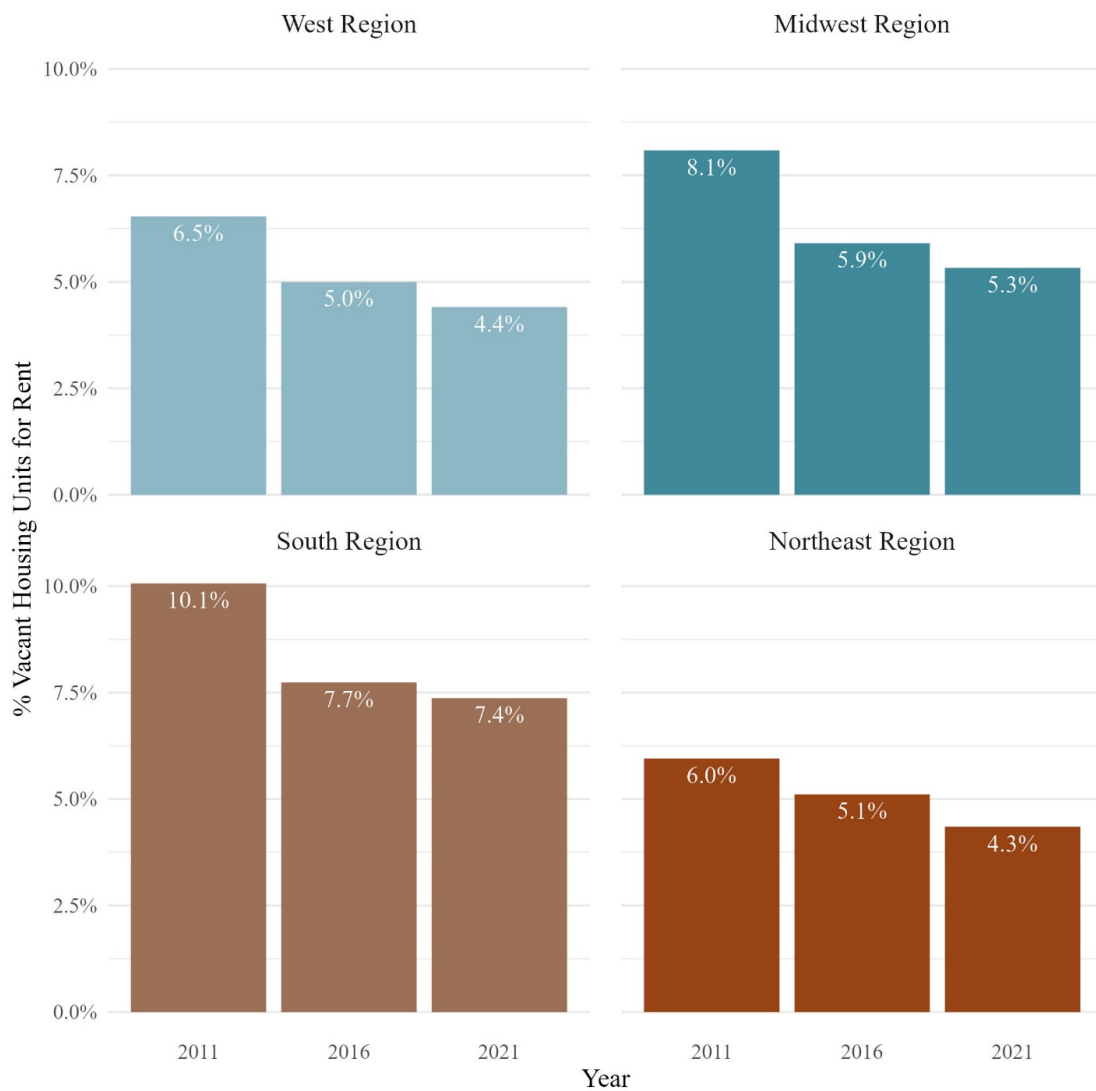
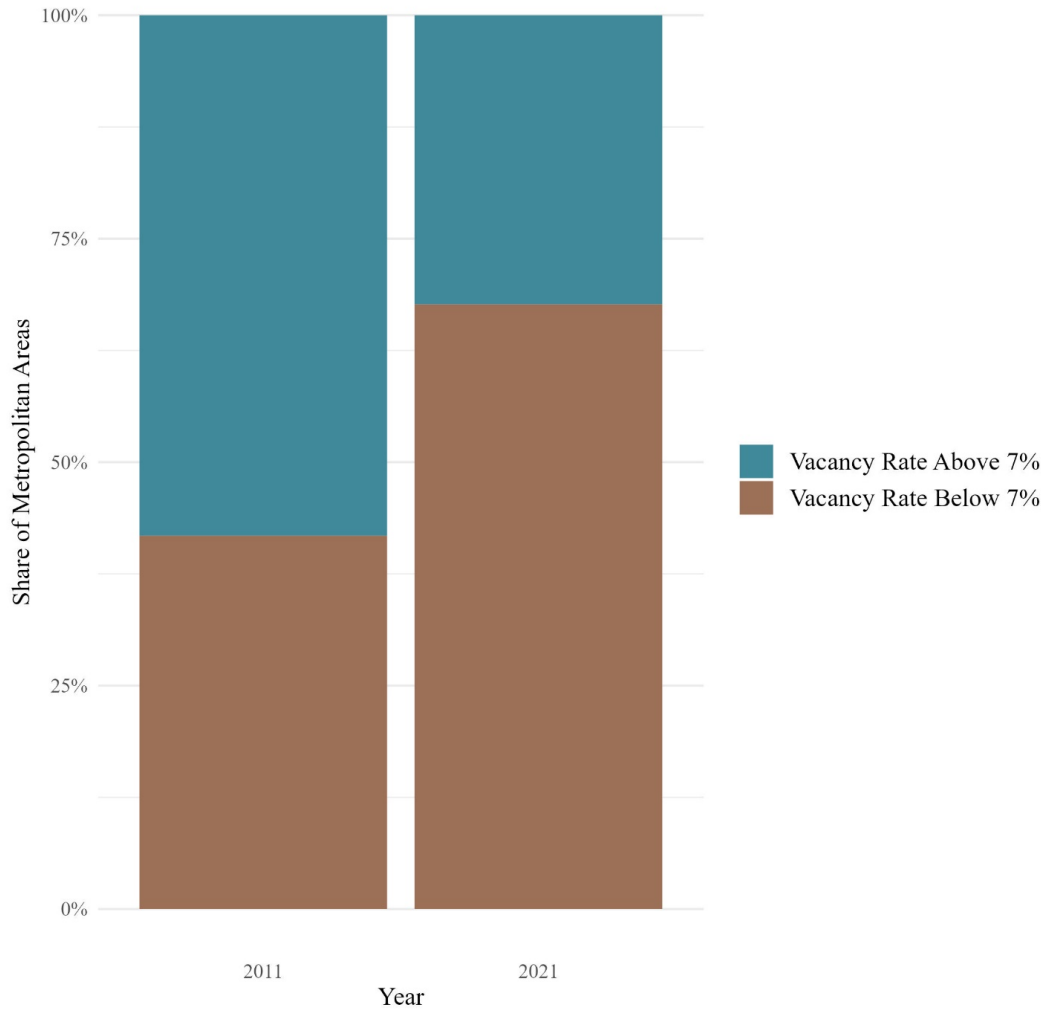


Figure 5. Vacancy Rates Across Metropolitan Areas.

Source. American Community Survey 5-Year Estimate (2007-2011, 2017-2021), NYU Furman Center.



Finally, Figure 6 shows the rates at which new housing is permitted for the five most populated metropolitan areas in each of the four census regions in the U.S. Some variation across metros is to be expected -- indeed, those with high demand and high housing costs generally

would be expected to add more housing per capita than areas with lower demand.² However, plotting per capita permitting rates against vacancy rates for the same most-populated metropolitan areas (Figure 7), shows the opposite pattern – permitting rates are usually lower (not higher) in high-demand areas with lower vacancy rates. That suggests the metro areas may be producing relatively little new housing not because of low demand, but because of the stringency of land use regulations and other barriers to housing construction.³

² Freemark (2022) showed that in areas with low demand, permitting rates are low, as expected. But he also found that “of the nation’s most-in-demand municipalities—those where housing values are at least 30 percent higher than their respective metropolitan areas—less than a third added more housing than their encompassing region, despite plentiful developer demand to build there.”

³Recent academic discussions about the stringency of local housing restrictions on housing development include Gyourko et al., (2021). Beyond academia, the impacts of strict zoning and land use regulations are a topic of much discussion (Ellickson, 2022; Gray, 2022; Schuetz, 2022; Dougherty, 2020; Badger & Bui, 2019).

Figure 6. Housing Units Permitted per Capita, 2019.

Source. Building Permits Survey (2019), NYU Furman Center. Note. The metropolitan areas selected reflect the top five largest cities in each Census region.

