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Supply Skepticism: Housing Supply and Affordability

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ABSTRACT

Growing numbers of affordable housing advocates and community members are questioning the premise that increasing the supply of market-rate housing will result in housing that is more affordable. Economists and other experts who favor increases in supply have failed to take these supply skeptics seriously. But left unanswered, supply skepticism is likely to continue to feed local opposition to housing construction, and further increase the prevalence and intensity of land-use regulations that limit construction. This article is meant to bridge the divide, addressing each of the key arguments supply skeptics make and reviewing what research has shown about housing supply and its effect on affordability. We ultimately conclude, from both theory and empirical evidence, that adding new homes moderates price increases and therefore makes housing more affordable to low- and moderate-income families. We argue further that there are additional reasons to be concerned about inadequate supply response and assess the evidence on those effects of limiting supply, including preventing workers from moving to areas with growing job opportunities. Finally, we conclude by emphasizing that new market-rate housing is necessary but not sufficient. Government intervention is critical to ensure that supply is added at prices affordable to a range of incomes.

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In the face of rising prices, growing numbers of advocates and community members are seeking to defeat development proposals and arguing for policies to restrict new development in popular urban areas. These groups question the premise that increasing the supply of market-rate housing will improve housing affordability. Indeed, many advocates oppose development of new affordable housing as well, unless it serves the households at the very lowest end of the income distribution currently in place in the neighborhood. In those arguments, advocates and community members often find themselves on the same side as those who oppose development for reasons having nothing to do with affordability, but are focused instead on protection of historic streetscapes, low-density character, individual viewsheds, or other traditional not-in-my-backyard concerns. This confluence of opposition is becoming a powerful block against development in many cities.

Opposition to new development has long been expected from homeowners who benefit from the higher housing prices they believe will result from limits on supply (Fischel, 2005). But opposition to new development now also comes from renters and others who advocate for lower rents and housing prices. Those opponents share what we call *supply skepticism*—the disbelief that additional market-rate housing helps make housing more affordable, and indeed a view that it may increase rents and prices.¹ Skeptics argue, first, that land in many high-cost cities is such a constrained good that it should be devoted to affordable housing, because any market-rate

housing will come at the direct expense of affordable homes. Second, skeptics dispute 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 adding supply at the top end will do little or nothing to alleviate affordability challenges in lower priced segments of the market. Third, skeptics worry about *induced* demand, fearing that the more you build, the more they'll come, and the more that wealthier people in particular will come.² In a dynamic system, they argue, any decreases in price resulting from additional supply will be fully offset by additional demand resulting from the lower cost. Fourth, skeptics seize on potential localized spillover effects from newly constructed housing, and assert 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.

Economists and other experts who favor allowing for increases in supply to mitigate rising prices and rents have not provided adequate answers to such arguments. They have tended to dismiss local costs to growth, have often ignored or discounted the benefits that may flow from regulations that may also hinder growth, and, more generally, have failed to take the supply skeptics seriously. Local elected officials, along with housing and land-use agencies, accordingly struggle to offer persuasive arguments to garner support for the increased production of housing. Not surprisingly, then, local residents and other supply skeptics continue to oppose the creation of new housing, and the prevalence and intensity of land-use regulations that limit construction continue to increase (Gyourko & Molloy, 2015; Gyourko, Saiz, & Summers, 2008; Schuetz, 2009).

This article is meant to bridge the divide between the arguments made by supply skeptics and what research has shown about housing supply and its effect on affordability. In the following section, we address each of the key arguments that increasing supply does not improve affordability. Many of the arguments are plausible, and research does not fully counter all of them, but the preponderance of evidence suggests that easing barriers to new construction will moderate price increases and therefore make housing more affordable to low- and moderate-income families. Moreover, supply restrictions inhibit the ability of workers to move to areas with growing job opportunities. Allowing more new housing thus is critical both to ease affordability pressures and to reduce other negative results of constricted supply. But more new housing will not fully address affordability challenges; efforts to increase supply must be paired with subsidies and other tools to ensure that communities remain (or become) economically diverse as they grow. In addition, there are crucial gaps to be addressed in future research to help move the policy discussion forward. In the final section, we recommend that new development include housing rented or sold at a variety of price points (using subsidies as needed), so that growth is balanced among the various income levels in the community. We also outline the research needed to better understand the relationship between supply and affordability, and to ensure that efforts to increase supply are most effective.

I. The Relationship Between Land-Use Regulations, Supply, and Affordability: Assessing the Arguments

Despite the arguments raised by supply skeptics, there is a considerable body of empirical research showing that less restrictive land-use regulation is associated with lower prices.³ The evidence takes many forms. A large number of cross-sectional studies show that stricter (less strict) local land-use regulations are associated with less (more) new construction and higher (lower) prices. Glaeser and Gyourko (2003), along with Gyourko and Molloy (2015), survey that literature and conclude that "[t]he vast majority of studies have found that locations with more regulation have higher house prices and less construction" (Gyourko & Molloy, 2015, p. 42). For example, Kok, Monkkonen, and Quigley (2014) find that in California's San Francisco Bay Area, the stringency of

regulation and number of approvals needed to obtain permits or zoning changes strongly correlate with the value of land, and thereby lead to higher house prices.

A few studies use panel data and find that the imposition of more stringent land-use controls leads to lower supply and higher prices. Jackson (2016) uses longitudinal data from California's cities to assess the effect a city's adoption of additional land-use regulations has on the number of new construction permits issued, and finds that each additional land-use regulation adopted reduced multifamily and single-family permits by an average of more than 6% and 3%, respectively, and that regulations reducing allowable density had even larger effects. Zabel and Dalton (2011) use longitudinal data from localities in Massachusetts and find that increases in minimum lot sizes are followed by significant increases in prices. Looking at longitudinal data on municipalities in the Boston (Massachusetts) metropolitan area, Glaeser and Ward (2009) find that the adoption of stricter local regulations leads to higher house prices, but the coefficient falls in magnitude and loses significance once they control for population demographics. They point out that this is expected, if homes in other jurisdictions are seen as perfect substitutes. Thus, whereas supply restrictions may increase prices in a market as a whole, they may not increase them disproportionately in the particular locality where they are imposed due to spillover effects across jurisdictions.

Several other researchers use instrumental variables to try to more clearly assess the causal effects regulatory restrictions have on housing supply and prices. Ihlanfeldt (2007) uses such an approach to study regulation in localities in Florida and finds that predicted regulations significantly increase the price of single-family homes. Saks (2008) uses instrumental variables and shows that increases in labor demand lead to less residential construction and larger increases in housing prices in metropolitan areas with more restrictive housing supply. Hilber and Vermeulen (2016) show that changes in demand lead to increases in local house prices rather than increases in supply in municipalities in England with greater regulatory restrictions, measured by the refusal rate of proposed residential projects and the number of project approvals delayed more than 13 weeks.

In sum, the preponderance of the evidence shows that restricting supply increases housing prices and that adding supply would help to make housing more affordable. Despite this evidence, skepticism that increases in housing supply will improve affordability appears only to be growing. Part of the issue is that observers in many cities see prices rising despite new construction. What they do not see is the greater price increases that research suggests would have taken place if less construction had occurred. Below, we analyze four of the commonly voiced arguments that undergird supply skepticism, drawing on both basic economic theory and empirical evidence.

