Rental Property Ownership in the United States

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Motivation

- About 1 in 3 U.S. households are **renters**
- Yet we know little about the individuals and firms that **supply rental housing services**
  - Little high-quality microdata on landlord identities, let alone property portfolios
  - Challenge: common practice of owning real estate properties through LLCs
- Needed for research on **questions about housing markets and policy**, e.g.,
  - How much of variation in rents across locations can be explained by differences in ownership?
  - Are small landlords disproportionately affected by stricter regulation?
  - When large landlords take over rental properties, how does this affect tenants?
- This project: develop **methodology to identify landlord identities and portfolios** in a uniform way at near-national scale

This project

- Construct **new measures** of rental housing ownership using restricted Census data
  - Ownership at property level, ownership portfolios & concentration, owner typology
  - Comparisons to commonly-used method of constructing portfolios from mailing addresses
  - Validation of reported ownership in the Residential Housing and Finance Survey (not today)
- Document **new facts** about the rental housing market
  - Owner type & portfolio size distributions, by single-/multi-family status, neighborhood characteristics, geography
- Study relation between **landlord type** and **rental prices, vacancies & tenant selection**

DATA

Data and coverage

- We combine two types of data to identify rental housing owners
  1. Deeds and property tax assessment files (Black Knight)
  2. Census and IRS establishment and firm-level data (Business Register, Schedule K-1)

- We currently restrict to select CBSAs for computational reasons
  - CBSAs were chosen to cover different regions and types of housing markets:

    Chicago, Hartford, LA, Washington DC, Charlotte, Denver, Houston, Denver, Phoenix, Seattle, Atlanta, Charlotte, Jacksonville

  - We plan to expand to other geographical areas in the future

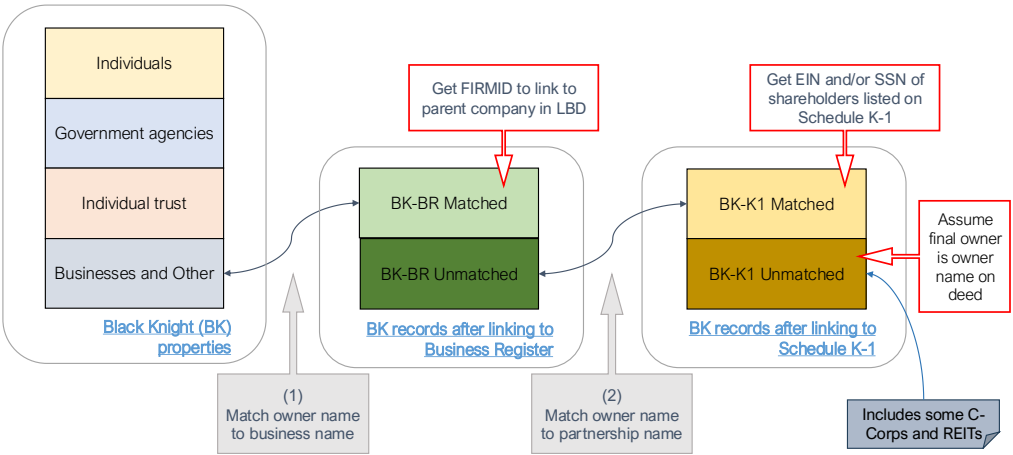
- Deeds and property tax assessments cover $>$99% of rental properties in 2019 across our CBSAs

CONSTRUCTING OWNERSHIP PORTFOLIOS

Data construction

- Step 1: Identify **final owners** for properties in Black Knight data
- Step 2: Identify **rental properties**
- Step 3: Construct rental ownership **portfolios**
  - For each individual or firm supplying rental housing, a portfolio is the set of properties owned & the owner's stake in the property (following Cooper et al. 2016)

Step 1: Identify final owners for each property



▸ Matching procedure

Example using made-up data

Property ID	Owner name (deed or assessment)	Mailing address (assessment)	Final firm owner (after linking to BR and K-1)	Final owner names (after linking to BR and K-1)
1	Jane Doe	8 Common Rd		Jane Doe
2	123 Main St LLC	123 Main St		Nathan Lane
3	125 Main St LLC	125 Main St		Nathan Lane
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Nathan Lane
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Shareholder 2
⋮	⋮	⋮	⋮	⋮
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Shareholder 100
5	101 Broadway Ave LLC	3 Legal Rd		Jane Doe
5	101 Broadway Ave LLC	3 Legal Rd		Dee Reynolds
6	Landlord Inc	3 Legal Rd	Landlord Inc	Landlord Inc

