**Rose, Geoff & Harris, Richard. (2001). “The Three Tenures: A Case of Property Maintenance” Urban Studies (), 1 – 18.**

The paper looks at how property maintenance differences across ownership tenures focusing on Owner Occupied, Residential Landlord and Absentee Landlord. Furthermore, they look at the various types of absentee landlord structures with a focus on the rising case of LLCs. The authors use data from city of Rochester, NY to compare maintenance of these units and finds systematic differences both across tenure types and within the absentee landlord category. While longitudinal analysis indicates that the differences are likely tied to tenure type, the fact that only multi-unit structures are regularly inspected may cause some observation issues.

* Dietz and Haurin (2003) spoke of a general consensus that owner-occupiers take better care of property than landlords.
* Several studies use the American Time Use survey to find that owner-occupiers spend more times on maintenance than other tenure types and renters.
* A study by Ihlanfeldt and Mayock (2016) found that repossessed properties purchased by owner-occupiers had no negative impact on surrounding values while those purchased by investors did. A second study by Hwang (2019) focusing on Boston finds that maintenance problems remained after two years for absentee landlords and not for owner-occupiers.
* These studies; however, are dated and rely on inference by either assumptions regarding repossessed properties or surveys.
* In New York, there are legal advantages of being a residential landlord over an absentee landlord and several studies within New York seem to show maintenance behavior differences across these types [Sternlieb, 1966 and Sternlieb and Burchell, 1973].
* Porell (1985) uses American Housing Survey data to show that landlords provided more improvements than property mangers that live on site.
* Petterson, et. al. (1973) found that absentee landlords appealed property tax levies more frequently and Hilber (2005) and Ioannides (2002) found absentee landlords more likely to ignore neighbor concerns and more likely to purchase run-down properties in run-down areas.
* Other studies show that the number of properties a landlord owns may also matter (Mallach, 2007) and others show that the results are sometimes negative for smaller landlords.
* Desmond (2016) studies Milwaukee and shows the growth of LLC ownership and cites on case of an individual creating a separate LLC for each individual property to better shield themselves from any negative consequences. Also see Glantz (2019) and Mari (2020).

Methods and Data

Key data is from Rochester, NY who, for twenty years, has inspected all rental properties and inspections occur no longer than every six years. Most other studies utilize complaints rather than actual inspector data. Another problem with complaint data is that while neighbors may complain, residents will not complain if owner-occupied but may complain more if renters. The data is from s 2017 shapefile and a 2011 excel file. The authors then created the tenure type and absentee type variables. For the resident/absentee case, the obvious case of matched vs. unmatched addresses where used. Additionally, if any owner address was less than 50 meters to the property address, those properties were investigated more closely resulting in 2% of cases changing tenure type. Another issue may be owner-occupied units with “suites” that are rented out. To count properties owned by difference groups, addresses were used with the expected error in cases with different P.O. Box numbers. Once solution was to group ownership size in bins [1-10 properties, 11-40 properties, 40+].

Results

* Resident landlords controlled about 30% of two-units building with a declining share to 5% in 6-unit buildings.
* About 32% of single unit structures were held by absentee landlords with 61% of the city’s housing stock being single-unit structures.
* Owner-occupied were more highly valued by about $30K and were about 8.6% larger.
* An understated 4% of owner-occupied properties had outstanding code violations whereas 25.2% of absentee landlord structures had outstanding violations and this rate was slightly higher still at 27.1% for multi-unit structures. For resident-owned properties the rate was about 13.5%.
* The data shows that three-unit resident-owned properties had more code violations, losing the resident-owned advantage and the impact was negative in the case of 4-6 units. Once possible cause could be that with duplexes (two unit), the relationship between owner and renter is greater than in multi-unit structures.
* LLC owners reflected similar rates of code violations as other absentee landlord properties; however, those controlled by professional management companies outpaced all types of absentee landlords with 38.2% code violations. Additionally, this difference seemed greater in Black neighborhoods.
* The tenure differences shrink when value is controlled for (done by splitting sample into value bins).
* For causal analysis, the data from 2011 was added showing a 6% reduction in owner-occupied housing units.
* Between 2011 and 2017, 381 absentee owners of single unit structures became owner-occupiers while about 1161 owner-occupied units become renter units. In the case of the absentee to owner cases, the rate of code violation in 2017 was 12.6% which was lower than the absentee rate but higher than the owner-occupied rate. Conversely, for the properties that become rentals, the code violation rate was 21.1% in 2017.
* The paper looks at changes of ownership and the code violations and changes in assessed values showing that new owner-occupied units had a stronger commitment to the new properties. Properties that were owner-occupied and then becomes absentee owned saw high code violations in 2017 (about 26.1%) and a smaller appreciation in value (5.3%) compared to those where the owner was the same, but tenure changed.