A. Housing Is Bundled With Land, but Still Is Ruled by the Laws of Supply and Demand

Some argue that the normal rules of supply and demand do not apply to housing because housing is tied to a specific plot of land, and unlike other inputs into the production of housing that may be in plentiful supply, the supply of land is limited in many jurisdictions by existing development and by geographical constraints such as coasts or mountains (Angotti & Morse, 2016). Indeed, critics argue that because land is inherently limited, the development of market-rate housing consumes scarce land that could otherwise be used for affordable housing.⁴ The argument often is accompanied by demands that high percentages (such as 50% or more) of all housing developed on private sites should be restricted as affordable housing (Durkin, 2016).

Whereas land is limited in supply, it is not necessarily the case that the land where market-rate housing (or a mixture of market-rate and affordable housing) is proposed would otherwise be used entirely for affordable housing. The land might continue to be too costly to support affordable housing, even if the land could not be used for housing for higher income households, because there are other uses competing for the land. Also, the reasons affordable housing is not provided in larger quantities go far beyond the lack of land and include the inadequacy of funding to pay for construction, financing costs, and operating costs. Further, programs like mandatory affordable

housing can ensure that developments using land for market-rate housing also include some affordable housing, although no inclusionary program imposes requirements as high as 50% of the units (Thadden & Wang, 2017).

More fundamentally, although it is surely true that land is constrained, especially in certain markets (Saiz, 2010), land can be used more intensively to allow for more housing. The limits on the land with which housing is bundled make housing different from many goods, but the difference is one of degree: the supply of housing can and does increase even in constrained markets, and prices should generally fall in response (see the review by Dipasquale, 1999; Mayer & Somerville, 2000).

B. Housing Is Heterogeneous, but Adding Supply in One Market Will Affect Prices in Another

A second argument raised by supply skeptics is that additions to housing supply tend to be luxury housing, 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, Benke, Neugebauer, & Santiago, 2016, p. 1, emphasis in the original). They reject the idea that building housing at one price point has any significant effect on the price of housing in other submarkets (Council of Community Housing Organizations, 2016). Even if they acknowledge that these units may age and filter down to lower priced market segments over time, critics note that it will take many decades for them to do so.

It is true that housing is more heterogeneous than most other goods, and that housing markets are more segmented as a result. Housing comes in many different forms, ages, and sizes. Rather than having one unified housing market, it is more accurate to think of a city as having numerous housing submarkets, each with its own demand, supply, and price. It is also true that when first produced, housing tends to supply the medium- and high-end segments of a housing market, because housing is so expensive to build. Further, homes depreciate in value relatively slowly, and the direct filtering of new homes down to lower priced submarkets therefore can take decades.

Still, although housing is heterogeneous, additions to the housing stock in one submarket can fairly quickly affect prices and rents in other submarkets by alleviating competition that would otherwise be diverted to those other submarkets. Imagine a city with no new construction. As demand increases and prices or rents rise for higher end housing, some homeseekers who would otherwise have searched in that submarket will be priced out. They will either leave the jurisdiction altogether or turn instead to somewhat less-expensive housing in the same city, increasing demand for housing in the next submarket. Unless there have been offsetting declines in demand for housing in those other submarkets, the failure of supply to respond to increased demand at the higher end will ripple through other submarkets as demand spills into these markets and increases their prices and rents.

What is more, these ripple effects may be compounded by owners’ decisions to upgrade their buildings. As prices increase in the higher end of the market, owners will find it more attractive to maintain or upgrade existing housing units that would otherwise have aged out of this submarket, slowing the movement of units to less-expensive submarkets through downward filtering.⁵ Indeed, if price increases are large and persistent enough, upgrading of existing units (and perhaps entire neighborhoods) will occur in other submarkets, further decreasing supply in less-expensive submarkets. Research provides some evidence that *filtering up* occurs in tight markets. Looking at 38 metropolitan areas, Somerville and Mayer (2003) find that units affordable to those with incomes at or below 35% of area median income are more likely to *filter up* or become unaffordable in metropolitan areas where housing supply is less responsive to demand (has lower elasticity), as proxied both by new single-family housing permits and by measures of land-use restrictions in the metropolitan area.

Finally, policymakers should not be so shortsighted as to overlook long-term effects. Over the longer run, increases in supply at the medium or higher end of the market should also increase supply in lower priced markets as older units that are now less valuable work their way down to lower priced submarkets.⁶ Housing lasts for many years, but most housing filters down, or loses value as it ages, representing *new* supply in submarkets at lower price points.⁷ In this way, newly constructed units at the high end of the market have a ripple effect across connected submarkets. As demand is met at the high end, the older units that are now less valuable work their way down to other submarkets. Although luxury apartments in the most desirable locations may never become part of the stock affordable to low-income households, their creation should help to increase supply and reduce prices in the next submarket, which over time should trigger some downward filtering of housing through various submarkets to lower priced submarkets.⁸

Empirical research shows that filtering is not just a theory posited on the pages of economic textbooks, but in fact occurs in real housing markets. Indeed, recent research shows that filtering was the primary source for additions to the affordable rental stock between 2003 and 2013, whereas new construction was the largest contributor for the higher priced rentals, and tenure conversion was the largest source for moderately priced rentals (Joint Center for Housing, 2015, fig. 14). Further, Weicher, Eggers, and Moumen (2016) report that 23.4% of the rental units that were affordable to very low-income renters in the United States in 2013 had filtered down from higher rent categories in 1985. Another 21.8% were conversions from formerly owner-occupied homes or seasonal rentals.⁹ Most of the higher priced rental units that filtered down to become affordable in 2013 were moderate-rent units in 1985, but 15% of those that filtered down were high-rent units in 1985.¹⁰ Note that filtering occurs over a shorter time frame too; among affordable units in 2013, 19% had been higher rent units as recently as 2005.

Recent research analyzing the incomes of successive occupants of homes also suggests substantial downward filtering, particularly of the rental stock due to tenure conversion; as the owner-occupied stock ages, a portion converts to rental (Rosenthal, 2014).¹¹ Rosenthal also finds, however, that filtering rates are considerably lower in areas with high house price inflation, although downward filtering still occurs.

In short, new construction is crucial for keeping housing affordable, even in markets where much of the new construction is itself high-end housing that most people can't afford. A lack of supply to meet demand at the high end affects prices across submarkets and makes housing less affordable to residents in lower-cost submarkets.

It is worth underscoring, however, that allowing more market-rate construction will not address the housing needs of all households. For at least the lowest income households, even the moderation of rent increases that results from expanded supply will likely be insufficient to make homes affordable to them. Housing subsidies, of some form, are still needed as well. However, as increases in housing supply moderate housing prices and rents overall, the gap between what a jurisdiction's lowest income households can afford and available prices and rents will be smaller, which will allow any government subsidies to go further.