Step 2: Identify renter-occupied properties

1. For each property, identify associated MAF-IDs
2. For each MAF-ID, identify associated PIKs in the MAF-ARF
3. Remove likely owner-occupied properties, where
   - Black Knight owner-occupied flag equals 1 OR
   - At least 50% of MAF-IDs are owner-occupied in the 2019 ACS OR
   - At least 50% of MAF-IDs have matching owner and resident PIKs

Details

Step 3: Construct rental property ownership portfolios

- To construct a list of owners for each property:
  1. Generate a graph where
     - *Nodes* are final individual owners and final firm owners
     - *Edges* represent shared ownership of any property
  2. Construct **Final Owner Network (FON)**
     - FONs are *disconnected subgraphs* where all owners (nodes) share ownership of property

- To construct portfolios:
  3. For each node in a FON, the **portfolio** is a list of property IDs, and the node's ownership share for each property ID
  4. Since we can't observe ownership stake, assume owners hold equal stakes

Example of portfolios and ownership stakes in made-up data

Property ID	Owner name (deed or assessment)	Mailing address (assessment)	Final firm owner (after linking to BR and K-1)	Final owner names (after linking to BR and K-1)
1	Jane Doe	8 Common Rd		Jane Doe
2	123 Main St LLC	123 Main St		Nathan Lane
3	125 Main St LLC	125 Main St		Nathan Lane
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Nathan Lane
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Shareholder 2
⋮	⋮	⋮	⋮	⋮
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Shareholder 100
5	101 Broadway Ave LLC	3 Legal Rd		Jane Doe
5	101 Broadway Ave LLC	3 Legal Rd		Dee Reynolds
6	Landlord Inc	3 Legal Rd	Landlord Inc	Landlord Inc

- Jane Doe owns 100% of property 1 and 50% of property 5
  - Dee Reynolds' and Jane Doe's properties are in the same FON
- Nathan Lane owns 100% of property 2 and 100% of property 3
- City Realty Inc owns 100% of property 4 (over 10 shareholders)
- Landlord Inc owns 100% of property 6 (can't observe further links in the chain)

Who is in the BK-BR-K1 unmatched category?

1. Sole proprietorships
   - Not a separate business entity, so not in the Business Register

2. Some C-corps (incl. REITs), when property owned by subsidiaries
   - If subsidiary is not a separate business entity, then subsidiary is not in the Business Register
   - If subsidiaries are *not* partnerships, they don't file Schedule K-1 and we can't observe parent company or shareholders
   - Currently exploring augmenting with other data, e.g., 10-K filings and Open Corporates data

3. Owner name has errors or noise
   - Fuzzy string matching approach requires jaccard score $>.85$
   - Businesses with poor quality matches into BR or K-1 remain unmatched

Classifying owner types at the property level

- Useful to characterize landlords by type, not just portfolio size
  - Debate around “corporate” landlords, but many corporate landlords are 1-2 individuals
- We classify owners into
  - Unincorporated individual
  - Incorporated individual (business with 1-2 individual shareholders)
  - Business
  - Public
  - Individual trust

