

Influence of Telecommuting on Homeownership and Housing Choice: A Study Based on Pre-pandemic Data

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Key Points

- ▶ A three-step instrumental variable analysis of 2009 and 2017 pre-pandemic U.S. National Household Travel Surveys.
- ▶ Households with telecommuters are more likely to be homeowners and live in detached houses, especially for middle-aged households.
- ▶ Impact of telecommuting on homeownership and housing type choices.
- ▶ Important guidance and implications for urban planning and housing policies in the post-pandemic era.

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Policy Focus

Telecommuting is defined as a flexible work-from-home arrangement for several times per week, while a regular workplace is maintained. Its popularity has been steadily growing even before the Covid-19 pandemic. According to Global Workplace Analytics in 2020, the practice of telecommuting increased by 1.73 times from 2005 to 2018. The onset of the pandemic in early 2020, led to a sudden surge in telecommuting as an emergency measure. The barriers to telecommuting, such as technology adoption and work practice adjustments, were overcome by the necessity of working from home.

The advantages of telecommuting, including time saved on commuting, reduced office costs, and improved long-distance connectivity, became more pronounced during the pandemic. Statistics indicate that telecommuting has continued into the post-pandemic era. This shift from traditional office work to telecommuting is expected to have a significant socioeconomic impact, particularly on the housing market. This Bulletin examines how telecommuting influences the housing market based on a study of the US housing market by Zhu et al. (2023), we are going to look at:

- The impact of telecommuting on homeownership and housing choices
- Important implications for understanding the fast-evolving housing markets and guidance for housing policy

Study Methodology

This study utilized pre-pandemic data from the 2009 and 2017 U.S. National Household Travel Surveys (NHTS) to analyse the historical relationship between telecommuting and housing preferences. A three-step Instrumental Variable (IV) approach was employed to investigate the causal impact of telecommuting on homeownership and housing choices. Pre-Covid-19 data were utilized to ensure accuracy and mitigate various temporary shock factors from the pandemic. The dataset was limited to households with a maximum of two workers aged between 16-65. Observations with missing telecommuting information were excluded from the dataset. The 2009 sample included 96,675 individual workers and 71,556 households, while the 2017 sample comprised 85,109 individual workers and 62,889 households.

Binary dependent variables are assigned to individual/household homeownership or housing type. Independent variables included telecommuting status, socioeconomic characteristics, and current residence status. Owning housing was denoted by 1, renting housing by 0; detached and duplex by 1, townhouse and apartment by 0. Telecommuting status of working from home at least once a week was denoted by 1, rarely or never telecommute by 0. Household-level age represents the average age of the two workers; household-level commute distance indicated the average commute distance of the two workers; household-level marital status denoted the relationship between the two workers; household-level occupation identified if the two workers were in the same industry (1) or different industries (1 each); household-level education indicated the highest education level. Age was categorized into three subgroups: young households (16-29 years old), middle-aged households (30-55 years old), and older households (56-65 years old). Urban areas were defined as areas with a population size > 50,000 people; urban clusters as areas with a population size between 2,500-50,000 people; areas with a population < 2,500 were

classified as rural areas. Regional fixed effects were controlled by a set of Core-Based Statistical Area (CBSA) dummy variables.

Findings and Analysis

Positive Correlation between Telecommuting and Homeownership

At the individual level, telecommuting has a statistically significant and positive impact on homeownership, with telecommuters being more likely to be homeowners compared to non-telecommuters. Estimated marginal effects revealed that telecommuters in 2009 were 34.9% more likely to be homeowners, the percentage has increased to 41% in 2017. Similar trends were observed at the household level: both one-worker and two-worker households with telecommuters were more likely to be homeowners. For one-worker households, telecommuting households were 36.4% more likely to be homeowners in 2009 and 36.6% more likely in 2017. For two-worker households, telecommuting households were 54.7% more likely to be homeowners in 2009 and 41% more likely in 2017.

When examining household life cycle stages across three age subgroups, it was found that among one-worker households, the presence of telecommuters had a statistically significant impact on the middle-aged subgroup (30-55 years old). In this subgroup, households were 42.9% more likely to be homeowners in 2009 and 47.6% more likely in 2017. The impact of telecommuting status on younger and older households' likelihood of homeownership was limited. However, both middle-aged and younger two-worker households were significantly influenced by telecommuters regarding homeownership. In 2009, middle-aged two-worker households with telecommuters were 67.6% more likely to be homeowners, decreasing to 40.1% in 2017. Young telecommuting two-worker households were 30.8% less likely to own a house in 2009 but 55.8% more likely in 2017. Older telecommuting households were 12.2% more likely to be homeowners in 2017. A spatial heterogeneity test indicated that the impact of telecommuting on homeownership was consistently observed in urbanized areas in both surveyed years. In 2009, telecommuters in urbanized areas were 26.8% more likely to become homeowners

compared to their non-telecommuting counterparts. This likelihood increased to 34.7% in 2017. For two-worker households, the homeownership of urbanized and suburban households was consistently influenced by telecommuting status in both years. Urbanized two-worker households saw a 44.6% increase in the probability of homeownership in 2009 and 37.2% in 2017. Suburban households with telecommuters were 24.1% more likely to be homeowners in 2009 and 54% in 2017.