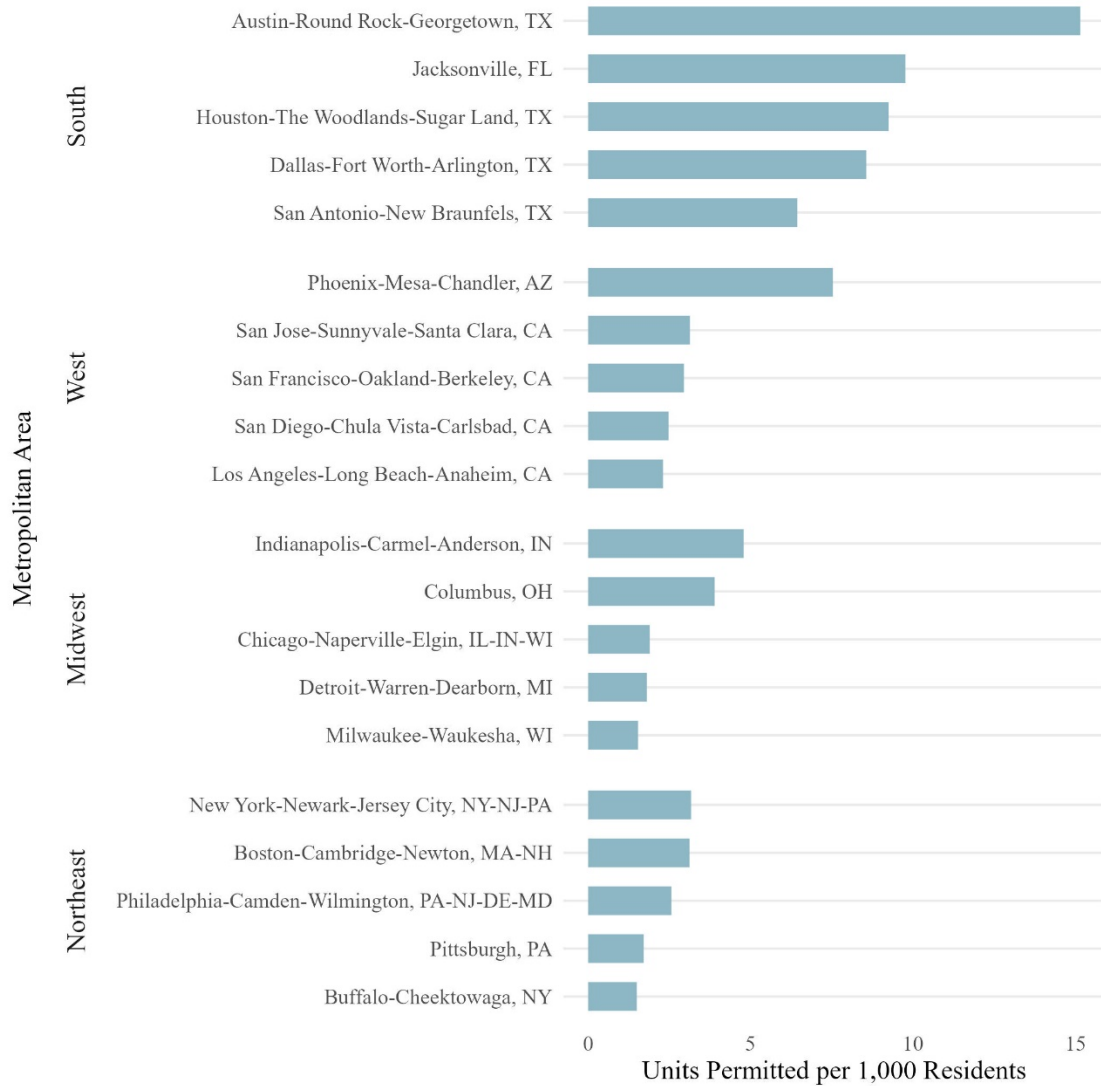
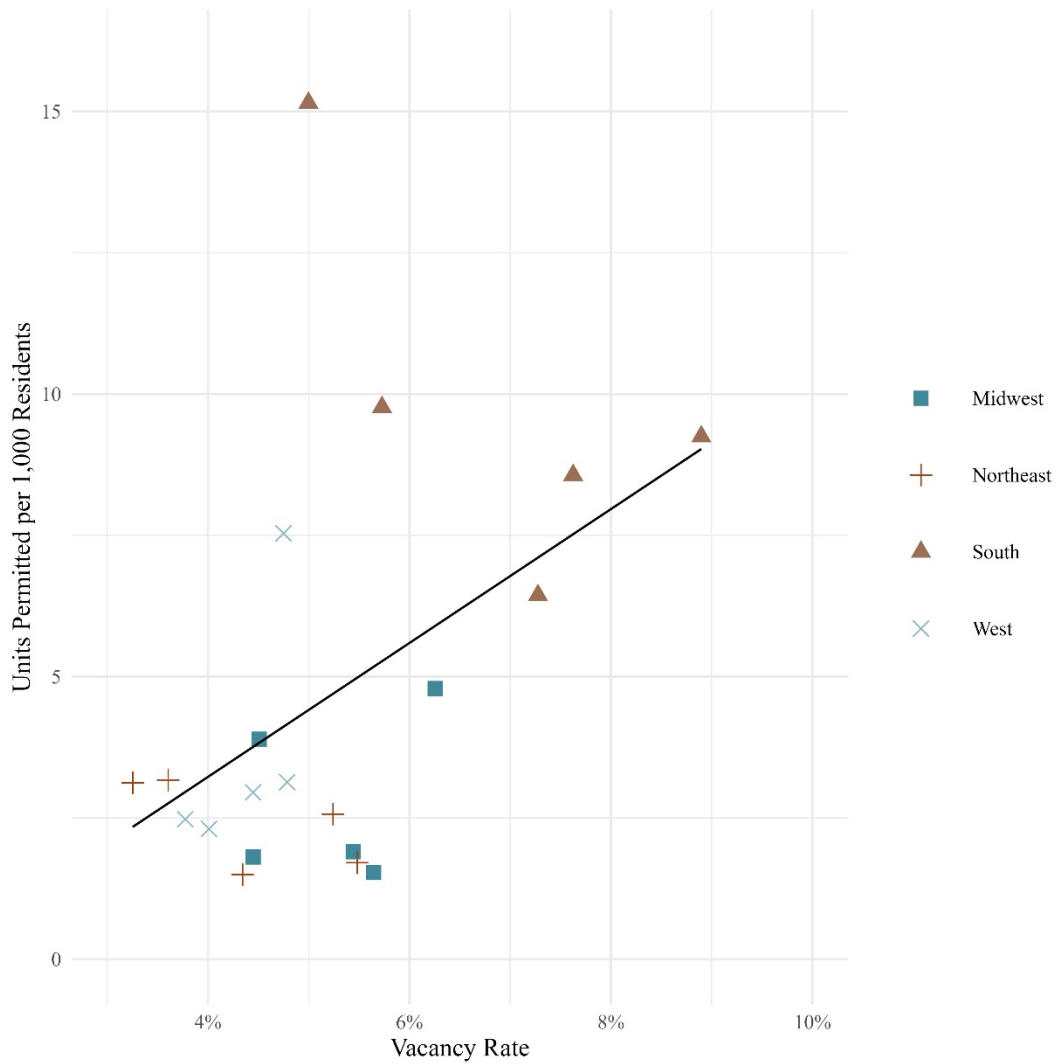


Figure 7. Metropolitan Area Housing Units Permitted per Capita, 2019.

Source. U.S. Census Bureau American Community Survey 5-year estimates (2017-2021), Building Permits Survey (2019), NYU Furman Center. Note. The metropolitan areas selected reflect the top five largest cities in each Census region.



2. The concerns of supply skeptics

In our 2019 article, we reviewed the evidence regarding several concerns supply skeptics had expressed. First, some skeptics worried that adding supply will actually harm neighborhoods. They focused on “potential localized spillover effects from newly constructed housing, and assert[ed] that even if increasing supply might slow the growth in housing costs across the city, new housing will increase rents and trigger displacement in the immediately surrounding neighborhood” (Been et al., 2019, p. 26). Second, others argued that in a dynamic system, any decreases in rent caused by additional supply will be fully offset by increases resulting from the additional demand generated by the amenities that the new housing brings to the neighborhood. Third, skeptics “dispute[d] the notion that new market-rate housing causes other housing to filter to lower income households, at least in a reasonable time frame,” and argue that most new supply is aimed at the top of the market and “will do little or nothing to alleviate affordability challenges in lower priced segments of the market” (ibid, p. 26). Note that the first claim here is the harshest - maintaining that increasing the supply of market-rate housing will actually worsen affordability for lower income renters who live nearby. The second and third simply argue that increasing the supply of market rate apartments will do little good, but it will not likely make matters worse.⁴

⁴ In our 2019 article, we also noted that some skeptics were making a more ideological argument that because the supply of land is limited, all new construction should be restricted to affordable housing, public housing, or “social” housing. Recent versions of that argument include Warren (2022). In our 2019 article, we pointed out that there are many barriers to affordable or social housing beyond the availability of land, that limiting land to those uses would not necessarily mean it would be developed as affordable or social housing, and that land can be used more intensively to avoid or mitigate the limits land prices or availability impose upon affordable housing programs (Been et al., 2019).

These arguments continue to be made.⁵ Indeed, recent research from Nall et al. (2022) found that the views of supply skeptics are widespread across the U.S – and are fairly unique to housing. In two nationally representative surveys of urban and suburban residents, they found that only 30 to 40 percent of respondents believed that additional housing supply would reduce prices and rents. Respondents recognized and acknowledged price-supply dynamics in other markets, but seem to believe that housing is different.

In addition, some opponents of new housing have begun to emphasize a few other concerns. They argue, for example, that the problem of affordability is driven at least in part by the inefficient use of housing. The argument implicitly acknowledges that supply matters, but focuses on the ways in which various uses essentially make the supply unavailable. The arguments point to the number of existing apartments that are sitting vacant or only sporadically occupied, because they are purchased as investments, second (third, fourth . . .) homes, or short-term rentals.⁶ Those uses, the argue asserts, also mean that even if more housing is built, it may not slow growth in prices or rents, because the new housing is not actually providing primary homes for any household.⁷

Another argument opponents of land use changes now make is that changes in land use regulation won't actually produce much additional supply, and so won't significantly affect housing affordability. They point to Yonah Freemark's study of a significant rezoning in

⁵ See for example: Hanlon et al. (2022); Rodríguez-Pose and Storper (2020). Supply skepticism has spread beyond the United States as well (Helm, 2023).

⁶ See for example: Thompson (2020); Badger (2017).

⁷ In some cities with rent regulation, skeptics also allege that landlords are keeping apartments off the market in order to pursue opportunities to further raise the rent (for example, by waiting to rent the apartments until the market has fully recovered from the pandemic, or until they can combine it with another apartment to escape regulation), and argue that rather than building more housing, policymakers should prohibit such “warehousing” of apartments. See, for example: Hall (2023); Rabiya (2022); Susman et al. (2022); but see NYC Independent Budget Office (2023).

