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Comment Jessie Handbury

Introduction

Over the past decade, venture capital funding of real estate and construction-related companies in the US has increased dramatically, outpacing growth in other industries and more than doubling its market share. Real estate technology firms, such as WeWork and Airbnb, have seen meteoric growth, and the home search process has been revolutionized with all home purchases reporting that they conducted some of their search online, an option unavailable to them 20 years ago. However, labor productivity

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in construction of single family homes—by far the most common form of housing—has been flat or has even decreased since the turn of the century. Housing remains unaffordable for many in both the rental market and the owner-occupied market, where real estate brokers continue to command commissions north of 5 percent on home sales. In chapter 11, Kung documents this varied landscape and provides some insight into the market structure that has prevented most of the real estate industry from seeing large gains from innovation. He also discusses why the impact of the technology in the areas where it has become prominent is so hard to decipher.

In this comment, I provide some context for Kung's analysis, highlighting a few key features of US housing markets that might explain why innovation has been limited in scope. The two key areas of innovation have been in the business of trading properties rather than in their production. High take-up of short-term rentals and online listing services suggests that there are gains for participants in those markets. However, the literature Kung reviews indicates that these technologies are, if anything, serving to increase house prices and exacerbate the housing affordability crisis, arguably the central policy issue facing housing markets in the US. Addressing this issue will require that the scope of innovation extend to the construction sector, which seems unlikely without policy intervention to relieve zoning restrictions and building codes.

Examples of Innovation, Unevenly Distributed Gains

Housing is a durable asset. As a result, the scope for innovation is as much in finding efficiencies in the trading and services markets as in its production. Indeed, the two most prolific recent examples of innovation in the housing sector have been focused on the former. Housing assets are also highly differentiated. Information frictions allow for local market power and profitable entry, so while highly entrepreneurial, real estate markets tend to be extremely fragmented, providing little incentive and insufficient scale for profitable R&D investments. It is not surprising, therefore, that innovations have come from an outside sector: tech firms creating platforms to reduce frictions around information sharing (e.g., Zillow's online search platform) and contracting (e.g., Airbnb's short-term rental marketplace). Kung documents high take-up of these services. Despite this, the existing literature has found that the introduction of platforms facilitating online search and short-term rentals has had limited measurable impact on quantities and instead is observed to increase the price of housing and housing services. In a market where supply is constrained by zoning restrictions, these results are not surprising and do not preclude welfare gains from such innovation. The increase in prices that has resulted from improved matches in home sales and more efficient use of real estate with time-sharing of apartments does indicate aggregate welfare gains. But it also implies that these innovations are

exacerbating the housing affordability crisis, thereby highlighting the lack of innovation and growth on the construction side of the housing sector. While supply remains constrained, the incidence of the gains from innovation in the housing sector will be enjoyed only by some, with detrimental effects on others. Indeed, recent work studies the incidence of Airbnb using structural estimation in New York (Calder-Wang 2019) and Amsterdam (Almagro and Domínguez-Iino 2019).

Innovation, or Lack Thereof, in Housing Supply

The key constraint on housing supply highlighted by Kung is zoning policy. Restrictive zoning binds especially in gateway markets, like New York and San Francisco, where land is in short supply and accounts for a high share of housing prices and rents. Outside major coastal markets, however, significant progress could be made to reduce housing costs with efficiencies that lower construction costs. Glaeser and Gyourko (2018), for example, estimate that the physical construction costs amount to about 70 percent of the production cost of an economy-quality single-family home, and slightly less than three quarters of homes in the American Housing Survey were priced near or below this in 2013. Schmitz (2020) argues that these physical construction costs are inflated by market power of the labor-intensive stick-built segment of the construction industry. He documents the steep growth of relatively inexpensive modular, or factory-built, housing in the 1960s that was reversed in the 1970s when they were made ineligible for HUD mortgage subsidies and the introduction of strong building code restrictions for modular homes relative to stick-built homes. After accounting for over 50 percent of single-family construction in 1970, factory production accounts for just over 10 percent of the industry today, in spite of significant cost advantages. In 2013, one-piece modular homes cost an average of \$38 per square foot, compared to \$94 for a single-family home built on-site (Schmitz 2020). These cost advantages cannot be realized in many neighborhoods where modular homes are outlawed by zoning. Relieving these zoning restrictions might go some way toward improving the lagging measured labor productivity that Kung reports for the single-family housing sector.

Innovation in the Multifamily Market

One area where we have seen innovations in the supply, rather than the trading, of housing services is in the multifamily rental market. This market is more concentrated than the single-family market, dominated by large, public firms with sufficient scale to invest profitably in R&D. Examples of this innovation include projects incorporating modular and off-site construction techniques in high-rise development. Though still in its infancy, the modular multifamily construction industry is growing rapidly, with the

estimated potential to reduce construction times by 20–50 percent (Bertram et al. 2019). Progress has been made by multifamily landlords in developing pricing algorithms, similar to those used by airlines, and in bundling housing with related amenities provided either internally or by outside service providers, such as Hello Alfred. This pricing and service-oriented R&D in the housing sector is unlikely to be categorized as such in the formal statistics, where it is likely listed as occurring in the FinTech or service sectors, but it will probably be increasingly important for housing markets as the size and scope of rental markets expand. Demographic and labor market shifts have increased the demand for amenitized, high-density housing (Couture and Handbury 2020; Rappaport 2015). The key question here will be whether zoning policies that restrict high-density development are relaxed, but trends indicate that zoning is only becoming more constrained (Gyourko, Hartley, and Krimmel 2019).

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