C. Easing Price Pressure Through Additional Supply May Attract Some Demand—But Not Enough to Completely Offset the Supply Increase

Some skeptics argue that even if additional supply could help make housing more affordable in the short run, it won't in the long run because the additional supply will induce more demand, especially among buyers or renters wealthier than the existing residents in the neighborhood (Redmond, 2015). The claim is analogous to the argument that building more highways will not reduce congestion because the lower cost of travel will simply cause more people to drive or to take that particular route (Gorham, 2009). In this case, the argument is that by making the jurisdiction more affordable, adding housing supply will attract new demand—both from current residents who would otherwise leave, and from people living elsewhere who will now choose to move to the jurisdiction. Further, the

argument goes, lower rents and prices may also induce *latent* demand—people who are living with roommates or family members may choose to form their own households (Ellen & O’Flaherty, 2007) or people may choose to invest in pied-à-terres in a city. That additional demand will drive prices back up until supply can again respond, causing housing to be more affordable, at best, only cyclically, according to the argument, and increasing the density of the jurisdiction, with the attendant costs of congestion.

Although building additional highways does appear to induce more demand (Duranton & Turner, 2011), in the case of housing, additional demand is unlikely to completely offset the new supply. Such an offset requires demand curves to be perfectly elastic—or, in other words, it assumes that neighborhoods and jurisdictions are perfect substitutes and that there are no constraints on the ability and willingness of households to move. That is unrealistic.¹² Moving homes is not like driving a few extra miles (Lewyn, 2016), and costs associated with moving may be high.¹³ Any additional demand induced by new housing is limited by personal and economic constraints on the ability and willingness of households to move, restrictions on immigration, and uncertainty and other factors that might inhibit renters and buyers from renting or buying in the market in which housing supply increases. Indeed, mobility rates have fallen sharply over the past several decades, and although the reasons for the decline are being debated, the decline reveals significant constraints on the ability and willingness to move.¹⁴

Thus, in the long run, whereas some additional households may be drawn from outside (or from within the city) to buy or rent homes as supply increases, it is highly unlikely that prices will end up at the same level that they would have reached absent any new supply. Finally, as noted above, the empirical evidence shows that allowing more supply leads to lower housing prices; if adding supply induced sufficient additional demand to offset the increased supply, the studies would not find an association between supply and prices.

D. Adding Supply May Raise Neighborhood Rents in Some Cases, but Neither Theory nor Empirical Evidence Suggests That Will Be the Norm

Many renters in neighborhoods where market-rate housing is proposed express concern that the construction of new housing will actually make their affordability problems worse by raising rents or house prices, fueling gentrification, and potentially displacing existing residents (Atta-Mensah, 2017; Savitch-Lew, 2017).¹⁵ Hankinson (2017) theorizes that renters’ opposition to local additions to supply is driven by such worries; he argues that it is plausible that the construction of an attractive new building will increase prices locally (by improving the physical landscape, bringing new amenities to the neighborhood, and signaling that the neighborhood is improving), even as it reduces them citywide.

Testing this proposition empirically is quite challenging, given that developers will naturally be attracted to areas where prices and rents are rising. There is evidence that improvements to blighted housing can, in some circumstances, increase surrounding property values, even when the new or improved housing is subsidized, low-income housing (Diamond & McQuade, 2016; Schwartz, Ellen, Voicu, & Schill, 2006).¹⁶ The new housing studied, however, typically replaced vacant, abandoned buildings and littered vacant lots, in essence removing a disamenity.

Theoretically, we might also expect positive localized spillover effects for market-rate housing, even when it does not replace a source of blight, as it may bring new retail amenities and/or signal that an area has features that buyers or renters find attractive. But there are multiple forces potentially at work when new housing is constructed in a neighborhood facing increased demand. On the one hand, the construction could spur additional investment and demand, placing upward pressure on prices. On the other hand, the unpleasantness of construction may depress demand. Further, the newly constructed units in the neighborhood will absorb some of the new demand and dampen pressure on prices. (In the absence of new construction, the unsatisfied demand will go somewhere. Some may be diverted to other neighborhoods or jurisdictions, but some will likely remain, bidding up rents and prices for the existing stock, and making it profitable for owners to

upgrade the stock to accommodate new entrants rather than existing residents.) Thus, even in those cases where construction spillovers are positive, the net effect of new construction on price is unclear.

There is little empirical evidence about the net effect new market-rate housing has on the prices or rents of nearby homes, and what exists may not be causal. One recent study examines the effect of market-rate single-family homes newly constructed on infill sites, and finds that newly constructed single-family homes can have positive impacts on the sales price of other single-family homes nearby, but the effect varies with context (Zahirovich-Herbert & Gibler, 2014). A study of multifamily high-rise infill developments in Singapore found positive price effects on nearby houses (Ooi & Le, 2013), as did a study of single multistory apartment buildings constructed in Helsinki (Kurvinen & Vihola, 2016). These studies all consider property values and not rents, and none is able to prove a causal relationship given that market-rate developments aim to target neighborhoods where they expect property values to improve. Unfortunately, we found no study examining impacts on rents, although one study by the California Legislative Analyst Office concluded that additional market-rate construction is linked to *lower* displacement rates (Taylor, 2016). Examining low-income neighborhoods in the Bay Area between 2000 and 2013, these researchers found that the production of market-rate housing was associated with a *lower* probability that low-income residents in the neighborhood would experience displacement.¹⁷ Although a singular study, the findings suggest that for neighborhoods in high-demand cities, blocking market-rate construction may place greater pressures on the existing stock.¹⁸

In short, although it is clear that the 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.

II. Broader Effects of Limiting Housing Supply

Of course, regulatory barriers that restrict supply also may provide benefits—by preventing congestion, protecting environmental resources, ensuring health and safety, delaying construction until necessary infrastructure improvements are made, and providing certainty to the market.¹⁹ Indeed, those benefits may increase demand: Been and her colleagues point out that land-use regulations can make an area more attractive to homebuyers because they offer greater certainty that an area's buildings (and potentially their residents) will not change much over time, and thereby increase prices (Been, Ellen, Gedal, Glaeser, & McCabe, 2016).²⁰

But often the benefits secured by regulatory restrictions are enjoyed by a relatively small number of existing property owners and/or existing residents, whereas costs are borne by a larger set of households who either rent or would like to live in the area. Further, the higher housing prices caused by constrained supply have consequences beyond affordability for households and communities. The effects are intertwined: supply constraints raise housing prices, and increases in housing prices in turn have a variety of other negative consequences, including interference with the functioning of regional and national economies. After all, interdependencies in housing markets are not limited to submarkets of a given city. As housing prices continue to increase in a city as a result of supply restrictions, some of those who are priced out will opt to live elsewhere, perhaps in surrounding suburbs, or perhaps in exurban areas or other markets altogether. If many choose to live farther away but in the same metropolitan area, commute times are likely to increase, and income and racial segregation in the region could potentially rise as lower income and minority households disproportionately move farther away from the central city. If many choose to live in other metropolitan areas altogether, this could undermine both local and national economic growth, and fuel inequality. We summarize the evidence on these various effects below.