Chicago (Freemark, 2020), which found that the rezoning increased land prices of parcels allowed to build bigger buildings, and increased prices on nearby residential condominiums, but had no significant effect on the number of new buildings permitted over the five years following the change.⁸ Similarly, some point to the disappointing early results from the “end to single family zoning” Minneapolis passed in 2018 as evidence that land use reforms have limited effect on supply (Britschgi, 2022). Again, the argument implicitly acknowledges that supply matters, but holds that if substantial reductions in land use restrictions don’t actually increase supply significantly, given the substantial resistance that measures to reduce regulation spark, the reforms may not be worth the effort (see, for example, The Seattle Times Editorial Board (2018)). Others argue that the limited effects land use reform may have on supply means that those reforms should be lower on the priority list than other means of addressing a city’s affordability challenges.⁹

We review the existing evidence about these various claims in the next part. Again, our aim is to bridge the divide between the arguments made by supply skeptics and the research that explores the effects of increased housing supply. We seek to present the research objectively, identify its limits, and (in Part Four) note gaps in the research that remain to be filled.

3. Recent evidence regarding the concerns supply skeptics are expressing

⁸ Limits on the generalizability of his findings are discussed further in Part 3e below. Freemark (2019) responded to people using the study to argue that increases in supply won’t help address affordability challenges.

⁹ Rodríguez-Pose and Storper (2020) also point out that some arguments for additional supply make larger claims about the effects restrictive land use regulations have on economic productivity, regional inequities, and income inequality, and argue that additional supply is not the most effective way to address those harms. We are focused here on the effects supply can have on the growth in rents, not on broader problems like inequality (though those effects are, of course, important). See also Manville et al. (2022); Rodríguez-Pose and Storper (2022).

a. ***Does increased supply of market rate housing lead to increases, decreases, or changes in the rate of increase in rents?***

We reported in our earlier article that “although it is clear that construction of new homes will moderate price and rent increases citywide, neither theory nor empirical evidence provides clear guidance about when localized spillover effects might occur and when they might actually cause an increase in the prices and rents of immediately surrounding homes.”

Identifying the impacts of new construction on rents for the jurisdiction as a whole, or for the neighborhood surrounding the construction, is challenging, given that developers generally build in areas that they believe already are or will be seeing increased demand. This makes it hard to disentangle changes in rents that are caused by pre-existing growth in demand from changes caused by the new supply. To overcome the problem of endogeneity, the key is to compare changes in rents in areas “treated” with exogenous, or random additions to the housing stock to changes in rents in a control group of areas not affected by the same source of increases in supply. By comparing the “treated” with the “control” properties before and after the new housing was introduced, the research is able to discern whether there is a “difference-in-difference” – whether differences in rents between the two areas changed after new housing was introduced in the “treated” areas. The key is that the additions to supply must be unrelated to underlying demand. The aim is to compare jurisdictions or neighborhoods that, but for the new construction, would have seen the same trend in rents as those “treated” with additional supply.

New Research on the Impact of New Homes on City-wide Rents: Using different methods to overcome endogeneity, a few new studies confirm that new supply moderates rent increases

for the city as a whole.¹⁰ Greenaway-McGrevy (2023a) studied the effects of an unusually large scale upzoning of Auckland, New Zealand that increased the allowable floor area ratios¹¹ for three-quarters of the city's land and led to an increase in the city's housing stock of about 4.1 percent (Greenaway-McGrevy & Phillips, 2023). Using a "synthetic control" of other urban commuting zones that had rental market trends and other characteristics similar to Auckland's in the years before Auckland's reforms passed,¹² Greenaway-McGrevy concluded that six years after the policy was fully implemented, rents for three bedroom dwellings in Auckland were between 26 and 33 percent less than those of the synthetic control (depending on model specification, and at a five percent level of statistical significance).¹³

Similarly, Mense (2023, p. 2) exploited delays in the completion of new housing related to random differences in weather conditions to assess the effects new construction between 2010 and 2017 had on listed contract rents in municipalities across most areas of Germany. He found that a "1 percent increase in yearly new housing supply causes the average rent level [in the local municipality] to fall by 0.2 percent." Further, he finds that new market-rate housing reduces the housing cost burden for all renters in the municipality, not just those renting at the high end of the market.¹⁴

¹⁰Anenberg & Kung (2020) use a model to simulate how rental rates would respond to an exogenous increase in the number of housing units in a metropolitan area, and find that marginal reductions in supply constraints alone are unlikely to meaningfully reduce rent burdens. We limit our discussion to those empirical studies that study how increases in supply actually affected rents.

¹¹Floor area ratio is a measure of how much floor space can be in a building relative to the size of the lot on which it is built.

¹²The synthetic controls were constructed based upon such characteristics as the proportion of households who are renters, dwellings per capita to capture demand for housing, and the average proportion of household income spent on rental costs. The research takes care to account for the decrease in population in Auckland during the pandemic.

¹³Rents for smaller units were 21 to 24 percent lower than the control, but statistically significant only at the 10 percent level in some of the model specifications.

¹⁴Helm (2023) argues that Melbourne saw a "flood" of excess housing during the pandemic because strict lockdown rules and border closings caused the city to suffer a net loss of 80,000 people, or 1.6 percent of its population, while construction continued basically unabated. Helm estimated that those factors led to an excess supply of over 100,000

Other researchers have studied the impact of zoning changes on rents and prices. As discussed in part 3e, zoning changes, at least in the short-term, may not always result in new construction and will inevitably yield far less new construction than the full new capacity added by the zoning change. Accordingly, one would expect that the relationship between zoning changes and citywide or neighborhood rents will be attenuated. And studies generally confirm this, finding that while relaxing zoning reduces rents citywide, the effects are modest, and effects on neighborhood rents are mixed.¹⁵

New Research on Impact of New Homes on Neighborhood Rents: A number of recent studies have aimed to fill the knowledge gaps on localized spillovers and provide better evidence of the *causal* relationship between additional housing supply and neighborhood rents. The effects new construction has on neighborhood rents depends upon the relative magnitude of two opposing forces: the competitive pressure that additional supply exerts to pull rents, or rent growth, down, and any positive amenity effect that increases demand and pushes rents up. The amenity effect can stem from additional demand driven by the desire to live in neighborhoods with the wealthier, better educated, or “hipper” households that are likely to move to the new building. Instead, or in addition, it can result from additional demand driven by the desire to live

homes, and yet he reports that average market rents only fell by 12 percent. But generalizing from the pandemic housing market is fraught, given the complicated market dynamics.

¹⁵Kulka et al.(2023) (which as discussed in Part 3e infra, showed that zoning changes lead to increased housing production) found that monthly multi-family rents for apartments at boundaries where density regulations were relaxed fell by 4.2% and 6.9% , on average. Molloy et al. (2022) found that supply constraints significantly reduce the growth in the metro’s housing stock, but relaxing those constraints only reduced metro area rents by a modest amount, and the effect on rents was less than half the effect on house prices. They conclude that “policies targeted solely at alleviating housing supply constraints in supply-constrained areas would likely not bring down rents in these locations by a material amount” (ibid, 19). On the other hand, Büchler and Lutz (2022) studied zoning changes over a twenty-five year period in municipalities within the canton of Zurich in Switzerland, and found that upzonings of at least twenty percent led to more local housing supply, and lowered the rents in the entire housing market but did not affect neighborhood rents. Freemark (2020) found that a significant upzoning on Chicago did not result in much new housing construction, but increased the price of land that had been rezoned, which could then result in higher rents or housing prices once a parcel is developed. He also found that the rezoning increased the prices of condominiums nearby, at least in the short term.

near the businesses, cultural organizations, and other desirable amenities that are more likely to emerge in neighborhoods that have enough residents with similar tastes to support those amenities. In recent years, several studies have attempted to disentangle whether the rent-reducing effects of competitive pressures¹⁶ or the rent-increasing effects of amenity-driven demand predominate when new construction adds apartments to a neighborhood. These studies use several different methods to overcome the problem of endogeneity noted above, which is arguably heightened when studying impacts on neighborhood-level rents.

Most of the new research finds that new construction leads to decreases in rents (or in the rate by which rents are increasing) in the surrounding neighborhood. Asquith et al. (2023) gathered data from eleven different cities to study how the completion of new market-rate rental apartment buildings with 50 or more units affect rents in nearby buildings in low-income, central city neighborhoods. They used three different techniques to isolate the causal effects: a difference-in-differences comparison of the area within 250 meters of a new building to the area 250 to 600 meters away (the near/far difference); another difference-in-difference comparison of listings for apartments near buildings completed in 2015 and 2016 to those near buildings that would be completed in 2019 (but were yet to be constructed); and a triple differences approach comparing the near-far difference around 2015–2016 buildings to the near-far difference around similar buildings that would be constructed in 2019. Their strategy exploits the random timing of a building’s completion to control for the trends in demand that informed the developer’s

¹⁶It is also possible that new construction brings disamenities to a neighborhood, such as the noise, dust, and traffic congestion construction may cause, or the effect new residents may have on neighborhood schools or other services. Those disamenities, in addition to the competitive effects of additional supply, also could exert downward pressure on rents or rent growth.

selection of a building site.¹⁷ They found that “the average new building lowers nearby rents [within 250 meters of the new building] by 5% to 7%” relative to the trend rent growth otherwise would have followed, “translating into a savings of \$100 to \$159 per month” (ibid, p. 373).