Example of owner types in made-up data

Property ID	Owner name (deed or assessment)	Mailing address (assessment)	Final firm owner (after linking to BR and K-1)	Final owner names (after linking to BR and K-1)
1	Jane Doe	8 Common Rd		Jane Doe
2	123 Main St LLC	123 Main St		Nathan Lane
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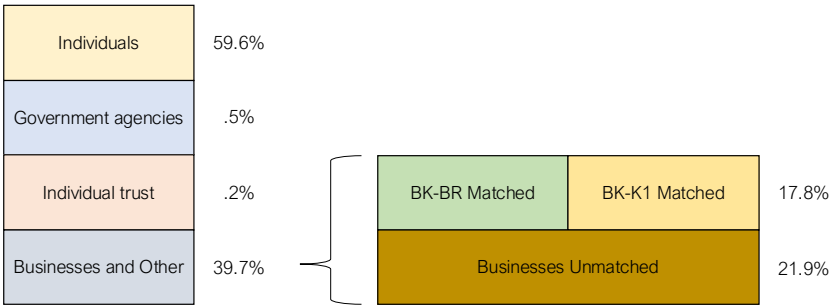
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Shareholder 2
⋮	⋮	⋮	⋮	⋮
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	Shareholder 100
5	101 Broadway Ave LLC	3 Legal Rd		Jane Doe
5	101 Broadway Ave LLC	3 Legal Rd		Dee Reynolds
6	Landlord Inc	3 Legal Rd	Landlord Inc	Landlord Inc

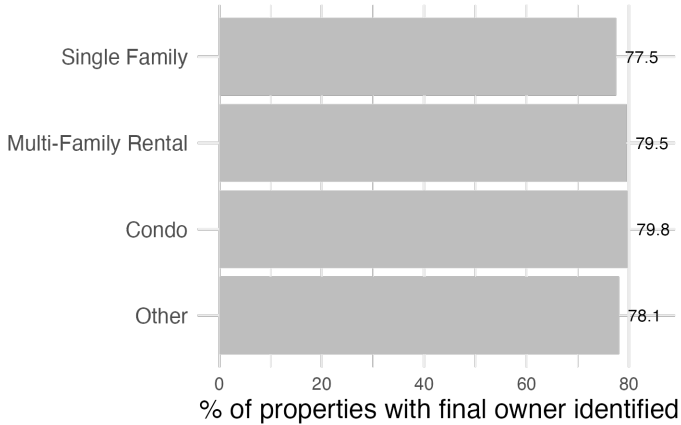
- Property 1 $\longrightarrow$ Unincorporated individual
- Properties 2, 3, 5 $\longrightarrow$ Incorporated individual
- Properties 4, 6 $\longrightarrow$ Business

DESCRIPTIVES

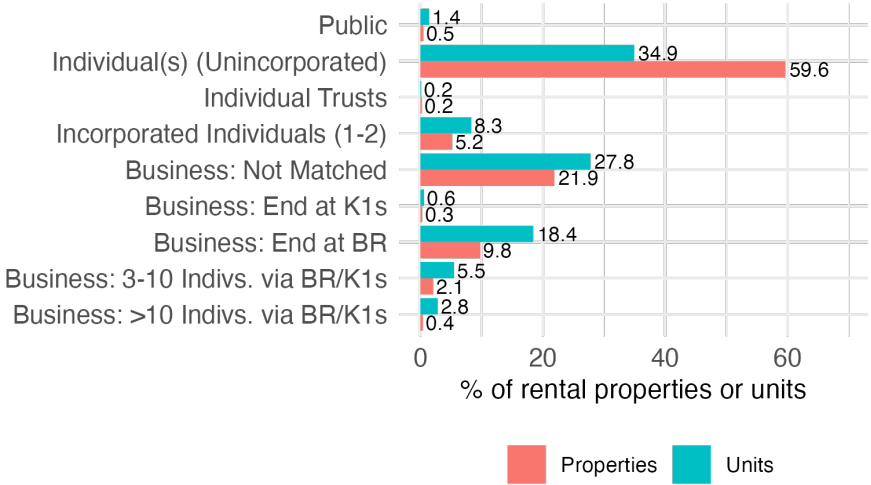
Most rental properties are owned by individuals