A. Restricting Supply Imposes Environmental and Other Costs Related to Automobile Dependence

Restrictions on supply often are associated with lower density and less-compact development because they divert housing demand to lower density suburban or rural areas, leading to longer commutes and more driving, which results in increased air pollution and greenhouse gas emissions.²¹ Research shows that living in areas with higher population densities and other features of compact urban form decreases the harmful emissions associated with personal automobile travel by those households (for reviews of the vast literature, see Ewing & Cervero, 2010; Stevens, 2017; and on the debates those reviews generated, e.g., Ewing & Cervero, 2017; Handy, 2017). Similarly, a variety of research shows that higher density and more compact urban forms result in less energy use for heating and cooling buildings, and therefore less greenhouse gas emission (Estiri, 2015; Ewing & Rong, 2008; Resch, Bohne, Kvamsdal, & Lohne, 2016). Higher residential density is also associated with lower per-capita impacts on water quality from development (Jacob & Lopez, 2009), and with lower rates of destruction of critical habitat and open space (Ewing, Kostyack, Chen, Stein, & Ernst, 2005).

B. Restricting Supply May Exacerbate Income and Racial/Ethnic Segregation

It is difficult to test whether density restrictions heighten segregation, and the little empirical work that does exist is cross sectional and therefore cannot prove causation. But the research does suggest an association between land-use restrictions and segregation. For example, one recent study suggests that such restrictions are statistically associated with higher levels of segregation of the affluent, although *not* of low-income households (Lens & Monkkonen, 2016). As for racial segregation, more stringent restrictions on density are associated with greater segregation in large U.S. metro areas (Rothwell & Massey, 2009), and smaller minority populations in individual jurisdictions (Pendall, 2000; Quigley, Raphael, & Rosenthal, 2004). Finally, in Massachusetts, blocks zoned for multifamily housing have black population shares 3.4 percentage points higher and Hispanic population shares 5.8 percentage points higher than the blocks directly across the border from them that are zoned for single-family use (Resseger, 2013).

C. Restricting Supply Reduces Economic Productivity and Increases Inequality

Supply restrictions also likely hinder economic growth. If people who are priced out of a particular city choose to live in another metropolitan area altogether, that city's work force will shrink and productivity may decline. Supply restrictions that prevent people or businesses from locating in the neighborhood they prefer also can result in lower productivity and other deadweight losses (Rodriguez & Schleicher, 2012). There is strong empirical evidence that businesses thrive and workers are more productive when they are located in large, dense cities with lots of diverse economic activity (Glaeser, 2011; Kolko, 2010; Quigley, 1998). Constraints on housing supply in a city inhibit the growth and diversity that is essential to productivity. Raven Saks Molloy shows that increases in demand for workers in cities with more restrictive land-use regulations lead to less new housing construction, higher prices, and lower levels of long-run employment compared with areas with less-restrictive regulations (Saks, 2008).

Further, to the extent that land-use regulations restrict the supply of housing and raise prices, they make it more difficult for workers to move to the cities with more productive businesses. Interstate mobility rates have fallen significantly since the 1980s (Frey, 2009; Kaplan & Schulhofer-Wohl, 2017; Molloy, Smith, & Wozniak, 2011), even from areas with declining employment opportunities (Autor, Dorn, Hanson, & Song, 2014), and especially for those with the lowest incomes and skills (Notowidigdo, 2013). Areas that are seeing especially high productivity gains, like New York,

San Francisco, San Jose, and Boston, have not seen population growth to match those gains (Glaeser, 2011).

Chang-Tai Hsieh and Enrico Moretti (2017) show that this reduced mobility is harmful not only to individual workers or cities but also to national productivity. They estimate that if workers and capital had been able to move freely between 1964 and 2009 to respond to higher wages, national output would have been 10% higher in 2009. Further, they find that much of the drag on productivity stems from just a few metropolitan areas, because less-restrictive land-use practices in the South have allowed housing supply to keep up with the increased productivity of most of the southern cities. Although other researchers estimate that the effects of reduced mobility are lower than Hsieh and Moretti predict, the effects are nonetheless significant (Bunten, 2017; Glaeser & Gyourko, 2018; Parkhomenko, 2017).

Ganong and Shoag (2017) argue that the reduced mobility resulting from the constrained supply of housing is also exacerbating inequality and locking in economic differences across states. They point out that the relative gains in income and housing costs achieved by moving to high-cost regions vary with occupations. For workers in low-wage occupations, the increases in housing costs they would have to endure when moving to a state with restricted housing supply are larger than the gains in income they would enjoy. The calculus differs for workers in high-wage occupations, however, for whom income gains have continued to outpace housing cost increases. In other words, highly educated workers may still find it profitable to move to supply-restricted places, whereas less-educated workers do not, which is exacerbating inequality across cities and states. The differential mobility also may have very long-term effects on inequality, because many of the areas to which more highly educated workers may be more likely to move have higher levels of intergenerational mobility than the areas in which less-educated workers remain (Schleicher, 2017).

III. Moving Forward?

We are not suggesting that local officials should focus exclusively on relaxing regulations and facilitating the construction of market-rate housing. First, some level of regulation is needed, for the reasons described above. Second, building more market-rate housing alone will not solve the deep affordability problems faced by low-income households. The key point is that efforts to create and support housing affordable to low- and moderate-income households and efforts to make the supply of housing more elastic are complementary.

The arguments skeptics advance in opposing increases in the supply of housing are inconsistent with the evidence, and if skeptics are successful in defeating many proposals for additional housing (and density), their arguments are likely to result in significant harms. The arguments do, however, underscore the need for some governmental intervention in housing markets to require or incentivize a balanced approach to new development. Because the price effects of market-rate construction may be slow to materialize and are unlikely to be sufficient to address the needs of very low-income households, it is important for local governments to seek to ensure that new supply comes on line at a range of price points, so that growth is balanced among the various income levels in the community. Even in cities that have robust affordable housing programs, the supply usually is far less than the need, and may be fairly narrowly targeted to households making 50% to 60% of area median income because of the structure of the Low Income Housing Tax Credit program. Households with incomes below that level are often left out, as are those with incomes just above, many of whom also face affordability challenges in high-cost cities. To ensure that a range of income groups are seeing the benefits of the jurisdictions' growth through new housing, 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 at a variety of price points.²²

Getting out of the way to allow additions to supply, and adopting and implementing tools to ensure that supply is provided for a range of incomes, is not an easy policy or political task.

Stakeholders may see moderate- or middle-income housing as coming at the expense of housing for low- and very low-income households. Communities are unlikely to trust that the housing for anyone other than the wealthiest buyers will actually be provided, so they may be reluctant to support additions to supply that are not specifically committed to particular income groups. Policymakers thus will need tools like inclusionary zoning that tie approvals for market-rate housing to commitments to ensure that housing affordable at a range of incomes also is provided.

A. Gaps in Research

The considerable body of research described above shows that additions to supply are critical to moderate price increases, allow workers to move to areas with growing job opportunities, and help subsidy dollars serve more low-income families. But there are still a number of research gaps, both on the relationship among specific features of housing markets, changes in supply, and affordability, and on the efficacy of various policy responses to limited supply. Most fundamentally, the lack of good data on rents makes it difficult to assess how changes in housing supply affect rents (as opposed to home prices). It is critical that we find better ways to track rents so that researchers can rigorously analyze the effects that adding supply has both on the local neighborhood and on the jurisdiction and region.