Li (2022), similarly assessed how new market rate buildings of seven stories or more that received new building permits between 2000 and 2010 affected rents in buildings within 500 feet of the new building. She compared the rents in nearby buildings before and after the new high rise was completed, relative to trends in rents of buildings near land on which new high rises had been permitted but were not yet completed (thereby exploiting variation in completion times that is unrelated to demand). She found that for every 10 percent increase to the housing stock that new high rises add within a 500-ft ring, residential rents for the buildings within that ring decrease by 1 percent. The decreases were seen for nearby high- and medium-rent buildings, but were not significant in nearby low-rent buildings. Li also found that the new high-rises attracted new restaurants, but concluded that whatever increase in rents might have been caused by the demand created by the amenities was outweighed by the effects of additional supply.

Pennington (2021) examined the effects of new buildings constructed on sites that had suffered serious fires not caused by arson on the rents in nearby buildings in San Francisco, where strict land use regulation and geography significantly constrain developers’ ability to build new housing. Developers are essentially limited to building on sites from which they can remove existing buildings. But when a building is damaged by a serious fire, it is much more likely than

¹⁷While the initial permit for a building reflects the developers’ assumptions about demand, how long the developer takes to complete the building once permitted is essentially random, because so many causes of delays are outside the developer’s control (the time lenders take to approve loans, unusual weather, litigation from opponents of the building, difficulties in securing supplies or labor, unexpected architectural and engineering obstacles, changes in the region’s or country’s economy that affect marketing, and the like). Accordingly, exploiting differences in the date the buildings were completed allows researchers to study the effects of additional supply separate from the effects of the demand for housing that prompted the developer’s choice of sites.

other sites to have a new building put up because of the reduced time and cost of building on a site where there is no occupied building. Pennington found that monthly rents fell by about \$23 to \$43 relative to how they likely would have increased had the building not been completed, or roughly 1.2 to 2.3 percent for housing within 500 meters of a new project.

The research just described undermines the claims of supply skeptics that market rate housing will increase, or at least not decrease or slow the growth in rents in nearby buildings.¹⁸ In contrast, two recent studies found that adding supply is associated with increasing rents in the surrounding neighborhood.¹⁹ Damiano and Frenier (2020) used CoStar’s quarterly surveys of rental property owners in Minneapolis, MN from 2000-2018 to compare the rent trajectories of

¹⁸In addition to the studies regarding rents described in the text, various studies explore the effects that new construction has on the prices of for-sale homes in the city as a whole. See Greenaway-McGrevy (2023b) (estimating that zoning reform in Auckland, New Zealand lowered house prices across the city, relative to the counterfactual of no reforms, by 23 to 39 percent). Other studies explore the effects new supply has on housing prices in the neighborhood. See Anagol et al. (2023, p. 21) (examining changes that Sao Paulo, Brazil instituted in 2016 in the allowable density for individual blocks, and compared how housing production and housing prices differed six years after those changes were implemented between areas for which allowable density was increased and those in which it was not; finding that that more homes were listed for sale, and the prices at which homes were listed were lower, in those commuter zones in which greater density had been allowed by the zoning changes.); Wilhelmsson (2023) (finding that new multifamily construction in Stockholm had no effect on the prices of nearby single family homes, while new single family homes reduced the sales prices of surrounding homes); Chapple et al. (2022, p. 27) (comparing descriptive statistics on changes in the Federal Housing Finance Agency (FHFA)’s Tract-Level Housing Price Index for census tracts in which new construction occurred in the San Francisco Bay area between 2000 and 2019 to those for tracts in which no new housing construction occurred and finding that “[c]ounter to narratives that new production drives up housing prices, housing prices generally increased more in neighborhoods without new production, regardless of time period or geography”); González-Pampillón (2022) (finding that one standard deviation in the intensity of exposure to new housing, most of which was built on sites on which abandoned buildings or factories had to be demolished, increased the prices of houses by 12 percent within 200 meters but not beyond, especially if the nearby housing was lower quality, by exploiting the natural experiment of a tax incentive in middle-income Uruguayan neighborhoods); Piazzesi et al. (2020) (finding that increased housing supply in different neighborhoods will have differing impacts on housing prices based on the level of demand for that neighborhood); Diamond and McQuade (2019) (finding that LIHTC development in low-income neighborhoods increased nearby house prices by 6.5 percent, lowered crime rates, and attracted racially and income diverse populations; while LIHTC development in higher income areas caused house price declines of 2.5 percent and attracted lower income households); Ahvenniemi et al. (2018) (finding that infill development in seven neighborhoods in Finland generally had no effect on the sales prices of surrounding apartments).

¹⁹Nicolás González-Pampillón (2022, pp. 10-11) studies the effect of a change in tax policy to incentivize the construction of new housing in middle income neighborhoods in Montevideo, Uruguay, and finds that “rental value” reported by renters and imputed to homeowners on a national survey increased after the introduction of new housing. He uses that finding to evaluate whether the per capita disposable household income of residents near the new housing increased, and does not otherwise explore the effect the new housing had on rents, or draw any conclusions about how the new housing affected renters specifically.

buildings within 300 meters of 60 new market-rate apartment buildings to those of buildings between 300 and 800 meters away. They found that new buildings had no significant effect on rents in nearby units overall. But when they divided those buildings into tiers according to the rents charged in the ZIP Code before the new building was constructed, they found that the “new construction increased rent by 6.6 percent in the lowest rent tercile, had no effect on the middle tercile, and decreased rents by 3.2 percent in the highest tercile (ibid, p. 3). We find Damiano and Frenier’s methodology less persuasive than the other studies of the price effects additional supply has on rents in that they don’t exploit a natural experiment (like fires, weather, or random delays that lead some buildings to be completed after others) to separate the effects of increasing demand from the effects of additional supply. There also may be issues with their approach to standard errors.²⁰ That said, their results highlight the point that the effects of new buildings may vary across cities and contexts.

A second possible exception is Singh and Baldomero-Quintana (2022) whose research exploited the natural experiment arising from a change in New York City’s 421-a property tax exemption program. In 2006, the City announced a set of proposed changes to the program that would make the benefit less generous.²¹ In the two-year period in which developers were on notice that changes would occur, developers were motivated to rush to build in order to take advantage of the older rules. Singh and Baldomero-Quintana used the presence of one nearby

²⁰Damiano and Frenier use the quarterly reports of rents, attributed to each individual unit within a building each quarter, as their measure of rents, which inflates their sample size and yields low standard errors. It’s unclear whether all of these unit-by-quarter observations should be considered separate data points. Other studies use asking rents (which by definition only apply to those apartments in a building that are currently for rent) (Asquith et al., 2023; Mense, 2023; Pennington, 2021), newly reported contract rents (Greenaway-McGrevy, 2023a); or total rental income for a building (Li, 2022). The effect of those differences merits exploration. Their results also may be subject to estimation problems related to variation in treatment times in difference-in-difference regressions. See Goodman-Bacon (2021); see also Lens et al. (2021).

²¹ See Scott (2006); see generally Stein and Chatterjee (2022).

vacant parcel of land as an instrument for new construction during this period (proxied by building permits), on the theory that a single vacant lot is likely to be essentially random because of historical development patterns, characteristics of the land itself, or decisions of the owner about whether to sell, not because of factors related to the rent growth in the neighborhood. They found that overall, the grant of a construction permit for a building that would increase the rental stock within 150 meters of an existing building by 1.0 percent results in a 1.8 percent rise in rents in that existing building. They provide evidence that this increase was driven by the effects of new units in census tracts with below-median city income. Importantly, the increase in rents comes during the period between permit issuance and building construction, but then declines as the new units come online and actually add to the supply (ibid, 5 n.7, pp. 24-25), so it's not clear whether their results really differ from other studies. Further, it's worth noting that they study a unique time period - the time leading up to and during the Great Recession.

In sum, significant new evidence shows that new construction in a variety of settings decreases, or slows increases in, rents, not only for the city as a whole, but generally also for apartments located close to the new construction. The papers that reach a contrary result raise important questions about what differences in the local context might determine how new supply affects rents in the surrounding neighborhood. We return to those and other observations about gaps in the current research in Part 4.

b. Do increases in the supply of market rate housing harm lower-income residents by leading to gentrification and/or displacement?

Many discussions argue that new construction will harm lower-income residents by gentrifying lower-rent neighborhoods, displacing current residents of those neighborhoods, and leaving them no place in the city that they can afford. That concern is particularly acute for

BIPOC residents, who are more likely than others to face discrimination as they try to find other places to live and less likely to have the resources to meet the expenses involved in moving. Worries about displacement often treat gentrification and displacement as the same thing, but as Pennington (2021, p. 3) noted: “Displacement happens to people; gentrification happens to places.” Further, gentrification may happen without displacement if the population of high-income residents increases without any change in the mobility patterns of low-income residents. More generally, neighborhoods can see a fair amount of turnover and demographic change in any given year regardless of gentrification, as people leave to pursue school or jobs, to be closer to family or friends, or as their housing needs change, and lower-income residents tend to move more than other residents. Ultimately, neighborhoods change because of changes in the composition of in-movers (Ellen, 2000). And displacement may happen without gentrification if people who want to remain in a neighborhood are pushed out because they can’t afford their rent, or their homes are converted to some other use, but they are replaced by new residents from the same demographic or even lower incomes.

Thus, it is important for researchers to distinguish between three different issues – whether new construction: a) leads to gentrification that was not already underway; b) follows gentrification but slows, accelerates, or doesn’t affect that trend; and/or c) leads to displacement.²² As to the first issue, Asquith et al. (2023) found that the new buildings they studied were typically built in neighborhoods that were already in early stages of gentrification (as indicated by rapid increases in the neighborhood’s share of college educated residents). They did not examine how the new construction then affected the gentrification trends.

²²There is a growing literature examining whether gentrification may have effects on lower-income households other than displacement. See, for example: Brummet and Reed (2022); Dragan et al. (2020); Su (2022).