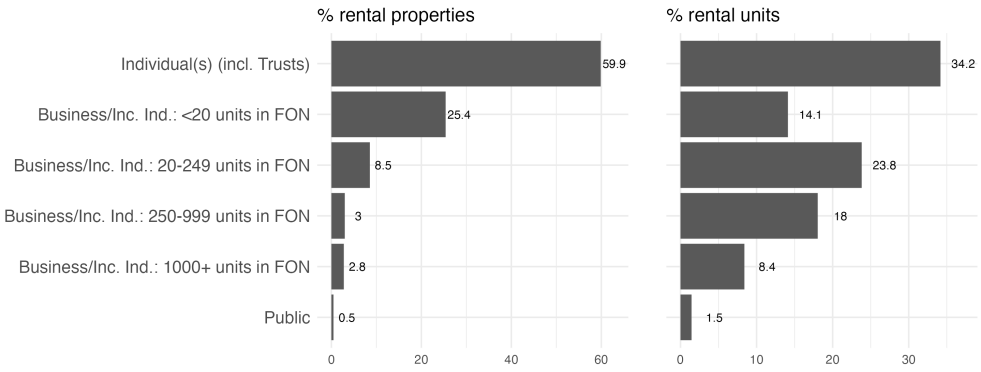
Final owner identified at similar rates across property types



Final owner type per our methodology



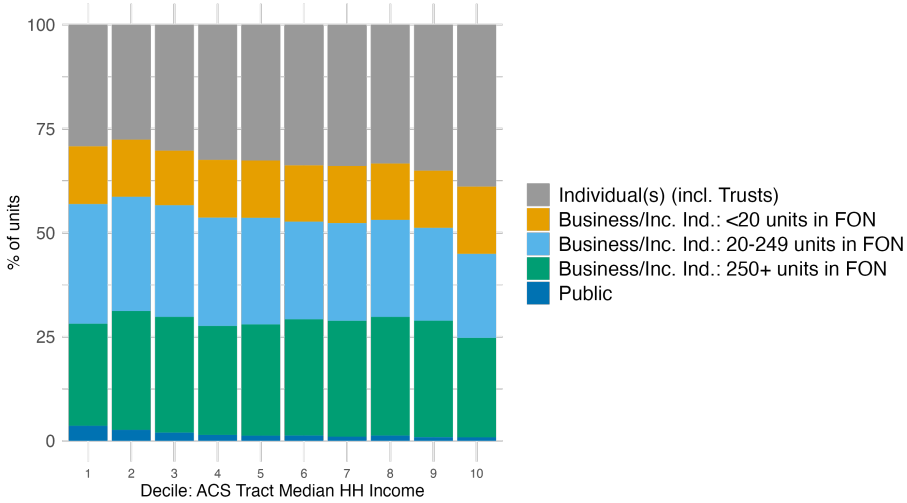
Half of units are owned by small landlords



Notes: Rental properties grouped based on owner type + owner portfolio size.

Who supplies rental housing across neighborhood types?

Sample: All rental properties. Deciles defined within CBSA.



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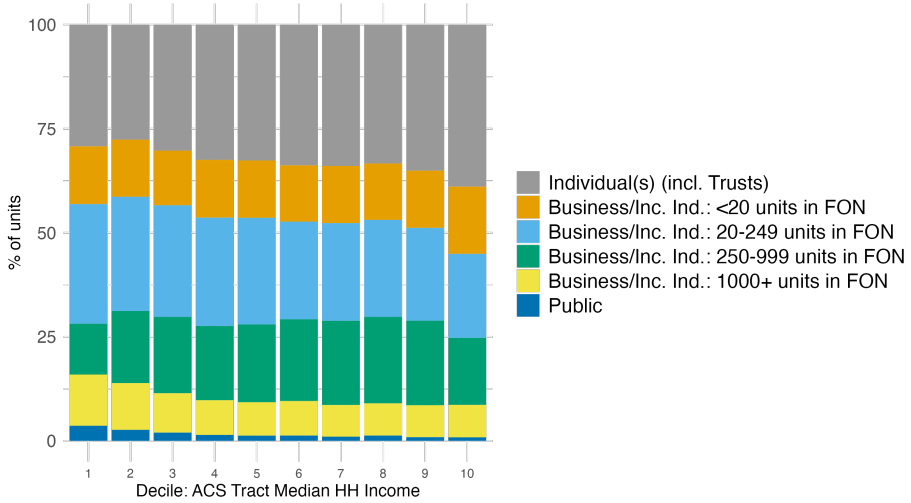