Second, there is a lack of research on how, and the extent to which, housing filters up or down in various submarkets. Skeptics rightly are wary because of the time the filtering process takes, and because high-end housing rarely filters down to become affordable to those with very low incomes. We need more facts about the extent to which housing filters down to lower price points, or up to higher income buyers or renters, and at what pace. Much more research also is needed about how to protect the supply of existing unsubsidized affordable housing from deterioration or upward filtering.

Third, concerns that new development will spur gentrification or local price and rent increases suggest that additional research on the local costs and benefits of new development (and of changes in neighborhoods more generally) is necessary.²³ Neighbors of proposed new developments fear displacement from rent increases, but there is little hard evidence of displacement (for summaries of the research, see Ding, Hwang, & Divringi, 2016; Florida, 2015). We need more research to learn what happens to rents, and how residents fare when their neighborhoods see new development, either through uncoordinated additions to supply or through comprehensive neighborhood redevelopment.

Fourth, many opponents of new supply argue that most of the new supply is luxury housing, and much of that is bought by people who do not reside in the city and whose competition drives up the cost of housing (Francis, 2016). Some recent research suggests that an increase in the share of out-of-town buyers is associated with an increase in house prices (Favilukis & van Nieuwerburgh, 2017; Sá, 2016). But other research finds no association (Cvijanovic & Spaenjers, 2017), and finds that at least some of those out-of-town buyers are not competing with the median homebuyer but are aiming at the most expensive properties, where supply is most likely to be sufficient to meet demand (Terrazas, 2017). Additional research is needed on how much of the new construction in different cities in the United States is built at different price points, how new construction at different price points affects the demolition or other loss of lower income housing, who is buying in each price range, how competition at the very highest end of the market affects the propensity of housing units to *filter up*, and whether any price effects associated with out-of-town buyers vary at different price points.

There are also research gaps on the policy front. More rigorous research is needed on the efficacy of the various ways states have sought to encourage additional supply—from state laws like Massachusetts 40B (which allows affordable housing developers to override local zoning rules in municipalities in which less than 10% of the housing stock meets specified affordability thresholds) to California's efforts to discourage sprawl and encourage additions to supply at higher

density. The assessment of fair housing requirements of the Affirmatively Furthering Fair Housing regulation²⁴ provide opportunities to identify strategies to link school, transit, park, and other improvements to new housing that includes affordable units, and research will be needed to measure whether those assessments help reduce barriers to increasing supply.

Additional thought is also required about creative solutions to balance local concerns about new development against the need for affordable housing. Hills and Schleicher (2011) have proposed a zoning budget, where downzonings have to be matched by upzonings; for example, fair share allocations of needed new supply may achieve similar purposes. Environmental impact review processes may need to be refined to better take into account the costs of not building, to more accurately consider the potential for localized costs of new development, and to more precisely assess the infrastructure and other needs the development may create both locally and city-wide. Local officials must commit to making the investments needed to ensure that local infrastructure is adequate to serve the additional population.

Finally, adding supply in surrounding jurisdictions would likely help to alleviate demand pressures in a locality, especially if accompanied by transportation improvements. Not all the supply needs to be added in the specific jurisdiction facing increased demand. The demand pressures faced in urban areas are part of larger housing- and labor-market pressures that may best be addressed at a larger geography. More research is needed, however, about how effective different forms of regional housing efforts have been in moderating price increases in the face of increasing demand, and in providing housing affordable to households of different incomes.

Answers to the rich set of research questions brought to the surface by supply skepticism could contribute directly and concretely to efforts to make housing more affordable and to make local housing policy more effective. Supply skepticism is 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. Supply skeptics have also focused attention on an important end goal—economically diverse, vital cities. Our disagreement is simply that this goal will not be accomplished without additions to supply. But policymakers should be frank that adding supply is unlikely ever to meet the housing needs of the very lowest income households in our communities, and will have to be paired with subsidies or other incentives, or inclusionary zoning requirements.

Notes

1. Undoubtedly, renters, other community members, and advocates have reasons for opposing development that are not based in supply skepticism. People often worry that proposed developments will overcrowd their children's schools or their preferred form of transit, change their favorite retail or entertainment venues, or take away their sense of belonging and community (Freeman, 2006; Hutson, 2016). Those concerns may sometimes lie behind expressions of supply skepticism, but we focus in this essay only on arguments development opponents are making about how adding supply will affect housing affordability.
2. A related notion is that *if you can't build it, they won't come* (see, e.g., Newman, 2008).
3. Most of the studies are framed as assessing whether stricter land-use regulations are associated with higher prices, as Landis and Reina note (in this issue), but the studies could just as easily be framed as examining whether relaxing regulations is associated with lower prices. See Furman (2015) for a review.
4. A variant on this argument is the claim that luxury apartments are left empty as owners travel or live elsewhere and that land used for such properties should instead be used for affordable housing. (Booth & Adam, 2017, reporting on Britain Labour leader Jeremy Corbyn's statement that requisitioning "empty" homes might be necessary because "It can't be acceptable that in London we have luxury buildings and luxury flats left empty as land banking for the future while the homeless and the poor look for somewhere to live.")
5. The durability of housing means that at any point in time, newly constructed housing will comprise only a small portion of the housing market and most of the increase in demand in any submarket must initially be absorbed by existing housing. For example, in 2015, only 3.2% of owner-occupied housing had been constructed within the prior 5 years (American Housing Survey, 2015).