As to how new construction affects changes in the neighborhood's share of particular demographic groups, most new studies find some evidence that new construction is followed by a net increase in the number or share of wealthier, more educated households in the neighborhood.²³ If the new buildings add a significant number of apartments to the neighborhood that are occupied by higher-income households or people with more years of education, that in itself (all other things being equal) may lead the neighborhood to meet common definitions of gentrification. As we will discuss in the next subsection, a number of moving chain studies show, however, that new market rate construction is not filled exclusively with higher income residents.²⁴

To assess whether the new buildings trigger demographic changes in surrounding buildings, Pennington (2021) used individual level data on 1.24 million people who lived in San Francisco at some point during her study period, and found that parcels near new construction were more likely than those further away to experience gentrification, which she defined as a net change in higher-income residents that is larger than the net change in lower-income residents, following the construction. She found that, as expected, gentrification resulted in part because those households moving into the new building were more likely than those moving into parcels further away to be coming from higher-income ZIP Codes. But she also found that gentrification

²³Cf. Nathanson (2020) (using a structural model to estimate the effects of new construction in the Boston metropolitan area and finding no evidence that new construction would lead to gentrification for the metropolitan area as a whole, but that every 100 units of new market rate construction allows 47 households in the lower quartile of the metro income distribution to remain in the metro area (or to migrate into the metro area from other jurisdictions).

²⁴Bratu et al. (2023, p. 4) found that about 50 percent of new market-rate building residents in the Helsinki metropolitan area originated from ZIP Codes that were in the bottom half of the metropolitan area's neighborhood income distribution. The authors observed similar patterns for household education levels. Mast (2023, p. 5) also found that those moving into the new buildings in twelve large central cities came from a range of neighborhoods: while the new building residents largely originated from nearby high-income areas, 20 percent of the within-metro arrivals moved in from below-median income tracts.

is more likely to occur near the new buildings, estimating that parcels within 100 meters of the new market rate construction receive one additional higher-income arriver per new project than parcels further away, corresponding to a 2.5 percentage point increase in the probability of gentrification.

Others also have found that new construction is followed by changes in the composition of the population in the areas in which the new buildings were located. Singh and Baldomero-Quintana (2022) studied the new housing that was permitted during a rush to build before the rules for a tax exemption for new construction changed, and found that the permitting of a new project during that rush resulted in an increase in college educated, higher-income, younger, and white residents in the census tract over the next ten years.²⁵ Similarly, González-Pampillón (2022) used a natural experiment in Montevideo, Uruguay resulting from a change in tax incentives that doubled the amount of new construction in the subsidized blocks (middle-income neighborhoods accounting for about half of the city's urbanized area) to measure the effect the new housing had on the per capita income of residents. He found evidence that the neighborhoods that received large investments in new housing saw an influx of more affluent residents.

In contrast to these studies, Asquith et al. (2023) found that large new market-rate buildings that were the first built in central-city low income neighborhoods during the study period decreased the average origin neighborhood income of in-migrants to the nearby area by about 2 percent and increased in-migration from neighborhoods with incomes below two-thirds

²⁵The permitting of a new project also increased the number of businesses such as restaurants that are attractive to higher income residents. Li (2022) also found that new buildings in New York City resulted in more income-elastic businesses like restaurants.

of the CBSA median by about 3 percentage points. Chapple et al. (2022, pp. 61-62, 99-100) used linear probability models to assess how new construction affected in-migration, and also found that new construction led to increased in-migration from all socio-economic groups.²⁶

As to how new buildings affect displacement, in their study of new construction in low-income central city neighborhoods across a number of different cities, Asquith et al. (2023, p. 365) found that “net migration from low-income areas does not meaningfully change during the sample period. While this evidence is not causal, it is inconsistent with large displacement effects of new buildings.” Pennington (2021) used the randomness of fires that destroyed existing buildings to study the causal effect of new construction on whether people living near new construction move out of the area to ZIP Codes within San Francisco with median incomes at least ten percent lower than the ZIP Code in which they lived near the new construction. She found that on average, the risk of displacement falls by about 17 percent for households living within 100 meters of an additional new project.²⁷

Chapple et al. (2022, pp. 95-99) found mixed evidence about displacement. They used linear probability regressions and two different datasets tracking individual moves in the San Francisco Bay area to estimate the probability that a resident will move out of their census block group after new housing is built. One of the two datasets used suggests that new construction is correlated with slightly higher out-migration (a 1 to 2 percent increase) for the lowest-income

²⁶When the new housing is built in highly-gentrifying areas, however, Chapple et al. do not find increased rates of in-migration by people with lower socio-economic status when using the FRBNY consumer credit panel data (Chapple et al., pp. 61-64).

²⁷Further, Pennington (2021) finds that the probability of an eviction notice at a rent controlled unit drops by 31 percent within 100 meters of a new project, and remains the same for uncontrolled units.

groups (ibid, 5, p. 95). The second dataset did not find evidence of increased out-migration, however.²⁸

In sum, the new research finds that new construction of market-rate housing both follows changes in the share of the population that have higher incomes or more years of education, and is followed by such changes. Those changes occur both because of the new residents of the new building itself and through spillover effects in the surrounding areas. The research is not completely consistent, however, with two studies finding that areas surrounding new construction see an increase in the lower-income share of in-movers to the neighborhood. The causal evidence on displacement suggests that new construction either mitigates displacement or elevates it quite modestly.

c. Does new housing make existing housing more affordable through filtering or chain moves?

Supply skeptics argue that most new housing is “luxury” housing, aimed at the top of the market, but that “[t]he only increase in housing supply that will help to alleviate. . . [the] affordable housing crisis is housing that is truly affordable to low-income and working-class people” (Aguirre et al., 2016, p. 1). Skeptics often deride the “trickle-down” arguments that housing becomes affordable to lower-income households as it ages and depreciates and consequently “filters” down through housing submarkets. Even those skeptics who acknowledge that filtering occurs argue that it takes decades to become available to lower income households

²⁸Singh and Baldomero-Quintana (2022, p. 40) argued that evidence of gentrification, combined with a reduction in enrollment in local public and charter schools in areas near new buildings, “suggest that low-income families in New York City are displaced from neighborhoods that gentrify due to new residential investment” but provided no direct evidence of out-migration by low-income households. An alternative explanation is that the households moving to census tracts in which new buildings were permitted were less likely to have children or more likely to enroll their children in private schools (which could reduce the enrollment in the public and charter schools without displacing lower-income households).

(Williams, 2021). In our 2019 article, we agreed that cities have many housing submarkets, that new construction (other than subsidized housing) tends to supply the medium and high-end submarkets because new housing is quite expensive to build, and that it can take many years for new homes to decline in quality and filter down to lower-priced submarkets. But we noted that new housing built for the more expensive submarkets can fairly quickly make lower-rent submarkets more competitive by sparking chains of moves, some of which will free up lower-rent apartments. We also pointed out that new housing can divert demand from lower-cost neighborhoods by providing an alternative to households who otherwise would buy older housing and rehabilitate it to meet their needs (so that the housing filtered “up”).

In the last few years, researchers have drawn on new consumer reference datasets to show that new housing does indeed trigger chains of mobility. They show that as households vacate the cheaper units they occupy to move into the new units, competition for the units they leave is reduced. Other households then move into the existing units left vacant, freeing up a lower-rent apartment for another round of moves, and so on. Mast (2023) used address histories to determine the previous address of 52,000 current residents of 686 large new market-rate multifamily buildings in above-median income tracts within five miles of the central business district in 12 large central cities.²⁹ Using the prior residence of the tenants currently living in the buildings the first round of movers vacated, he found that as expected, the residents of the new building largely move from nearby high-income neighborhoods: 67 percent are from the same

²⁹New York City, Chicago, Dallas, Houston, Washington, Philadelphia, Atlanta, Boston, San Francisco/Oakland, Denver, Seattle, and Minneapolis. Mast notes that the data he used is not very reliable in capturing moves by people under 25, so that markets in which many residents are younger may not show the same effects (although the effect their moves would have on competition would theoretically be similar, they may have different mobility patterns).

metro area, primarily from nearby high-income areas,³⁰ but 20 percent arrive from census tracts within the metro area that are below the area's median income. In each subsequent round of moves, the share of households moving to the unit vacated in the earlier round from lower-income areas increases, reaching 40 percent in the sixth round. Mast concludes: "This exercise suggests that the reallocation resulting from new housing construction spans a diverse set of neighborhoods and is likely to loosen a wide spectrum of housing submarkets" (ibid, p. 2).³¹

Bratu et al. (2023, p. 2) examined chains of moves in the Helsinki metropolitan area, using detailed Finnish population-wide register data. They found that while new housing built in expensive areas of the city primarily housed the better-off, the moving chains triggered by these new units quickly reached middle- and low-income neighborhoods. Over a two-year period, "for each 100 new, centrally located market-rate units, roughly 31 (66) units are created in the bottom-quintile (bottom half) of neighborhood income distribution through vacancies."

Bratu et al. were able to go further than Mast because they had data both about the actual unit (rather than just the building), and about the individual characteristics of the movers. Using data on the actual income of the mover households, they found that "by round four, 50 percent of movers are ranked in the bottom half of the national level household income distribution" (ibid.

³⁰The proportion of first-round in-movers coming from the metro area varied from 54 percent in Denver to 76 percent in New York City, and the share coming from the city in which the new building is located also varies considerably, from 38 percent in the Boston metro area to 68 percent in the New York City metro. Because Mast ends a chain when the in-mover vacates a unit outside the metro area (to avoid distortions that might cause to the demographic), his methodology may understate the effects of the moves (because lower income units that become available outside the metro area in which the new building is located are ignored) or overstate those effects (because demand the new supply may create from outside the metro area is ignored).