Conclusion

The paper does find differences across tenure types, number of units, and number of properties owned; however, some of these may be tied to the frequency of inspections. Additionally, the paper finds that it is more tenure type rather than owner that seems to drive the differences. That said, LLCs are no better or worse than other absentee landlords.

**“Wall Street has purchased hundreds of thousands of single-family homes since the Great Recession. Here’s what that means for rental prices”**

CNBC Website: <https://www.cnbc.com/2023/02/21/how-wall-street-bought-single-family-homes-and-put-them-up-for-rent.html>

Carlos Waters 2,/21/ 2023

* MetLife Investment Management predicts that institutional investors may own 40% of single-family rental homes by 2030.
* Stop Wall Street Landlords Act of 2022 is an act written by Rep. Ro Khanna of California which restricts tax and other benefits to landlord investors with $100+ million in assets and imposes excise taxes on such properties.
* The article cites several firms that are purchasing and adding to housing stock through Built-for-Rent projects and claims many are backed by larger firms such as Blackstone or Pretium Partners.
* Concern is a connection between corporate ownership/purchasing and higher housing prices as seen in man of the Sunbelt areas.

**“Corporate Ownership: A Threat to Housing Affordability?”**

Pioneer Institute Public Policy Research Article

Aiden Enright, 3/21/2023

* Massachusetts is losing population and higher housing prices are argued as a possible cause.
* While there is debate about red tape for new construction, there is little conversation about the increases in corporate ownership.
* Argues that there has been an increase since 2000 and the Great Recession in corporate ownership as corporations took advantage of cheaper foreclosed properties and smaller landlords looking to get out of the market.
* A Pew report cited finds that 17 of all homes sold in Massachusetts in 2021 (11,027) were purchased by investors. The national average being 24%, up nine points since 2015.
* Authors cite Barnstable, MA where 60%+ of rented homes are owned by investors.
* Cite a study by Federal Reserve of Minneapolis that showed corporate investors where statistically more likely to buy properties in poorer areas around the Twin Cities.
* Other states with high corporate investing include Arizona, Neveda, Texas, Georgia, and North Carolina.
* The author cites a paper by Travis (2019) showing that LLC ownership was linked to increased likelihood of disrepair.
* Article highlights how LLCs provide shielding of owner and their other assets meaning there is less of an incentive to protect the value and quality of a given property.
* Redfin article reports that 18.4% of U.S. homes purchased in Q4 of 2021 were by investors. (<https://www.redfin.com/news/investor-home-purchases-q4-2021/>) Report has a graph of investor purchases over time.
* Data seems to show that investors are focusing on lower valued properties and thus blocking many first-time home buyers.
* The article also cites supply issues as being the primary driver of likely housing cost increase. Specifically zoning responses to massive increases in development between 1960 and 1980s. The zoning laws typically restricted multi-family units and increased lot sizes.
* Cite another study showing how landlord restrictions also lead to unintended consequences. (<https://journals.sagepub.com/doi/abs/10.1111/cico.12321>)