6. In some cases, the high-end housing may be created through the demolition of older, lower priced homes. If so, then the high-end housing will have the immediate effect of reducing supply and potentially increasing prices in the lower priced submarket. But see Bachrach, Monkkenon, and Lens (2017), who examine a sample of multifamily construction in Los Angeles between 2014 and 2016, and find “the vast majority of new multifamily units—both market-rate and income-restricted affordable apartments—have replaced single-family houses or been built on land not previously used for residential development.”
7. Of course, some older housing might command a premium if consumers value its unique features.
8. It may be that housing advocates belittle arguments about filtering not because (or not only because) they are skeptical that it works, or impatient for more immediate results, but because they object to the notion that poorer people should be housed in older units than wealthier households. That discussion is beyond the scope of this article, but opposing market-rate development in the hope that more new construction will be devoted to affordable housing ignores the cost differential between rehabbing existing units and building new, and fails to reckon with the role rehab can play in stabilizing and improving neighborhoods.
9. About 32% of the units that were affordable in 2012 were also affordable in 1985.
10. Again, there may be an interaction between demand spillovers and filtering: if supply at the high end of the market is limited, demand for that housing will spill over to other submarkets, making it less likely that housing in that submarket will filter down.
11. Specifically, Rosenthal finds that the real income of an occupant moving into a rental home in a 30-year old building in the United States is on average 50% of the income of an occupant moving into a newly built rental unit.
12. Kok et al. (2014) argue, for example, that the large positive association they find between land-use regulations and land prices in the San Francisco Bay Area is due in part to the fact that jurisdictions in the Bay Area are not close substitutes.
13. Demand from foreign investors is likely to be more elastic, but even here there are limits and some cities have raised revenues by imposing tax surcharge on nonresident buyers (Favilukis & van Nieuwerburgh, 2017).
14. Schleicher (2017) provides a recent review of the evidence about changing mobility rates, and explores the causes and consequences of those changes. Some blame the decline on land-use restrictions that make it hard to buy or rent in markets with job opportunities (Ganong & Shoag, 2017); others point to such factors as the aging of the population (Karahana & Li, 2016) and changes in the labor market (Molloy, Smith, & Wozniak, 2017).
15. Residents also express concerns about the costs that additional development might impose upon the neighborhood’s quality of life, by exacerbating traffic congestion, competition for parking, school overcrowding, and other strains on public services. That broader issue of local costs for broader societal benefits in the land-use context is addressed most recently by Monkkenon (2016); see also the review by Schively (2007).
16. See also the review by Aarland, Osland, and Gjestland (2017).
17. Displacement was defined as either (a) a decline in the absolute number of low-income households in census tracts that were otherwise growing, or (b) larger declines in low-income households than in households overall in the tract.
18. Badger (2016) usefully collects views of economists and advocates on the issues raised by the California Legislative Office study; see also Zuk and Chapple (2016).
19. Buntin (2017), for example, models zoning decisions to assess both the costs and the benefits of density restrictions, and finds that the optimal level of restrictions would increase aggregate output by 2.1%, with one third of those gains negated by the increased congestion felt by residents of productive locations, for a net gain of 1.4%. See also Turner, Haughwout, and van der Klaauw (2014), who find that the benefits of land-use regulations are less than the costs they impose.
20. Of course, by providing protection against change, land-use regulations benefit those who don’t want change, but impose costs on those who do want change.
21. Other factors, such as availability of large amounts of undeveloped land, also contribute to lower density. The key point here is that to the extent that regulations reduce the density of development, they impose additional costs.
22. Inclusionary zoning programs have to be designed and calibrated carefully to ensure that they increase the supply of affordable housing without increasing the costs of market-rate housing. See, for example, Mukhija, Das, Regus, and Tsay (2015); Schuetz, Meltzer, and Been (2011); see also the reviews by Sturtevant (2016) and Thadden and Wang (2017). Regulatory relief measures, such as design flexibility and fast-track permitting programs, may need to accompany inclusionary zoning mandates (see, e.g., Garde, 2016).
23. Kinahan’s study of the neighborhood effects of federal historic preservation tax credits (in this volume) is an example of the type of analysis needed to identify how particular kinds of investment, in specific types of markets, affect neighborhood change.
24. Early in 2018, the Trump Administration effectively rescinded the AFFH regulation, but that action is being litigated.

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References

- Aarland, K., Osland, L., & Gjestland, A. (2017). Do area-based intervention programs affect house prices? A quasi-experimental approach. *Journal of Housing Economics*, 37, 67–83.
- Aguirre, A., Benke, D., Neugebauer, M., & Santiago, R. (2016, February 18). CityViews: For East New York's housing crunch, supply is not the solution. *CityLimits*. Retrieved from <https://citylimits.org/2016/02/18/cityviewsfor-east-new-yorks-housing-crunch-supply-is-not-the-solution/>
- Angotti, T., & Morse, S. (Eds.). (2016). *Zoned out! Race, displacement and city planning in New York City*. New York, NY: UR.
- Atta-Mensah, A. (2017, August. 23). CityViews: Major community group rejects de Blasio's East Harlem rezoning. *CityLimits*. Retrieved from <https://citylimits.org/2017/08/23/cityviews-major-community-group-rejects-de-blasios-east-harlem-rezoning/>
- Autor, D., Dorn, D., Hanson, G., & Song, J. (2014). Trade adjustment: Worker level evidence. *The Quarterly Journal of Economics*, 129, 1799–1860.
- Bachrach, E., Monkkonen, P., & Lens, M. (2017). Is Los Angeles destroying its affordable housing stock to build luxury apartments? *UCLA Lewis Center Issue Brief*. Retrieved from <https://www.lewis.ucla.edu/los-angeles-destroying-affordable-housing-stock-build-luxury-apartments/>
- Badger, E. (2016, February 19). How to make expensive cities affordable to everyone again. *Washington Post Wonkblog*. Retrieved from https://www.washingtonpost.com/news/wonk/wp/2016/02/19/how-to-make-expensive-cities-affordable-for-everyone-again/?tid=a_inl&utm_term=.fff1cf9417e0
- Been, V., Ellen, I., Gedal, M., Glaeser, E., & McCabe, B. (2016). Preserving history or restricting development? The heterogeneous effects of historic districts on local housing markets in New York City. *Journal of Urban Economics*, 92, 16–30.
- Booth, W., & Adam, K. (2017, September 18). London Struggles with 'ghost mansions' and 'zombie flats,' empty units in city bereft of affordable housing. *Washington Post*. Retrieved from https://www.washingtonpost.com/world/europe/london-struggles-with-ghost-mansions-and-zombie-flats-the-empty-units-in-city-bereft-of-affordable-housing/2017/09/18/253d67fa-97c4-11e7-af6a-6555caeb8dc_story.html?utm_term=.709113a682c3
- Bunten, D. (2017). *Is the rent too high? Aggregate implications of local land-use regulation* (Working Paper). Retrieved from <http://www.devinbunten.com/research/zoning>
- Council of Community Housing Organizations. (2016). *The filtering fallacy – An infographic*. Retrieved from <http://www.sfccho.org/just-released-the-filtering-fallacy-an-infographic/>
- Cvijanovic, D., & Spaenjers, C. (2017). *Real estate as a luxury good: Non-resident demand and property prices in Paris*. (Working Paper). SSRN. Retrieved from <https://ssrn.com/abstract=2546689>