³¹ Mast supplemented his descriptive analysis with a simulation of what would have happened if a household had moved to tracts that they likely would have found attractive if the new construction had not been available, and so on, throughout the chain. He found that in the simulation that assumes marginal increases in supply, building 100 new high-end units reduces demand in below-median income neighborhoods by the equivalent of adding 70 older units to those areas, with almost 40 of those units falling in the bottom quintile of the metro area's median income. In the more conservative simulation that captures the effects of a larger supply increase and consequent increases in in-migration and household formation, that number falls to 45.

p. 2)³² The authors conclude that their results show that “low-income individuals also benefit from new expensive housing through a moving chain process, even when the new units are allocated to individuals higher up in the income distribution” (ibid, p. 7). Perhaps most importantly, the researchers were able to compare move chains sparked by new market-rate high-rent buildings to those chains resulting from moves into new rent-controlled social housing built in the center city in order to promote mixed neighborhoods. While the first rounds of moves into the new social housing looked very different from the moves to the new market-rate buildings (presumably because of eligibility requirements), “in later rounds, the movers in both chains are quite similar with respect to their origin neighborhoods and socio-economic makeup” (ibid).

Similarly, Mense (2023), described above, observed that his finding that increases in new housing supply caused average local rents to fall could not be explained just by the competition the new units posed for existing comparable (newer and high-rent) units. Accordingly, he also explored whether additional supply affects those units not necessarily in direct competition – the lower-priced rent stock. He found that additional supply reduces the rents even of those apartments, which he posited resulted because households moving into the new, higher-rent units move from units of varying quality and price, which frees up apartments at a number of quality levels, providing competition and lowering prices across the rent distribution. Indeed, he estimated that “one newly supplied housing unit triggered about 4.75 moves in the rental market in the subsequent twelve months” (ibid, p. 24). His results suggest that “restrictions to market-rate housing supply are harmful to low-income renters, as even the

³²The data also allowed them to observe moves from very small areas in order to reduce the chance that movers from lower-income neighborhoods are actually higher-income residents who happen to live in a generally low-income neighborhood. The individual level data also allowed the research to focus on the household changes associated with the moves. The analysis showed, for example, a significant number of moves involved in later rounds were young adults leaving their parental home.

supply of single-family homes can lower this group's housing cost burden" (ibid, p. 23). He also found that the effect on rents across the rent distribution was even larger in markets facing strong growth in demand.

These moving chain studies reveal the short term effects new market rate construction can have on lower-cost housing. The longer term effects are also critically important, and new research explores the original meaning of "filtering" – situations in which housing depreciates as it ages, rents for less, and becomes available further *down* the income ladder, or in which the older housing becomes desirable for households further *up* that ladder who out-compete lower-income households for the housing. Liu et al.(2022, p. 1) modeled the filtering of new homes in 180 MSAs, and found that "filtering rates can range from about a -1.61% annual rate of downward filtering for Topeka, Kansas to a 0.71% upward filtering rate for San Francisco, California." They estimate filtering rates using repeat sales data created from home mortgage transactions on owner-occupied properties sold at least twice with Freddie Mac mortgages originated between 1993 and 2018. No rental properties are included, which the authors note likely significantly underestimates the extent of filtering. The authors find that, across the nation, the average real income of an arriving household in a 40-year-old property is about 16 percent lower than that of a new property, which translates to downward filtering at a rate of about 0.42 percent per year. As homes reach 60 years old, however, those not demolished or converted to rentals filter up on average, so that purchasers have higher incomes than the sellers. Filtering varies substantially among metropolitan areas, with lower rates of downward filtering in areas with high home price growth, high income growth, more restrictive land use regulations, lower elasticity of supply (as supply becomes less responsive, increases in demand are met more with price increases than with additional supply), and gentrification (defined as low-income areas

experiencing increases in house prices and in the share of college-educated residents). Even within those areas, however, there are neighborhoods that see significant filtering to lower income owners, with those areas closest to the center of the city tending to see upward filtering between 1993 and 2018, and areas further away experiencing downward filtering.

Several studies have found variation in the filtering dynamics of individual cities.³³ Nygaard et al. (2022) for example, studied filtering in selected cities in Australia. They found that in Sydney, the rental value of older rental properties declines with the age of the property, which suggests that filtering is occurring, but that the deterioration of the quality of the unit is interrupted (by rehabs or sales) before the housing reaches low income households. In Melbourne, they found “limited evidence that age-related filtering is a significant source of low-income housing” (ibid, p. 25). The researchers noted that downward filtering can only work when the supply of new housing (net of demolitions or conversions of older housing) is sufficient to meet new demand caused by new net in-migration or new household formation, which is not the case in Melbourne (where supply is almost completely unresponsive to demand).³⁴

To summarize, new research tracing the chains of moves that new construction sparks provide substantial evidence that new construction frees up apartments in a variety of neighborhoods across the income spectrum, and therefore provides additional competition that

³³ See also Turner and Wessel (2019), which studied chains of moves in Oslo, Norway, and found that filtering there had been quickly interrupted. The authors attribute the breakdown to a poorly functioning rental market (which accounts for only 20 percent of the housing), the absorption of many vacant units by households who are not leaving any other unit vacant (people who are in-movers from other places in Norway, divorcing couples, or immigrants), and the fact that many ownership units are not available to lower income households because they are quickly taken by more privileged people leaving their parental homes to form their own households.

³⁴ Relatedly, Hansen and Rambaldi (2022) find that supply constraints slow the filtering of homes down the income distribution, and may contribute to upward filtering as well.

can lower rents (or slow rent growth) in neighborhoods across a city or metropolitan area, not just in the area surrounding the new construction and not just in higher-rent submarkets.

Research on the more traditional notions of filtering, in the sense of housing renting for less and less as it ages, and therefore “moving down” to lower-income households, or becoming more desirable to higher-income households, who offer more to purchase or rent the housing so that it filters “up”, shows that the role filtering plays in providing more affordable housing depends critically on the supply of new housing and other features of the local housing market.

As we noted in 2019, filtering or other market mechanisms will not secure enough affordable housing to meet the needs of all households. Some households have incomes too low to afford even the lowest rent a landlord can charge and still profit after paying for expenses. Some form of housing subsidies will be required to fill the needs of those households. But as increases in housing supply moderate increases in rents, the gap the government will have to fill between what the household can afford and market should decrease.

d. Is the problem a shortage of housing, or inefficient use of our existing housing?

The argument that more efficient use of existing housing, or conversion of buildings now being used inefficiently for other purposes, is a better approach to the affordability crisis than building additional supply is a claim that depends almost entirely on local context. How property is used within a housing market varies widely, and is a complex response to demand, tax policies, state and local regulation of land use and rental housing, and other local characteristics. Supply skeptics point to uses they consider inefficient, such as wealthy households holding apartments for seasonal or occasional use only, investors holding apartments empty or using them as short-term rentals, or current owners continuing to use buildings for purposes that have

become less valuable than housing. Answering those concerns requires attention to factual questions about how properties in a jurisdiction are actually being used, along with analyses of the potential returns from various uses and identification of the specific barriers to moving them from their current state to occupied housing. It's worth noting, though, that these arguments actually underscore the importance of supply on affordability, as they charge that these other uses are taking homes away from the long-term rental stock, and thereby putting heightened pressure on rents. The argument is more about the right policies to tackle the problem rather than questioning the value of a robust supply of housing.

To date, research on the regulation of short-term rentals suggests that such regulations help to boost the supply of long-term rentals and lower rents in areas with heavy demand from tourists (Koster et al., 2021). Recent research about the effects second home purchases have on the housing market find that second homes have negative effects on existing owners of primary homes and on renters in some types of jurisdictions (Favilukis & Van Nieuwerburgh, 2021; Ihlanfeldt & Yang, 2023). But more research evaluating measures to tax or prohibit ownership by investors or the owners of multiple homes, or prohibitions on warehousing of apartments or on short-term-rentals, along with analysis of programs and policies to encourage conversion of offices or other uses to housing is important to pursue. Further, regions, states, and the federal government have an interest in understanding whether one jurisdiction's restrictions simply move the problem to another jurisdiction. Part Four below discusses the further research needed in more detail.

e. Does relaxing the restrictiveness of land use regulations actually lead to increases in supply?

The last argument skeptics make is not so much an argument that supply won't affect rents, but instead that changes in land use regulation won't actually produce much additional supply. As Lo et al. (2020, p. 3, footnotes omitted) explain, land use reforms might not result in significant additional supply for a number of reasons: “. . . [Z]oning is just one factor in a complex system of structures that affect housing development. These factors include financing options, cost burdens, and risk calculations for developers; developer education; and code alignment (both within a zoning code and across other departments' codes).”³⁵ In addition, land use regulatory change typically follows the boundary lines of existing neighborhoods or parts of a neighborhood, or roads or natural features such as rivers, and therefore often will involve many parcels that are already developed and may be unlikely to redevelop to take advantage of the regulatory relief. Changes also sometimes include parcels that suffer from development barriers that the relief may not address (such as geological features), and even parcels that are relatively easily redeveloped may be held vacant or underused if owners believe it is not yet the optimal time for development.³⁶ Further, even for lots on which development is planned, labor shortages, delays in the supply chain for materials, and waiting lists for subsidies such as Low Income Housing Tax credits, may postpone the results of a zoning change for years. Most importantly, land use restrictions are a constraint on development only where there is existing demand; relaxing constraints, without more, will not create demand.

³⁵ The early evidence about recent reforms also suggests that multiple iterations may be required to make them effective at producing more housing (Alameldin & Garcia, 2022).

³⁶ For discussions of owners' decisions about the optimal point at which to develop land, see Murphy (2018); Murray (2020, 2022).

Freemark (2023, p. 2) surveyed the literature early in 2023 and concluded that the research “shows that upzoned areas may or may not experience increased housing construction over the short-term but likely experience small increases over the long-term, compared to areas without such changes.” He reports that most of the research involves relatively small upzonings, but that “early data suggest that [larger scale] upzonings generate positive effects on regional construction and affordability.”³⁷ He cautions, however, that the research is mixed, and even the studies that found increased supply following an upzoning show that the level of construction that occurs falls far short of the increases allowed by the regulatory change because many affected parcels do not experience investment in the years or even decades that follow.