**“Institutional Investors: A Local Perspective”**

Evidence Matters, HUD Office of Policy Development and Research

Winter 2023

* Cash Sales are more prevalent in low-income zip codes and home prices have grown between 2017 and 2021 while income has not.
* Cite Goodwin and Godling (2021) claiming that institutional buyers purchase homes is disrepair and re able to more quickly rehab them given their better fiscal position.
* Argue that cash sales can be used as a measure of investor activity and cite the National Association of Realtors and CoreLogic as swaying that in Q1 of 2022, 60% of cash homes sales were by investors.
* Article focuses on data from John Burns Real Estate Consulting that includes only single-family detached housing.
* Investors can be small, medium, large or institutional, depending on their portfolio.
  + Small: 1 to 9 units and accounted for 80% of investor-owned homes (IOH)
  + Medium: 10 to 99 units and accounted for 14% as of August 2022. Article cites Lexington, KY as a hot spot for medium sized owners.
  + Large: 100 to 999 units and accounted for 3%.
  + Institutional: more than 1000 units and accounted for 3%. Areas highlighted are Atlanta, Charlotte, Jacksonville, Fort Worth, Dallas, and Huston.
* Purchase of IOHs have increased dramatically after COVID along with rising costs of land, construction materials and labor. Also points to higher regulations.
* Key factors to institutional purchase include Price-to-Rent ratios, demographics (especially age cohorts), and, of course, location!
* Texas is cited as one of the largest IOH markets. Key characteristics include growth of 11%\_ of households, 12% of residents moved within past year, rents increased more than 30% in past decade, and home prices by 40% during the same time.
* Dallas/Fort Worth Case Study
  + 20% population growth between 2010 and 2020.
  + Institutional investors owned more than 15,800 units in Dallas area and 13,750 in Fort Worth area
  + According to CoreLogic, cash sales made up 31.4% of sales in 2017 and 39.7% in 2021 in Tarrant County with Dallas County showing a 37.1 to 39.6% growth in the same period.
  + Article includes a graphic by zip code of share of cash sales.
  + Show a correlation with the fact that the areas with higher cash sales also have older homes with smaller values. Also use census data to show these areas with lowest median income.
* Show that new apartment construction was lower in high cash areas and higher in low cash areas.
* Developers are also purchasing homes in planned communities. They cite a transaction where Fundrise purchased 124 homes, all newly built in a single development with cash to make them rental.
* An article from Rent Café argues that the number of single-family homes built solely for rent will reach its largest in 2022.
* Huston Case Study
  + Since 2018, 14 subdivisions with 2,575 single-family units have been built as build-to-rent and they charge rents much higher than average.
  + Only four are in Harris County and none within the beltway (CBD)
* Blackstone-owned Home Partners of American recently stated it will stop purchasing in 38 cities due to restrictions. Most are in the hotter areas of corporate ownership.
* Some cities in Texas and New Orleans have passed resolutions to limit short-term rentals or tried to create more transparency. Georgia, on the other hand, proposed laws to limit such restrictions, but there was a lot of backlash and so they died.

**Travis, Adam (2019). “The Organization of Neglect: Limited Liability Companies and Housing Disinvestment” American Sociological Review, 84(1), 142 – 170.**

The paper uses surveys and administrative data to show that there is a level of disinvestment when a property is sold from individual to LLC that is not accounted for by other housing characteristics. The paper focuses on Milwaukee, WI and seeks to address the question of why some properties fall into disrepair while others do not. Specifically, the paper looks at how changing institutions (i.e. Business law) may inadvertently contribute to this issue.

* Hamill (1998) indicates that the LLC become pervasive after the state-by-state movement to streamline tax and liability rules for business organization.
* Cite Arrow (1963) and others on how laws to limit liability and risk may lead to riskier behavior.
* Use an interrupted time-series to show that when properties change from individual to LLC hands, disrepair increases despite those properties not already being on a trend toward disrepair.
* Case studies in Las Vegas and Detroit by Mallach (2014) identify four types of real estate investors: flippers, rehabbers, long-term holders, and “milkers”. The first two see appreciation gains while the latter two seek cash-flow profits generated by renters receipts with “milkers” seeking to maximize profits by minimizing costs by typically purchasing inexpensive properties and avoiding maintenance costs.
* Some key periods in landlord law include:
  + Establishment of building codes (Lubove, 1962; Novak, 1996)
  + Rise and fall of rent control (Arnott, 1995)
  + Expansion of tort liability (Love, 1975; Rabin, 1983)
* Incorporation traditionally comes with the cost of higher taxation, especially in the form of the corporate tax followed by the taxation of owner incomes.
* The key change came in 1977 when Wyoming created the LLC and then was solidified in 1988 when the IRS indicated that the LLC would be taxed as a partnership rather than a corporation. All 50 states had LLC legislation by 1996.
* In real estate, this was welcome as the 1970s and 1980s was a period of increasing liabilities for landlords as courts moved away from the common law doctrine of “caveat lessee” and shifted more liability for living conditions to landlords.
* Author indicates two mechanisms for the LLC to lead to more disinvestment:
  + The protective shell of LLC leads to more investment in low-end properties (adverse selection on property characteristics).
  + The protective shell of LLCs leads to less incentive to invest time or money into maintenance (LLC-owner effect).
* Uses digitized records and the MARS (Milwaukee Area Renters Study) as data sources. Also uses data from the Master Property Record and the Neighborhood Services System which contains all code violations issued by DNS.
* Residential property is coded by
  + Land Use Code (Single family, two-family, multi-family, condominiums, residential mixed-use).
  + Rental properties are then identified if any of the following hold:
    - Owned by business entity
    - Multi-family residents (3+ units)
    - Single family not owner occupied
    - Two-family that is not owner occupied
    - Condominium that is not owner occupied
    - Mixed use property with at least one residential unit not owner occupied.
    - Owned by bank or lending institution.