- Diamond, R., & McQuade, T. (2016). *Who wants affordable housing in their backyard? An equilibrium analysis of low income property development* (Working Paper). Berkeley, CA: National Bureau of Economic Research.
- Ding, L., Hwang, J., & Divringi, E. (2016). Gentrification and residential mobility in Philadelphia. *Regional Science and Urban Economics*, 61, 38–51.
- DiPasquale, D. (1999). Why don't we know more about housing supply? *Journal of Real Estate Finance and Economics*, 18, 9–23.
- Duranton, G., & Turner, M. (2011). The fundamental law of road congestion: Evidence from U.S. cities. *American Economic Review*, 101, 2616–2652.
- Durkin, E. (2016, February 25). Melissa Mark-Viverito pushes for 50% of new apartments in East Harlem to be affordable housing. *Daily News*. Retrieved from <http://www.nydailynews.com/new-york/manhattan/mark-viverito-pushes-east-harlem-affordable-housing-plan-article-1.2543374>
- Ellen, I. G., & O'Flaherty, B. (2007). Social programs and household size: Evidence from New York City. *Population Research and Policy Review*, 27, 387–409.
- Estiri, H. (2015). Differences in residential energy use between US city and suburban households. *Journal of Regional Studies*, 50(11), 1919–1930.
- Ewing, R., & Cervero, R. (2010). Travel and the built environment. *Journal of the American Planning Association*, 76(3), 265–294.
- Ewing, R., & Cervero, R. (2017). Does compact development make people drive less? The answer is yes. *Journal of the American Planning Association*, 83(1), 19–25.
- Ewing, R., Kostyack, J., Chen, D., Stein, B., & Ernst, M. (2005). *Endangered by sprawl: How runaway development threatens America's wildlife*. Washington, DC: National Wildlife Federation, Smart Growth America and Nature Serve.
- Ewing, R., & Rong, F. (2008). The impact of urban form on U.S. residential energy use. *Housing Policy Debate*, 19(1), 1–30.
- Favilukis, J., & van Nieuwerburgh, S. (2017). *Out-of-town home buyers and city welfare* (Working Paper). Retrieved from <http://haas.berkeley.edu/RealEstate/Research/2017%20Conference%20Papers/4-Out-of-Town%20Buyers.pdf>
- Fischel, W. (2005). *The homevoter hypothesis: How home values influence local government taxation, school finance, and land-use policies*. Cambridge, MA: Harvard University Press.
- Florida, R. (2015, September 8). The complicated link between gentrification and displacement, *CityLab*. Retrieved from <http://www.citylab.com/housing/2015/09/the-complicated-link-between-gentrification-and-displacement/404161/>.
- Francis, D. (2016, February 14). Unmask the foreign buyers stashing cash in American real estate. *New York Post*. Retrieved from <http://nypost.com/2016/02/14/unmask-the-foreign-buyers-stashing-cash-in-american-real-estate/>
- Freeman, L. (2006). *There goes the 'Hood: Views of gentrification from the ground up*. Philadelphia, PA: Temple University Press.
- Frey, W. (2009). The Great American migration slowdown: Regional and metropolitan dimensions. *Brookings Institution Reports*. Retrieved from <http://www.brookings.edu/research/reports/2009/12/09-migration-frey>.
- Furman, J. (2015). Barriers to shared growth: The case of land use regulation and economic rents. Washington, DC: Remarks to The Urban Institute. Retrieved from https://obamawhitehouse.archives.gov/sites/default/files/page/files/20151120_barriers_shared_growth_land_use_regulation_and_economic_rents.pdf
- Ganong, P., & Shoag, D. (2017). Why has regional income convergence in the U.S. declined? *Journal of Urban Economics*, 102(1), 76–90.
- Garde, A. (2016). Affordable by design? Inclusionary housing insights from Southern California. *Journal of Planning Education and Research*, 36(1), 16–31.
- Glaeser, E. (2011). *Triumph of the city: How our greatest invention makes us richer, smarter, greener, healthier, and happier*. New York, NY: Penguin Press.
- Glaeser, E., & Gyourko, J. (2003). The impact of building restrictions on housing affordability. *FRBNY Economic Policy Review*, 9(2), 21–39.
- Glaeser, E., & Gyourko, J. (2018). The economic implications of housing supply. *Journal of Economic Perspectives*, 32(1), 3–30.
- Glaeser, E., Gyourko, J., & Saks, R. (2005). Why have housing prices gone up? *American Economic Review*, 95(2), 329–333.
- Glaeser, E., Gyourko, J., & Saks, R. (2006). Urban growth and housing supply. *Journal of Economic Geography*, 6, 71–89.
- Glaeser, E., & Mare, D. (2001). Cities and skills. *Journal of Labor Economics*, 19, 316–342.
- Glaeser, E., & Ponzetto, G. (2010). Did the death of distance hurt Detroit and help New York?. In E. Glaeser (Ed.), *Agglomeration Economics* (pp. 303, 305). Chicago, IL: University of Chicago Press.
- Glaeser, E., & Ward, B. (2009). The causes and consequences of land use regulation: Evidence from Greater Boston. *Journal of Urban Economics*, 65, 265–278.
- Gorham, R. (2009). *Demystifying induced travel demand* (Sustainable Urban Transport Technical Document #1). Eschborn, Germany: Federal Ministry of Economic Cooperation and Development. Retrieved from http://www.sutp.org/files/contents/documents/resources/B_Technical-Documents/GIZ_SUTP_TD1_Demystifying-Induced-Travel-Demand_EN.pdf

- Gyourko, J., & Molloy, R. (2015). Regulation and housing supply. *Handbook of Regional and Urban Economics*, 5, 1289–1337.
- Gyourko, J., Saiz, A., & Summers, A. (2008). A new measure of the local regulatory environment for housing markets: The Wharton residential land use regulatory index. *Urban Studies*, 45, 693–729.
- Handy, S. (2017). Thoughts on the meaning of Mark Stevens's meta analysis. *Journal of the American Planning Association*, 83(1), 26–28.
- Hankinson, M. (2017). *When do renters behave like homeowners? High rent, price anxiety, and NIMBYism* (Working Paper). Cambridge, MA: Harvard Joint Center for Housing Studies.
- Hilber, C. A., & Vermeulen, W. (2016). The impact of supply constraints on house prices in England. *The Economic Journal*, 126(591), 358–405.
- Hills, R., & Schleicher, D. (2011). Balancing the "Zoning Budget." *Case Western Reserve Law Review*, 62, 81–133.
- Hsieh, C., & Moretti, E. (2017). *Housing constraints and spatial misallocation* (Working Paper). Berkeley, CA: National Bureau of Economic Research.
- Hutson, M. (2016). *The urban struggle for economic, environmental, and social justice: Deepening their roots*. New York, NY: Routledge.
- Ihlanfeldt, K. R. (2007). The effect of land use regulation on housing and land prices. *Journal of Urban Economics*, 61, 420–435.
- Jackson, K. (2016). Do land use regulations stifle residential development? Evidence from California cities. *Journal of Urban Economics*, 91, 45–56.
- Jacob, J. S., & Lopez, R. (2009). Is denser greener: An evaluation of higher density development as an urban stormwater-quality best management practice. *Journal of the American Water Resources Association*, 45(3), 687–701.
- Joint Center for Housing Studies for Harvard. (2015). *America's rental housing: Expanding options for diverse and growing demand*. Cambridge, MA: Harvard University.
- Kaplan, G., & Schulhofer-Wohl, S. (2017). Understanding the long-run decline in interstate migration. *International Economic Review*, 58(1), 57–94.
- Karahan, F., & Li, D. (2016). What caused the decline in interstate migration in the United States? *Federal Reserve Bank of New York Liberty Street Economics* (blog post). Retrieved from <http://libertystreeteconomics.newyorkfed.org/2016/10/what-caused-the-decline-in-interstate-migration-in-the-united-states.html>
- Kok, N., Monkkonen, P., & Quigley, J. (2014). Land use regulations and the value of land and housing: An intra-metropolitan analysis. *Journal of Urban Economics*, 81, 136–148.
- Kolko, J. (2010). Urbanization, agglomeration, and coagglomeration of service industries. In E. Glaeser (Ed.), *Agglomeration Economics* (pp. 151–180). Chicago, IL: University of Chicago Press.
- Kurvinen, A. T., & Vihola, J. (2016). The impact of residential development on nearby housing prices. *International Journal of Housing Markets and Analysis*, 9(4), 671–690.
- Lens, M., & Monkkonen, P. (2016). Do strict land use regulations make metropolitan areas more segregated by income? *Journal of the American Planning Association*, 82(1), 6–21.
- Lewyn, M. (2016, May 24). Does new housing create new demand for housing? *Planetizen* (blog post). Retrieved from <https://www.planetizen.com/node/86486/does-new-housing-create-new-demand-housing>
- Mayer, C. J., & Somerville, C. T. (2000). Land use regulation and new construction. *Regional Science and Urban Economics*, 30, 639–662.
- Molloy, R., Smith, C. L., & Wozniak, A. (2011). Internal migration in the US. *Journal of Economic Perspectives*, 25(3), 173–196.
- Molloy, R., Smith, C. L., & Wozniak, A. (2017). Job changing and the decline in long-distance migration in the United States. *Demography*, 54, 631–653.
- Monkkonen, P. (2016). Understanding and challenging opposition to housing construction in California's urban areas. *Housing, Land Use and Development Lectureship & White Paper*, UC Center, Sacramento. Retrieved from <http://uccs.ucdavis.edu/uccs-crre-housing-policy-brief-white-paper>
- Mukhija, V., Das, A., Regus, L., & Tsay, S. S. (2015). The tradeoffs of inclusionary zoning: What do we know and what do we need to know? *Planning Practice & Research*, 30(2), 222–235.
- Newman, D. K. (2008). If you can't build it, they won't come: Condominium construction moratoria and gentrification. *British Columbia Environmental Law Review*, 35, 593–623.
- Notowidigdo, M. (2013). *The incidence of local labor demand* (Working Paper). Retrieved from http://faculty.wcas.northwestern.edu/noto/research/notowidigdo_JMP_20130329.pdf
- Ooi, J. T. L., & Le, T. T. T. (2013). The spillover effects of infill development on local housing prices. *Regional Science and Urban Economics*, 43, 850–861.
- Parkhomenko, A. (2017). *The rise of housing supply regulation in the U.S.: Local causes and aggregate implications* (Working Paper). Retrieved from http://www.andrii-parkhomenko.net/files/Parkhomenko_JMP.pdf
- Pendall, R. (2000). Local land-use regulation and the chain of exclusion. *Journal of the American Planning Association*, 66(2), 125–142.
- Quigley, J. (1998). Urban diversity and economic growth. *The Journal of Economic Perspectives*, 12(2), 127–138.