Telecommuting and Housing Type Preference

Due to the absence of housing type information in the 2017 NHTS dataset, the analysis of the correlation between housing preference and telecommuting was solely based on the 2009 data. At the individual level, telecommuters were 29.9% more likely to reside in a detached or duplex house compared to non-telecommuters. At the household level, one-worker telecommuting households were 28.1% more likely to live in a detached or duplex house, while two-worker telecommuting households were 58.3% more likely. The presence of telecommuters significantly influenced living in a detached or duplex house.

The presence of a telecommuter notably increased the likelihood of living in a detached or duplex house for middle-aged one-worker households compared to non-telecommuting households. Similar results were observed among middle-aged two-worker households with at least one telecommuter. The spatial heterogeneous test indicated that, for one-worker households, telecommuting exerted a statistically significant impact on residing in a detached or duplex house in urbanized areas. Telecommuting households in urban areas were 18.1% more likely to live in detached or duplex houses. No significant influence of telecommuting on renters was detected, suggesting that telecommuting status significantly impacted homeowners.

Robustness Check

The study tested the robustness of the results by examining different categories of housing type choices using regression. Results demonstrated that telecommuters and telecommuting households tended to prefer dwelling types with more space. One-worker

telecommuting households were 33.8% more likely to live in a detached house, while two-worker households with a telecommuter had a 63.4% increased probability of residing in a stand-alone detached house.

Recommendations

Understanding Urban and Housing Development Plans in the Post-pandemic Era

The findings of this study indicate that both individual telecommuters and telecommuting households are more likely to be homeowners. This impact is statistically significant in the pre-pandemic data of both 2009 and 2017, especially evident for middle-aged (30-55 years old) households as demonstrated by heterogeneous analysis. With the significant rise in telecommuting due to the pandemic, an upsurge in homeownership demand is expected in the post-pandemic era. Policymakers should take this into account when planning new developments to ensure adequate housing to meet these evolving demands. Additionally, this study highlights the persistent and statistically significant influence of telecommuting status on homeownership in urban areas with higher rentership compared to rural areas. Consequently, in cities with overheated rental markets, this may offer benefits and alleviate the necessity for rent control or regulations related to short-term vacation rentals like Airbnb. The substantial growth in telecommuting post-pandemic is likely to increase the demand for more spacious housing while reducing the demand for compact housing such as apartments. As a result, planners and policymakers in suburbs, smaller cities, and towns may leverage this shifting housing demand to attract new residents and enhance local economies, but caution must be exercised to avoid generating unsustainable urban sprawl.

By diminishing the need for daily commutes, telecommuting makes longer distances between work and home feasible, expanding residential location options and enabling households to allocate budgets towards more spacious housing. Spending more time at home may elevate the demand for higher-quality housing conditions, encompassing spaciousness and neighborhood environment. Although detached or duplex housing may be less common in major cities and urbanized regions, policymakers and real

estate developers can contemplate increasing the number of rooms in apartments to accommodate telecommuters in creating home offices. Given limited square footage, apartment developers in urban areas can pay closer attention to interior space design to cater to the needs of telecommuters requiring home office spaces. Heterogeneity analysis reveals that the impact of telecommuting on housing types is particularly pronounced for middle-aged (30-55 years old) households, implying that any new low-density developments tailored for telecommuters should consider lifecycle needs, such as schools, children, and family leisure facilities.

Call for Studies on Telecommuting's Influence on Cities with Compact Development

While this study is based on US data, it carries international implications for housing markets in other regions. The impact of telecommuting on housing markets, akin to the US scenario, suggests that telecommuters, less restricted by commuting distances, have more housing options, potentially favoring low-cost, spacious accommodations due to reduced constraints. It is worthwhile to explore the effects of telecommuting on regions with significantly different housing markets from those in North America. For instance, regions characterized by compact development like Hong Kong, Singapore, and other Asian cities may witness shifts in homeownership and housing preferences due to telecommuting, albeit in distinct manners. Unique housing characteristics, housing policies (e.g., public housing in Hong Kong), and land scarcity issues may engender a unique relationship between telecommuting and dwelling preferences in these regions. Therefore, investigating the impact of telecommuting on the real estate market in such areas is crucial.

Main Reference

Zhu, Pengyu, Yuqing Guo, and Praveen Maghelal. "Does telecommuting influence homeownership and housing choice? Evidence based on pre-pandemic data." *Housing Studies* (2023): 1-34.

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