The validity of the coding was double checked with 2010 census counts for rental units and the authors coding yielded 95% of the census total. The author excludes properties owned by government, and tax-exempt agencies.

* Code violation data from DNS is used to measure disinvestment. While inspection frequencies differ, the author focused only on triggered inspections. Furthermore, focus is limited to code violations for structural condition, habitability of the unit, exterior maintenance, and provision of access to DNS inspectors. This is used to create a dichotomous variable “code violation” that is one if a code violation is received on a property in a given year.
* Ownership is divided into five groups:
  + LLC (based on naming requirements by state law)
  + Corporations (based on naming requirements by state law)
  + Limited Partnerships (based on naming requirements by state law)
  + Real Estate Owned (REO)
  + Sole Proprietors (those not above)
* Property size is controlled for by number of units and property type (single, two, multi-family, etc.).
* Also control for building age and assessed value.
* Also control for sale history using post foreclosure, ownership transfer periods.
* Also controlled for location of landlords (absentee or nearby) and ownership scale.
* Census controls include household poverty, racial composition, housing tenure with missing values filled in using linear interpolation and the Longitudinal Tract Database.
* Because care must be taken for selection bias, the author uses both a property fixed effects and control-group interrupted time series model. The models are estimated as Limited Probability Models with OLS to avoid incidental parameters. The control-group interrupted time series (appears similar to regression discontinuity) uses treatment properties (sole to LLC) to test again control (sole to sole) and tracts the disinvestment. The estimation equation is:

The post transfer indicates control and treatment groups with and indicating intercept changes immediately upon transfer. The pre period and post period county the number of years pre or post year zero (transfer year) in either state and the corresponding coefficient is the slope parameter. In this setup, the condition suggests the presence of an LLC-owner effect.

* Initial LPM results show a 2 percentage point increase in the likelihood of receiving a violation for the treatment properties. Likewise, properties in poor and black neighborhoods are more likely to receive violations as are older and larger properties. The inclusion of fixed effects lowers the magnitude to 1 percentage point, but remains statistically significant.
* The interrupted time series approach provides mixed results. While the overall comparison is not statistically significant, the differences between the two pre and two post slopes are statistically significant and the graphical image implies that SP to SP sees a lower and decrease probability of receiving a violation while the SP to LLC see an initial decrease, but a significantly increased probability as time increases from the transfer period.
* Author then identifies “high poverty neighborhoods” with more than 40% of residents below the 2000 poverty line and then compares the density of LLC ownership and finds a higher density in the poor neighborhoods. The author then estimates the first two models on each subsample and finds significantly higher probabilities in the poor neighborhoods.
* The author then uses the MARS survey to measure the responsiveness of landlords and compares across the ownership types. The MARS data is shown to provide similar results consistent with what is found in the primary analysis.

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**Gorback, Caitlin, Franklin Qian, & Zipei Zhu. (2023) “Impact of Institutional Owners on Housing Markets” Preliminary.**

Look at the creation of Long-Term Rental (LTR) companies and show they geographically concentrate their holdings. Create an instrument to predict LTR entry and estimate the causal impact of LRT market share on local housing prices. They find a 1 standard deviation increase in LRT share leads to an additional 2.11 percentage point increase in overall home values.