As Freemark describes, a number of recent studies found an increase in construction following upzonings, but were unable to establish a causal link between the zoning reforms and building activity, or in some cases, to separate the effects of the reforms from the influence of other variables, such as demand, that may also have driven the reform (Blumgart, 2022; Freemark, 2021; Gray & Millsap, 2020; Kober, 2020; Schuetz, 2020).³⁸ Most of those studies looked at new construction in the five to ten years after land use changes were adopted.

³⁷For a helpful discussion about why broad rezonings are likely to generate additional housing supply, and improve housing affordability, see Phillips (2022).

³⁸ Several studies completed since Freemark’s review also have found associations between specific regulatory changes and increases in the supply of the types of housing the reforms targeted, but were unable to prove that the reforms caused the additional building. Wegmann et al. (2023) assessed the effects of changes to Houston’s land use laws that allowed townhouse development on single family lots, and found that redevelopment allowed by the change constituted close to 20 percent of all new townhomes built in Houston. Huennekens (2023) describes how loosening zoning restrictions to allow denser housing in the Monsey neighborhood of Ramapo, New York indeed led to a dense enclave in an otherwise suburban area. Marantz et al. (2023, 3) reviewed laws adopted by California between 2016 and 2020 to encourage ADU development, and found that between 2018 and 2021, ADUs represented an increasing and “substantial” share of recent housing permits; cf. Gerecke et al. (2022) (finding that the number of ADUs completed in Los Angeles increased substantially after state land use reforms required local governments to allow ADUs, lot splits, and duplexes); Lo et al. (2020) (finding limited responses in the three years following ADU reforms in Washington DC, but more significant responses over eight years to similar reforms in Portland, OR).

Another study included in Freemark’s review, by Stacy et al. (2023), is noteworthy because the research team built a cross-city panel dataset of land-use reforms in the United States that increased or decreased allowed housing density and estimated their association with changes in housing supply. They found that reforms loosening

Several recent studies Freemark reviewed, however, have provided methodologically rigorous assessments that merit more attention here.³⁹ Several have looked at relatively short term effects (between five and ten years after adoption). Anagol et al. (2023), for example, examined a change in policy that allowed the city of Sao Paulo, Brazil (rather than neighborhood authorities) to assign a maximum built-area-ratio (BAR) to each block in the city. The research used both variation in when the allowable density changes were made and block level differences in the reforms to analyze the effects the changes had on housing supply within each block, and subsequently, on the rate of housing price and rent growth. The policy change allowed an average of 36 percent more construction for a given lot size, and resulted in greater allowable density in more than half the city's blocks. Comparing blocks on which the max BAR was increased to blocks on which it was not, the researchers find a 66 percent increase in permits per unit of max BAR on treated blocks relative to nearby control blocks as soon as a year after the change in max BAR. Six years after Sao Paulo instituted the change, the researchers found that total housing units for sale increased by 10 percent on blocks in which BAR was increased, as well as in aggregations of the blocks that represent larger neighborhoods.⁴⁰ As for the city as a

restrictions are associated with a statistically significant 0.8 percent increase in housing supply (both new and existing housing) within three to nine years of reform passage. But the cross-sectional nature of their data does not allow them to confirm a causal relationship between the land use reforms in their database and supply outcomes, because they cannot account for all potential endogenous relationships. They also cannot link the reforms to particular parcels of land or neighborhoods.

³⁹ We focus here on research about whether policy changes that relax land use restraints result in increased supply. There is also new evidence that as the restrictiveness of land use regulations increases, the supply of new housing decreases. See Stacy et al. (2023) (measures to tighten land use regulations were associated with a reduction in units affordable to middle-income renters); Shanks (2021) (using a spatial regression discontinuity design around municipal borders, and finding that stringent land use regulations reduce housing supply); Murray and Schuetz (2019) (regression results provide evidence that more restrictive zoning correlates with less multifamily development).

⁴⁰See note 18 supra: the research also found that the prices at which homes were listed were lower in those commuter zones in which greater density had been allowed by the zoning changes.

whole, the authors estimated that the policy change would result in a 1.9 percent increase in the overall housing stock over the subsequent ten-year period.

Another large-scale rezoning that has prompted a number of studies occurred in 2016, when Auckland, New Zealand upzoned more than 75 percent of its land. Greenaway-McGrevy and Phillips (2023) exploit geographic variation in the parcels subject to the upzoning to estimate causal effects by comparing changes in supply in upzoned areas to those in non-upzoned areas. They pay particular attention to the possibility that the upzoning simply changed the location of new housing rather than leading to a net increase in supply. Using pre-trends in the control (non-upzoned) areas to construct a counterfactual to bound their estimates, they find significant evidence that the upzoning increased housing construction, and estimate that the upzoning generated almost 22,000 additional dwellings over the five years following the zoning reform, a number equal to 4.11 percent of Auckland's housing stock. Helm and Murray (2023) have criticized the study on a number of grounds, especially because it assumes a linear trend for the counterfactual that ignores cyclical booms and busts; Greenaway-McGrevy (2023c) responded to some of those criticisms.

Other studies have looked at much longer periods after land use changes to assess the effects on new construction. Kulka et al. (2023) used cross-sectional variation in the adoption of zoning regulations between 1918 and the late 1950s across 86 municipalities in the Greater Boston area and a boundary discontinuity design using data on the housing stock in the 2010s to study the effects of differences in zoning between parcels located on either side of a zoning boundary within the same municipality, school attendance area, and broad-use zoning district. While the comparison is between the less restrictive and more restrictive sides of the boundaries of areas with different zoning regulations, rather than before and after a zoning change (the focus

of the studies discussed above and in Freemark’s review), the research is instructive because it highlights that the effect a zoning change may have on supply will depend upon whether the restriction is a binding constraint on development. They found that relaxing density restrictions (either alone or in tandem with other regulations) increased the supply of housing units at the boundary between 9 percent and 109 percent. They also found that zoning to allow multi-family housing doubled the chances that a given property within that zone is an apartment building rather than a single-family house. On the other hand, height restrictions did not appear to be binding constraints on development.

Murray and Limb (2023) observed more than 25,000 sites across 19 areas that had been upzoned for greater density in Queensland, Australia over a 20-year period. They found that the regulatory changes created considerably more zoning capacity than developers chose to use over the twenty years, so that while zoning capacity increased by 101 percent, new dwellings increased by only 33 percent. Nevertheless, accounting for the lag in development following a zoning change, they find that zoning capacity is positively related to the growth in new housing.⁴¹

Büchler and Lutz (2022) studied upzonings in municipalities in the Canton of Zurich, Switzerland over a 25-year period, exploiting differences in the timing of different municipalities’ decisions to rezone to identify causal effects, and comparing development on

⁴¹Murray and Limb then sought to use the data about the parcels for which allowable density was increased to test whether the development on those parcels followed a “planning” or an “economic” theory of development. According to their planning theory, areas rezoned with the highest allowable capacity would see the faster growth in new housing than areas with less capacity (which they found to be true), and such increased development would lead to slower growth in prices in those higher capacity areas (which they found was not the case). On the other hand, their economic theory would suggest that demand, rather than zoned capacity, will determine the growth in new housing, which they found to be true. They concluded that “changing planning systems to facilitate “missing middle” and high-density housing by increasing zoned capacity is unlikely to result in noticeable housing price effects (ibid, 130).”

parcels “treated” with an upzoning versus those not-yet upzoned in the remaining municipalities. They found that upzonings of 20 percent or more led to a 13 percent increase in housing supply on the treated parcel over the following ten years.

Dong (2021, p. 11) studied the effects of upzonings that Portland, Oregon undertook in the early 2000s by comparing development on upzoned parcels with control parcels (not upzoned) that were identified through propensity score matching. He found that the upzonings “were about two times more likely to experience development or redevelopment in the 15 years after upzoning.” He noted that only about five percent of the upzoned parcels were developed in those years, however, “because the majority of the upzoned parcels were already developed before upzoning.” He also compared vacant and underused parcels in higher density, low-rise primarily multi-family residential zones⁴² to vacant and underused parcels in medium density single family zones matched through propensity scores. He found that vacant and underutilized parcels in the higher density multi-family zones produced about three times more housing than their counterparts in the medium density single-family zones. He concluded that upzoning and higher density zoning “speed[.] up housing developments and increas[e] housing supply.”

A few research teams, however, have found that land use changes generated little effect, or even reduced net new housing. Gabbe et al. (2021) found that a 2011 planning initiative in San Jose, in which the city designated “urban villages” to which it hoped to direct growth, had “quite limited” effects on actual construction permits. It is important to note that the study did not actually measure the effect of land use change, because the designation of areas as “urban villages” did not in fact change any existing land use regulations, but merely enabled plans to be

⁴²One of the higher density zones was a single-family zone; the other three were zoned for multi-family.

developed for the villages, and assumed that those plans would call for upzonings and other changes in the land use system. But eight years after the general plan was adopted, only 13 urban village plans had been approved. Further, the designations of urban villages did not result in many upzonings or other changes during the time studied.