- Quigley, J., Raphael, S., & Rosenthal, S. (2004). Local land-use controls and demographic outcomes in a booming economy. *Urban Studies*, 41, 389–421.
- Redmond, T. (2015, June 14). Why market rate housing makes the crisis worse. *48 Hills*. Retrieved from <http://48hills.org/2015/06/14/why-market-rate-housing-makes-the-crisis-worse/>
- Resch, E., Bohne, R. A., Kvamsdal, T., & Lohne, J. (2016). Impact of urban density and building height on energy use in Cities. *Energy Procedia*, 96, 800–814.
- Resseger, M. (2013). *The impact of land use regulation on racial segregation: Evidence from Massachusetts zoning borders*. (Working Paper). Retrieved from https://scholar.harvard.edu/files/resseger/files/resseger_jmp_11_25.pdf
- Rodriguez, D. B., & Schleicher, D. (2012). The location market. *George Mason Law Review*, 19, 637–664.
- Rosenthal, S. (2014). Are private markets and filtering a viable source of low-income housing? Estimates from a 'Repeat Income' model. *American Economic Review*, 104, 687–706.
- Rothwell, J., & Massey, D. (2009). The effect of density zoning on racial segregation in U.S. urban areas. *Urban Affairs Review*, 44(6), 779–806.
- Sá, F. (2016). *The effect of foreign investors on local housing markets: Evidence from the UK* (CEPR Discussion Paper No. DP11658). Retrieved from <http://www.centreformacroeconomics.ac.uk/Discussion-Papers/2016/CFMDP2016-39-Paper.pdf>
- Saiz, A. (2010). The geographic determinants of housing supply. *Quarterly Journal of Economics*, 125, 1253–1296.
- Saks, R. (2008). Job creation and housing construction: Constraints on metropolitan area employment growth. *Journal of Urban Economics*, 64, 178–195.
- Savitch-Lew, A. (2017, September 15). Bitterness and division at Inwood rezoning hearing. *City Limits*. Retrieved from <https://citylimits.org/2017/09/15/bitterness-and-division-at-inwood-rezoning-hearing/>
- Schively, C. (2007). Understanding the NIMBY and LULU phenomena: Reassessing our knowledge base and informing future research. *Journal of Planning Literature*, 21(3), 255–266.
- Schleicher, D. (2017). Stuck! The law and economics of residential stability. *Yale Law Journal*, 127, 78–155.
- Schuetz, J. (2009). No renters in my suburban backyard: Land use regulation and rental housing. *Journal of Policy Analysis and Management*, 28, 296–320.
- Schuetz, J., Meltzer, R., & Been, V. (2011). Silver bullet or trojan horse? The effects of inclusionary zoning on local housing markets. *Urban Studies*, 48(2), 297–329.
- Schwartz, A., Ellen, I., Voicu, I., & Schill, M. (2006). The external effects of place-based subsidized housing. *Regional Science and Urban Economics*, 36(6), 679–707.
- Somerville, C. T., & Mayer, C. J. (2003). Government regulation and changes in the affordable housing stock. *Economic Policy Review*, 9(2), 45–62.
- Stevens, M. R. (2017). Does compact development make people drive less? *Journal of the American Planning Association*, 83(1), 7–18.
- Sturtevant, L. A. (2016). *Separating fact from fiction to design effective inclusionary housing programs*. Washington, DC: Center for Housing Policy Research and Policy Brief. Retrieved from <http://ihiusa.org/wp-content/uploads/Seperating-Fact-from-Fiction.pdf>
- Taylor, M. (2016). *Perspectives on helping low-income Californians afford housing*. Sacramento, CA: California Legislative Office.
- Terrazas, A. (2017). Are home buyers from China competing with Americans? *Zillow Research Brief*. Retrieved from <https://www.zillow.com/research/chinese-home-buyers-competition-14915/>
- Thadden, E., & Wang, R. (2017). *Inclusionary Housing in the United States: Prevalence, Impact, and Practices* (Working Paper). Cambridge, MA: Lincoln Institute of Land Policy.
- Turner, M. A., Hauhgwout, A., & van der Klaauw, W. (2014). Land use regulation and welfare. *Econometrica*, 82(4), 1341–1403.
- U.S. Census Bureau, American Housing Survey (2015). Retrieved from https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=a00000&s_year=n2015&s_tableName=Table1&s_byGroup1=a1&s_byGroup2=a1&s_filterGroup1=t1&s_filterGroup2=g1&s_show=S
- Weicher, J., Eggers, F., & Moumen, F. (2016). *The long-term dynamics of affordable rental housing*. Washington, DC: Hudson Institute.
- Zabel, J., & Dalton, M. (2011). The impact of minimum lot size regulations on house prices in Eastern Massachusetts. *Regional Science and Urban Economics*, 41(6), 571–583.
- Zahirovich-Herbert, V., & Gibler, K. M. (2014). The effect of new residential construction on housing prices. *Journal of Housing Economics*, 26, 1–18.
- Zuk, M., & Chapple, K. (2016). *Housing production, filtering and displacement: Untangling the relationships*. Berkeley, CA: Berkeley Institute of Governmental Studies Research Brief.