* Use housing transaction data to create a panel of ownership spells. Show that while investors took a lead in growth of ownership share after 2007, by late 2010’s that led was lost to owner-occupied.
* The paper splits the large institutional investors into Long Term Rentals and others and shows that while the overall institutional share stagnated, the LTR share grew substantially, relative to the share of institutional ownership, between 2010 and 2022.
* Aggregate small landlords (SLL) and LTRs by census tract and show that investor share is targeted in newer, mid-size, single-family units in neighborhoods with low vacancies and higher minority shares.
* The authors argue there is endogeneity with housing prices as changes in housing prices may impact the decision to invest. Furthermore, the measure of LTR is likely understated due to inability to track individual companies to parent companies. For these reasons they develop a “shift-share” instrument.
* The instrument is based on a “differential revealed preference” for specific unit types between SLL and LTRs. From this, they create a pre-existing product mix in 1990 to create a “suitability index” based on how suitable an area is for LRT entry based on 1990 market product mix. They then interact this with a measure of venture capital flows into online property management software (OPM) as a proxy for lowering costs of managing large portfolios of disjointed housing.
* The 2SLS estimation process uses this interacted instrument (suitability index) as an instrument for annual changes in LTR share in a census tract against the annual changes in logged housing price index of the same tract. [See Bartik, Blanchard, and Goldsmith citations below for justification].
* Results show a 1std increase in LTR share leads to a 2.11 percentage point increase in housing values. The authors attribute this to (1) a reallocation of stock from SLL to LTRs and (2) a reallocation of stock from owner-occupied to both SLL and LTRs.
* The authors also look at SLL to SLL, SLL to LTR and LTR to LTR transfers. The argument is that SLL to SLL should have no impact on prices and rents while movement from SLL to LTRs expose more of the market to algorithmic prices which studies show have upward pressure on prices and rents.
* Transaction data also shows that areas with larger LTR shares see owner-occupiers selling to LTRs and LTRs selling among themselves rather than to OO.
* Data Sources
  + CoreLogic Deed Records and Tax Assessments: Focus on non-arms-length transactions and use the Deeds data from 2000-2022. Characteristics are informed using tax assessment data.
  + Census: Use property, demographic and labor market data from the 1990 & 2000 census and the 2012 ACS.
  + SEC 10K fillings: Used to map small legal subsidiaries to larger parent companies such as REITs, single-family rental companies, and large asset managers.
  + OpenCorporates: Used for a similar purpose as the SEC filing.
* Data Processing
  + Create a balance panel of data at the property level where ownership is tracked based on sales information.
  + To create the price index for each census tract, the authors create a house price index using the actual sale prices to impute the fair market value for properties for 2000-2022. The hedonic price model is specified as:

With denoting unit, denotes census tract and year is denoted by . The matrix includes property characteristics including age, age squared, squared footage, acreage, bedroom, bathrooms, total rooms, and the presence of a garage or carport. The census-tract-year fixed effects is denoted as and is a month indicator for seasonal market cycles.

* + The authors also employ a repeated sales HPI produced by Federal Housing Finance Agency (FHFA)
  + The HPI is used to impute the missing values when homes are not transacted and to replace any unusual entries into the data.
  + The ownership records do not keep corporate names using individual names, family trusts, or public, non-profit or governmental agency ownership. Corporate ownership is indicated by names including the LLC, Corp, Inc, Capital or other terms along with the CoreLogic corporate indicator. The authors also use RapidFuzz, a Python package, to calculate the Levenshtein string distance and fuzzy matches for different corporate names.
  + This information is then used to collapse the smaller holdings into a panel of all holdings and include total units, estimated market value and annual transaction volumes. This panel is then used to categorize the entities into groups:
    - LTRs: Average holding period of at least 3 years. Typically made up of private equity and buy-to-rent and rent-to-buy.
    - SLLs: Average holding period of at least 3 years and fewer than 150 units. Also dividing into three groups based on number of units owned.
    - Builders: Holders of a very large number of units, but for shorter times. Typically, new construction.
    - iBuyers: firms such as Zillow Offers, RedfinNow, and Opendoor. Focus on profits through volume by speculating on undervalued properties. Do not act as landlords.
  + Of the 1127 largest firms, 36 are LTRs, 203 are Builders, 6 iBuyers and 882 “other”.
* Compared to other institutional investors, LTRs saw increases between 2010 and 2022.
* To investigate if LTRs target certain types of properties or populations, the authors use census data at the tract level on the percentage of single-family and other density units along with number of rooms, bedrooms, age, log rent, log home value, log income, vacancy rates, college attainment, unemployment poverty and race. They then create a set of pairwise interactions (3-bedroom apartment, 4 bedroom, single family, etc) and then apply the least absolute shrinkage and selection operator (LASSO) to determine which of the 90 possible pairwise combination are most relevant and reduce that number to 42. They then regress the following specification to estimate revealed preferences:

Where the MktShare is the market share of either LTR or SLL with 2 to 5 units (the largest majority of SLLs), is the pairwise property in census tract , is the set of demographics and is a county level fixed effect.

* Estimation of the above equation shows the revealed preferences for property and neighborhood types. The authors argue that SLLs tend to avoid areas with high vacancy rates and high poverty while gravitating toward areas with high Hispanic and Black minority shares. LTRs seem to target newer mid-size singled family housing in neighborhoods with healthy rental markets (low vacancy and low poverty) in high-minority areas.
* The core analytical question is how a change in the LTR share in each census tract will impact the value of housing. The initial issue is endogeneity caused by the fact that housing prices will attract to deter the entry/expansion of LTRs in each area. To avoid this, the authors attempt to create an instrument that accounts for the observed differences in preferences for LTRs vs. SLLs along with the investment of venture funds in software advances that lowers the management cost of large portfolios of units.
  + Using the significant coefficients from the market share equation above, the authors generate a suitability index by using the property pairwise mixture from 1990.
  + Authors then create a “shift” part of the instrument looking at the funding rounds and total cumulative funding of capital in the OPM market. This is called a “push” factor as higher investment should lower costs which, in turn, increase the number of landlords entering the market, all else equal.
  + The final instrument is explained on page 28, equation (5).