Freemark (2020) took advantage of a natural experiment to examine how rezonings affect new construction when Chicago upzoned a large number of parcels in 2013 and 2015 across neighborhoods with different economic conditions, but without specifically targeting areas planned for redevelopment. Using a series of difference-in-differences tests, combined with a hedonic model that controlled for property- and neighborhood-level characteristics, he found “no evidence for short- or medium-term increases in housing-unit construction,” even five years after the rezonings were implemented (ibid, p. 759). As Manville et al. (2022, pp. 49-50) note, Freemark’s study focused on parcels within 600 or 1200 feet of a railway station in Chicago, some of which were zoned for uses other than (or in addition to) housing, and many of which were already occupied by condominiums (which are very hard to replace with denser buildings). They conclude that Freemark’s results therefore “may offer limited lessons for broad upzonings, and especially broad upzoning of residential parcels outside of developed neighbourhoods in dense central cities.”⁴³

Krimmel and Wang (2023) offer cautionary evidence about the unintended consequences of pairing upzoning with affordable housing or other requirements. They evaluated the results of Seattle’s Mandatory Housing Affordability program (MHA), which relaxed zoning regulations in 33 neighborhoods to allow denser new development, but also required either a set aside of

⁴³See also Freemark’s (2019) response to the use of his article as a reason to oppose upzoning policies.

affordable units or contributions to an affordable housing fund. They found that in the three years after the policy was adopted, new development in rezoned areas fell, and shifted to lots just outside of the rezoning area. Their results show that any value recapture mechanisms paired with rezonings must be priced very carefully and be flexible enough to work across market cycles and across neighborhoods with different levels of demand.⁴⁴

While the majority of the evidence finds that new construction increases following zoning change, the mixed evidence confirms a point Asquith et al. (2023, p. 374) made: “relaxing land-use regulation is quite complicated in practice. The particulars of a reform could matter both for how much supply is actually added and, depending on the incentives built in (such as encouraging redevelopment of the existing housing stock versus vacant land), the local effect of that new supply.” It also suggests caution in predicting how much new construction actually will result from any land use change – it will be less than the capacity created if the parcels rezoned already have some development, and will depend upon demand, financing, labor, and supply constraints, and the ability and willingness of the regulators to comprehensively change all the different regulations and processes that may be serving to inhibit new construction.

4. Conclusion and Future Research Directions

Recent evidence provides additional reasons to counter the supply skepticism that has caused a significant backlash to efforts to reform land use regulations to allow housing supply to increase in areas seeing high demand for housing and low affordability. Research over the past few years,

⁴⁴See, e.g., the debate between Kim (2020); Kim (2023) and Murray and Gordon (2023).

combined with what prior research surveyed in our 2019 article already revealed, provides considerable evidence that:

- Increases in housing supply decrease (or slow the growth in) rents in the region.
- While the evidence is somewhat mixed, at least in some circumstances, new construction also reduces rents or the rate of growth in rents in the surrounding neighborhood.
- The chains of moves sparked by new construction, and the alternatives the new construction gives higher-income households who might otherwise renovate older housing, works across a jurisdiction to free up apartments that are then rented (or retained) by households across the income spectrum.
- While studies generally find that supply is associated with increased gentrification (defined by reference to increasing income and education levels), it has not been shown to cause significant displacement of lower income households (and indeed some studies find new buildings have been shown to reduce the probability of displacement).
- Easing land use restrictions, at least on a broad scale and in ways that change the constraints that actually bind development in areas that are in demand, generally leads to increases in the supply of housing, but those increases take time, and will be only a fraction of the capacity created because of all the other factors that determine what gets built where.

The current evidence accordingly gives little support for the claims of supply skeptics. Further, it is important to remember that the arguments supply skeptics make, and much of the research those arguments have spurred, focus on the effects new construction has on its

surrounding neighborhood. There is little controversy that new supply helps to lower rent growth and displacement for the larger city or region, and while it is certainly important to focus on the local effects the new supply can have, it is also crucial to keep the larger citywide and regional interests in mind.

All that said, research continues to be needed to fill in remaining gaps in our understanding of how best to reduce inefficient barriers to new supply while minimizing any local effects new supply might have in increasing rents or displacing current residents. As Part 3a explains, at the neighborhood level, new construction has both supply effects (the downward pressure on rents resulting from the additional competition new supply provides) and amenity effects – the upward pressure resulting from desirable amenities associated with the new construction and the changes people it attracts to the neighborhood help to bring about. More work needs to be done to understand the circumstances (such as neighborhood conditions, the scale and types of new construction, and the nature of amenities attributable to the new construction) under which amenity effects may overwhelm the supply effects. Further, more research would be helpful to understand the timing and persistence of the supply and amenity effects. Molloy et al. (2022) found that regulatory change (not new housing construction) affected rents less than housing prices, which is perhaps expected given that renters care less about longer run changes to a neighborhood. But the difference between impacts on prices and rents merits more exploration. All this research would benefit from more reliable data on rents, as we noted in 2019, so it remains critical to find better ways to track rents that enable comparisons over time and among jurisdictions.

Second, researchers need to address how the effects of new construction may interact with other changes in urban form, housing markets, legal regimes, technology, and the

challenges global warming poses. As to urban form, while most of the research on new supply focuses on multifamily construction, many single-family and 2-4 family homes are used as rentals, and efforts to increase supply through accessory dwelling units and other forms of gentle densification are starting to bear fruit (Alameldin & Garcia, 2022; Garcia, 2017). Thus, more attention to the effects of relatively small additions to a low density neighborhood's housing stock will be helpful. And as technology improves to the point where asking rents can shift on an hourly basis ("dynamic pricing"), attention to how new construction affects not just asking rents for vacant apartments but also increases for tenants renewing their existing leases will be important. So too will research on whether even the announcement or permitting of new construction may affect the models used to set rents for older apartments nearby. While Chapple et al. (2022) have begun to examine the effects of new supply in jurisdictions with different subsidized housing construction programs, and different legal regimes for rent regulation and tenant protections, much more needs to be done to understand how those various policies and programs interact. Finally, it will be important for research to address how housing markets and legal regimes need to change in order to efficiently replace housing that becomes obsolete because it cannot be retrofitted to be more energy efficient, or is in harms' way as a result of climate change.

Third, further research is needed to better understand the circumstances under which displacement occurs. New construction can lead to displacement either through the demolition or conversion of the homes of existing residents, or through amenity effects that cause rents in the neighborhood to increase to levels unaffordable to existing residents. But those conditions don't inevitably lead a household to move away from the neighborhood. Understanding more about which lower-income households leave a neighborhood and which stay is critical, as is

information about the consequences staying or leaving has for those households, and how they adapt.⁴⁵ Research able to disentangle displacement from moves that residents would have made regardless of the new construction, or would have made eventually but may have accelerated because of the new construction would be very helpful, but may require survey evidence. It would also be helpful to understand whether the effects of new construction differ when the new market rate housing is accompanied by affordable housing because of inclusionary zoning mandates or bonuses or public investments in affordable housing for the neighborhood. Finally, evaluations of policies meant to prevent or mitigate displacement are crucial as more jurisdictions consider adopting those policies.

Fourth, the evidence regarding the migration chains that new construction can spark suggests that further research is needed to understand the effects those moves have on rents in the neighborhoods and housing markets across the jurisdiction. Bratu et al. (2023) had access to unusual detail about households, and exploiting such fine-grained data to understand more about the effects moving chains have on tenants of different incomes and other characteristics would be extremely helpful. Understanding more about which features of the housing stock and housing market in a jurisdiction (including segregation by race/ethnicity or class) determine filtering patterns is important. Assessing how tenants' rights under rent regulation or just cause or other stability protections affect filtering would be useful as more jurisdictions consider those policies. Evaluations of programs to rehabilitate depreciated housing that could then be used to short-circuit a longer filtering process and use the housing sooner for lower-income households also is needed.

⁴⁵Baum-Snow and Hartley (2020), for example, have raised important questions about how differences between demographic groups in preferences for amenities, and in employment opportunities, affect migration to and from central cities.

Fifth, as more land use reforms are adopted and implemented, understanding what reforms most effectively result in new construction, and what features of implementation and enforcement are associated with greater effectiveness, will be helpful. Research on what kinds of housing results from various reforms, where it is built, and whether it just replaces housing that would have been built elsewhere or in other forms had the reform not passed also will be important.⁴⁶ Evaluating the efforts the federal government is making to incentivize land use reforms will be critical. Understanding how changes in the distribution of land use regulatory authority between state, local, and regional governments affect residential segregation, mobility patterns, community engagement, resident satisfaction, coordination between land use and other regulatory systems, and other virtues claimed for local control over land use will be important as well.

Finally, as noted above, the efficiency of the uses to which land is now dedicated (or restricted) in local markets, and the results of efforts to limit uses such as second homes, requires further analysis. Much more work needs to be done to understand the barriers that stand in the way of, and the opportunities posed by, converting hotels, offices, or other properties that have become less useful because of changes in the location of work and the nature of travel. We also need more research to identify the most effective reforms to spur retrofits to make buildings more energy efficient, climate resilient, and ultimately durable.

It is good to see so much new creative and rigorous research to explore the arguments supply skeptics are making. We continue to believe, as we said in 2019, that supply skepticism is

⁴⁶Freemark (2022) notes the need to study whether new housing that follows a land use change merely displaces housing that would have been built had the change not occurred; Greenaway-McGrevy and Phillips (2023) begin to tackle that question, but more attention is needed. .

a useful reminder that researchers and policymakers must provide more specific and concrete answers to concerns that communities have about the costs, benefits, and distributional effects of development in their neighborhoods and communities. It also is a call for more attention to the needs of those households for whom market-rate housing is unlikely to ever be affordable. To ensure that a range of income groups are seeing the benefits of the jurisdictions' growth through new housing, state and local governments may want to use subsidies, together with a variety of housing policy tools such as density bonuses or mandatory inclusionary zoning, to achieve visible additions to supply for all income groups (Been, et al. 2019, p. 33).

As the research continues to show how important adding supply is to ensuring economically diverse, resilient, and thriving cities,⁴⁷ it also is critical to move beyond general opposition to new supply to a more constructive discussion about how best to foster new construction that helps make housing affordable while avoiding or mitigating potential harms to particular neighborhoods or people. The affordability crisis is especially salient today, but the crisis results from limits on new construction in place for many decades. The problem will not be solved overnight. But the speed with which appropriate reforms are implemented to allow additional supply, along with protections against any harm new construction may cause, really matters, both to this generation and the next one.

⁴⁷ For recent discussions of the negative effects restricting supply has on diversity, see, e.g., Kulka (2019); Resseger (2022); Song (2021); Trounstein (2020). Recent discussions of the effects supply constraints have on job opportunities for BIPOC individuals and on income segregation include Freemark et al. (2020) and Yang (2021).

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Best,

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