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**Gurun, Umit G. & Jiabin Wu & Steven Chong Xiao & Serena Wenjing Xiao (2023). “Do Wall Street Landlords Undermine Renters’ Welfare?” The Review of Financial Studies (36), 70 – 121**

The paper seeks to address the question of whether more institutional owners of single-family rental units (SFRs) impact the welfare of renters by examining the changes in rent and neighborhood quality. To identify the model, the authors exploit the recent mergers of some very large SFR owners between 2015 and 2017. The authors show, analytically, that the institutional owners may impact welfare either by extracting more rents (market power) from renter or by exploiting economies of scale (scale economy). The estimation strategy estimates a DID model of areas around mergers. The authors show that in areas with high overlap of properties owned by the parties of the merger, there was an increase in rent of about 0.51% in the year after the merger but that there was also a decrease in crime measured by a decrease in crime events of about 5.23%.

Institutional Background

* While small landlords are still the dominate player in the single-family rental market, there has been an increase in institutional investors who, while having a very small overall share of the SFR market, are rather concentrated giving them a bit of market share pricing power. Recent mergers of these types of owners have increased the likelihood of that outcome.
* Horizontal mergers can impact welfare in one of two ways: (1) positively through increased efficiency and economies of scale, and (2) negatively via increased market share and thus higher market power.
* In terms of neighborhood quality, the authors argue that institutional landlords can improve quality via (1) decreased average costs of maintenance and security resulting from highly localized areas, (2) reduction in coordination of residents and owners resulting from higher ownership concentration, (3) the possession of managerial know-how, and (4) enhanced retention rates caused by lower competition.

Model

* The model used assumes there are two identical homes for rent and expresses the demand for any given home as:

where and denotes security level, and is the rent for house . The parameter denotes the impact of the rent charged for the other house relative to its own rent on the demand for a given house. So, if , the demand for house is decreasing in its own rent and increasing with the rent of the other home. The and are the upper and lower bounds of the willingness to pay for a given home with security level assuming the rent of the other home is zero.

* The authors then assume two landlords which pay a game of first selecting the level of security and then engaging in rent competition. The resulting Nash Equilibrium is characterized as: (1) higher security produces a higher equilibrium rent, (2) when the cost of security is sufficient high, no landlord hires security, and (3) if the cost of security is low, then only one hires security while the other freerides.
* If the two landlords merge, they show that security increases as does average rent. The higher rent, however, may be due to higher security, which increases demand, or via higher market power which results in lower demand with higher rents.
* The authors then consider a model with a third landlord who does not merge with the other two. They then present four hypotheses from their model:
  + Institutional mergers lead to increased rent in overlapped neighborhoods relative to non-overlapped neighborhoods.
  + The increase in average rent, post-merger, is weaker with more competition.
  + In overlapped neighborhoods, the rent charged by merged landlords is higher than that charged by the non-merged landlord.
  + Institutional mergers decrease crime in overlapped neighborhoods relative to non-overlapped neighborhoods.
  + Post-merger reduction in crime is weaker with greater competition.

Data

* Main data is property-level data from Zillow assessor and Real Estate Database (ZTRAX), neighborhood level rental data from the Zillow Rent Index (ZRI) and the Zillow Rent Zestimate, and census-track level crime data from LexisNexis Community Crime Maps. Additionally, they state they use a dataset that includes the density of streetlights, hiring of security guards, and property-level rental listings.
* Institutional investors are identified the same way as in Ganduri, Xiao, & Xiao (2019).
* Mergers are determined using the internet and the Merger and Acquisitions data from Security Data Company (SDC).
* Overlapped neighborhoods are divided into Large Treatment, where the merger led to the acquisition of at least 5 or more properties, and Small Treatment otherwise.

Empirical Analysis

* Paper focuses only on the institutional mergers to “capture discrete jumps in the scale of institutional investor’s portfolio”
* The two models estimated are:

Where denotes merger, denotes neighborhood, denotes census tract, and denotes the month. The is a dummy equal to one for the neighborhood-month observations that occur after the merger. The variable is based on the amount of overlap between the acquirer and target properties in each neighborhood. Specifically, it is defined in one of three ways:

* + A binary variable equal to one if any target properties are within the same neighborhood as acquirer properties.
  + A binary variable equal to one if the acquirer gains five or more properties in the neighborhood from the merger, or
  + A continuous variable equal to the number of properties the acquirer gains from the merger.

Results

* For the first equation, the authors find that where a firm gained more than five properties, the average rent increased $8.47 per month based on the ZRI. Authors claim that after considering the pre-merger growth rate of rent was about 4.5%, these results show that the post-merger growth rate is closer to 11%.
* The authors are only able to test the persistence of this increase for two mergers and do find some evidence that the growth persisted after the mergers.
* In the case of crime, there is a 5% reduction in the number of crime events in the 12-month period after the merger in areas where at least 5 properties were gained. Specifically, this was seen in decreases in Burglary, Theft, and Vandalism.
* To test for the selection bias involved in choosing a targeted firm, the authors interact the total number of acquired properties with the Post variable and estimate the model for separate subsamples of overlapped and non-overlapped neighborhoods. If the results are driven solely by selection bias, then the coefficient of interest should be similar in both models as overlap means nothing. The results show that there is no impact on the ZRI for non-overlapped properties and a similar and significant result for overlapped areas. For crime, there is a smaller but significant decrease in crime post-merger in the non-overlapped areas compared to the overlapped areas.
* To test neighborhood quality more, they use data from Burning Glass Technologies on job postings looking for hiring of security patrols and the Visible Infrared Imaging Radiometer Suite (VIIRS) to use light pollution to measure changes in street light concentration. They do find increases in the postings for security patrols for the mergers, but no discernible impact for streetlights.
* Renter turnover is calculated by scraping Zillow rental listings, and they can find a significant negative impact on this variable post-merger. They do not, however, find any evidence of an effect on vacancies.
* For testing market power effects, they add a concentration measure to the interaction terms in the equations and find the following:
  + For rents, there is an increase in the rent charged and this increase in seen mainly among the acquired homes.
  + Vacancies do increase around mergers in overlapping areas indicating a decrease in demand.
  + Replacing the rental index with home value (also from Zillow), they show no significant increase in value from the merger; however, after two years, there is a slight increase in cases of any overlap (but not the 5 or more property version).
* The paper then estimates a quasi-hedonic model (read paper for specifics) to attempt to determine how much of the increase in rent is caused by safety and how much by concentration. The results find that most of the increase in rents is driven by market power rather than increased quality narrative.
* For crime, the authors compare areas with mergers to those without and show that while pre-merger, the areas with mergers saw relative increases, however, post-merger, this rate fell. This result is consistent with both overlapped and non-overlapped areas.

Favilukis, Jack & Stijn Van Nieuwerburgh. (2021) “Out-of-Town Home Buyers and City Welfare” The Journal of Finance (76) 5, 2577-2638.

Develop an equilibrium model to quantify the welfare effects of out-of-town buyers on the welfare for a typical U.S. metro area. Results show that an increase of OOT ownership in the city of 10% or the suburbs of 5% decrease welfare by about 0.61%. Home values and rent significantly increases improving welfare of owners but harming renters. Finally, taxes on OOT buyers or rental mandates may mitigate welfare losses.

The introduction of the paper presents some data from individual cities such as New York with data from CoreLogic and for the rest of the U.S. using data from National Association of Realtors surveys. Other datasources are uses to show information on OOTs across the globe as well.

Model:

Overall, the model has an MSA with a fixed population set to one. Zone 1 is the CBD or Urban Core where employment takes place and Zone 2 is the periphery where some residents live

* Households
  + Preferences

Consumers/households maximize utility in an overlapping generation model with a continuum of households at any given age. Each household maximizes utility over consumption (), housing (), and leisure (). The utility depends on location (), age (), and local public goods spending (). Parameters include the coefficient of relative risk aversion (), a measure of the importance of public goods (). The consumption function is a CES function with a Frisch elasticity of labor supply dominated by (this measures the elasticity of labor with respect to wage assuming a fixed marginal utility of income). The intertemporal substitution between housing and non-housing consumption is denoted by .

(1)

(2)

Housing at any time is defined as where the latter is a minimum housing or lot size. Workers only work () if they are under the age of 65 and for those individuals, the hours work is defined as . In this specification, the is the commute time such that and is a non-zero lower bound on hours work to allow unemployment to be ruled out.

Tastes and preferences are shifted with an age-location-specific taste shifter that is normalized to unity for those residing in zone 2 without respect to age. For other households it is defined as:

(3)

Here the shifter captures the added amenity value from residing in zone 1 relative to zone 2. Furthermore, the shifter captures the shift for workers () and retirees () who reside in zone 1 and consume above the lower consumption threshold.

Finally, there are two types of households with respect to time preferences with denoting high patient households and denoting low patient households.

* + Endowments

A household obtains labor income of which depends on the number of hours worked (), the wage per hour (), a deterministic component that captures a hump-shaped pattern in life-time income over time, and an idiosyncratic and persistent stochastic labor productivity state denoted by . After the exogenous retirement age, the household earns a pension that is a product of an aggregate component ( and an idiosyncratic component denoted by . The pension is funded with a tax rate on labor income equal to .

While there is no intentional bequest plan, households that die leave accidental bequests and death occurs at a risk of . Recipients of bequests are random with the exceptions that they be between the age of 21 and 65 and that patient household bequests go only to patient households and impatient bequests go only to impatient households. The size of the bequest is drawn from a distribution that is different for each household type and equal to .

* + Location and Tenure Choices

There is an aggregate state of the world () that includes wages, housing prices (), market rents (), and housing stock () for each location. The household level state variables are its net worth at the start of each period (), its idiosyncratic productivity level (), and its age. Given this, the location and tenure choice is based on the value function:

Note that each value function has a Bellman equation for both types of household.

* + Renter’s Choice

The renter’s choice problem is the solution to the following system including equations (1) and (3) above along with the minimum housing and hours worked equations.

subject to:

The term denotes the renter’s savings in a risk-free bond and denotes the financial cost of commuting for households in zone 2. Also note that for , the retirement income term () is zero.

* + Owner’s Problem

The owner’s choice problem is the solution to the following system including equations (1) and (3) above along with the minimum housing and hours worked equations.

subject to:

,

This assumes that the homeowners in each zone are the landlords to the renters in that same zone and the rental income is expressed by the term where denotes the investment units. Furthermore, each owned units depreciates at the rate resulting in the maintenance cost of and all owners much pay property taxes equal to on all owned (and rented) housing units. Finally, the term on the left-hand size of the second equation is the mortgage seen as a negative safe asset where is the fraction of the market value of the primary housing unit they can borrow.

* Firms
  + Goods Producers

The large number () of good producing firms faced decreasing returns to scale () and maximize profit each period:

* + Developers

Likewise, there are a large number of identical developers in each location that act competitively that produce new housing units at a price per unit. All developers are located in the urban core with the existing housing stock at a given location equal to . Given the decreasing returns to scale faced the firms, they choose labor each period to maximize:

Note there are two sources on nonlinearity in this equation. First is the decreasing returns to scale and the second is the term which is the total among of land zoned residential (in terms of square footage multiplied by the floor are ratio [FAR]). As a result, the housing elasticity is governed by both and unless the latter is set sufficiently high.

* + Aggregate Profits

All the firms are owned by equity holders outside the city and enjoy joint profits equal to *.*

* OOT Buyers

The demand for housing by out-of-town buyers (OOT) is price elastic, stochastic and persistent. The stochastic element if governed by shocks in the overall political climate, oil prices, exchange rate, or other geopolitical issues. OOT purchases follow a two-state Markov process such that in the low state, and in the high state, purchases in zone are expressed by the demand function

where is the equilibrium price of housing in the given zone.

* Equilibrium

Given a set of parameters and the stochastic process , the competitive equilibrium is expressed by a price vector ( and an allocation denoted by a set of aggregated demands {} where all markets clear.

The conditions of this equilibrium are as follows:

(E1a) (E1b) (E2) (E3)

(E4)

(E5)

Additionally, the aggregate state evolves according to rational expectations, the value of all bequests received in a time is equal to the wealth of all households that die the previous time, and the total local public goods spending equals the total property tax revenue.

Equations (E1a) and (E1b) denote the labor demand in the goods and housing markets while equation (E2) denotes the aggregates demand for labor equals the supply. Equation (E3) is the housing market where the left-hand side indicates the loss from depreciation plus the new construction and maintenance of the existing housing stock must equal the total owner occupied, rental, and OOT housing demand. Furthermore, equation (E4) simply states that the housing investment hold must be equal to the total rental housing demanded by renters. Finally, (E5) simply indicates that the average pension must equal to the average revenues to the pension fund. It should be noted that solving this exploits that and are assumed to average to one in the cross-section.

* Welfare

The welfare of any given agent from the change in OOT is measured by:

Where the and denote the case when the OOT state if Low in one period and Low again in the next versus where the OOT state is Low in one period and High in the next. The above equation shows the change in welfare from the added demand by housing by OOTs caused by the change for Low to High states.

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