COMPARING TO OTHER METHODS FOR DETERMINING OWNERSHIP

Comparison to using mailing address

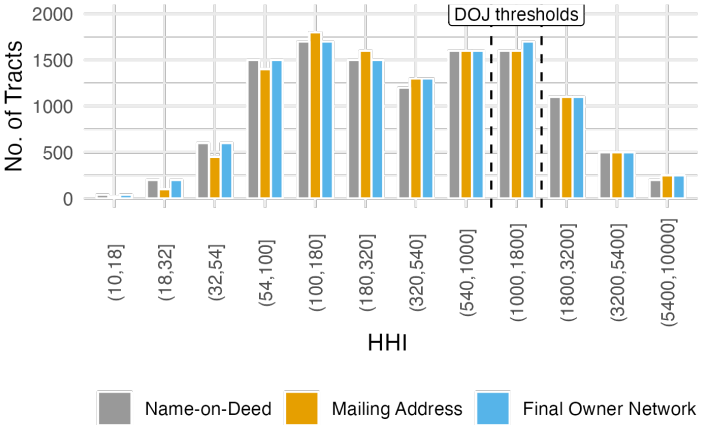
- Existing literature uses owner name + mailing addresses from property assessments to link properties (Mills et al. 2019, Lambie-Hanson et al. 2022, Coven 2025, Ganduri et al. 2023, Lee & Wylie 2024)

- Potential for mismeasurement:
  - Undercounting: mailing address is the address for the property
  - Overcounting: mailing address associated with a law or accounting firm

Property ID	Owner name (deed or assessment)	Mailing address (assessment)	Owner name (after linking to BR and K-1)	Owner ID
2	123 Main St LLC	123 Main St	Nathan Lane	123 Main St LLC
3	125 Main St LLC	125 Main St	Nathan Lane	125 Main St LLC
4	789 1st Ave LLC	3 Legal Rd	City Realty Inc	ID_3 Legal Rd
6	56 2nd Ave LLC	3 Legal Rd	Landlord Inc	ID_3 Legal Rd

- Mailing address linkage doesn't distinguish incorp. indiv. from biz with many shareholders

Similar levels of concentration in the aggregate



- Ongoing work: assess degree of misclassification within tract

LANDLORD SIZE AND RENTAL PRICES

Relationship between rental prices and landlord type

- We subset to properties in our data that appear in the ACS, so that we have data on rents
- Restrict to renter-occupied properties

▸ Sample construction

- Restrict to tracts with $n > 3$ rental properties so that we have sufficient number of observations for tract FEs
- Cross-sectional approach for unit *i* in property *j* and tract *k*:

$$y_{ijk} = \text{owner type}_j'\alpha + x_{ijk}'\kappa + \varepsilon_{ijk} \quad (1)$$

Correlation between log rent and owner type + portfolio size

Reference category: Unincorporated individual owners.

	(1)	(2)	(3)
Incorporated Individuals (1-2)	-0.035***	-0.027***	0.032***
	(0.008)	(0.007)	(0.005)
Business × <20 units in FON	-0.027***	-0.030***	0.023***
	(0.007)	(0.007)	(0.005)
Business × 20-249 units in FON	-0.037***	-0.032***	0.034***
	(0.007)	(0.006)	(0.005)
Business × 250+ units in FON	0.002	-0.001	0.040***
	(0.007)	(0.007)	(0.005)
Observations	37000	37000	37000
Site type FE	X	X	X
ACS bed bins		X	X
Physical Characteristics			X
Tract FE			X

▸ Gross rent ▸ Rent rank

Gelbach decomposition

- How much do landlord type and controls each contribute to variation in rents?
- We use a Gelbach (2016) decomposition
  - Base model:

$$y_{ijk} = \text{owner type}_j'\alpha + \upsilon_{ijk} \tag{2}$$

  - Full model

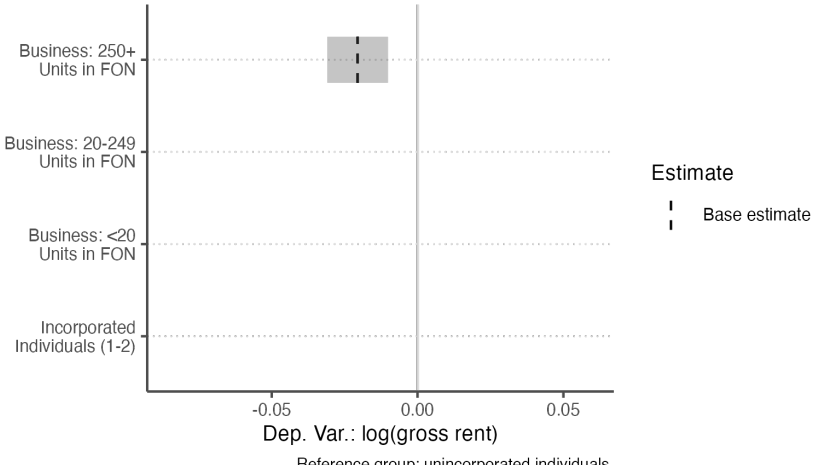
$$y_{ijk} = \text{owner type}_j'\alpha + \underbrace{x_{ij}'\beta}_{\text{Physical char.}} + \underbrace{\gamma_j}_{\text{Site type}} + \underbrace{\delta_i}_{\text{Tenant tenure FE}} + \underbrace{\zeta_k}_{\text{Tract FE}} + \varepsilon_{ijk} \tag{3}$$

  - $\hat{\tilde{\delta}} = \hat{\alpha}^{\text{base}} - \hat{\alpha}^{\text{full}}$, decomposed into contribution of each set of controls

▸ Index of Physical Quality

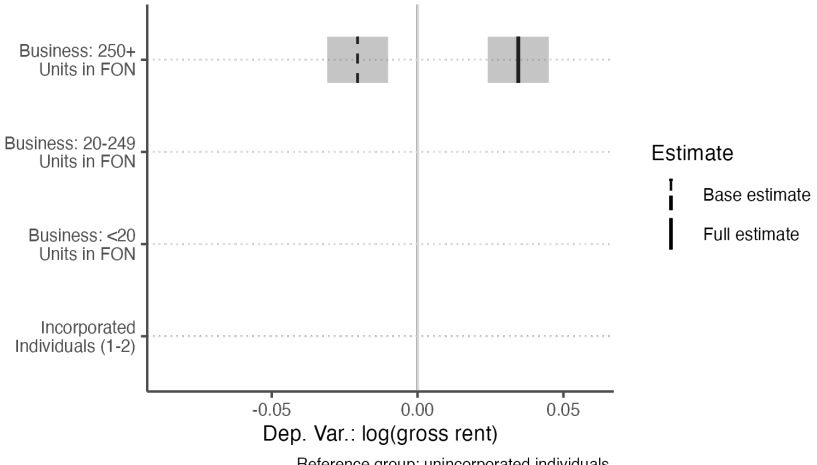
Gelbach decomposition

Sample: ACS-BK matched sample of rental units.



Gelbach decomposition

Sample: ACS-BK matched sample of rental units.



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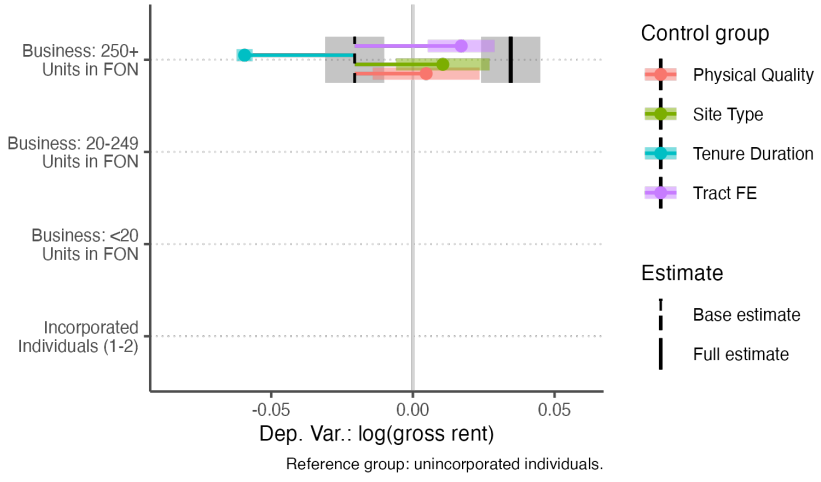

Gelbach decomposition

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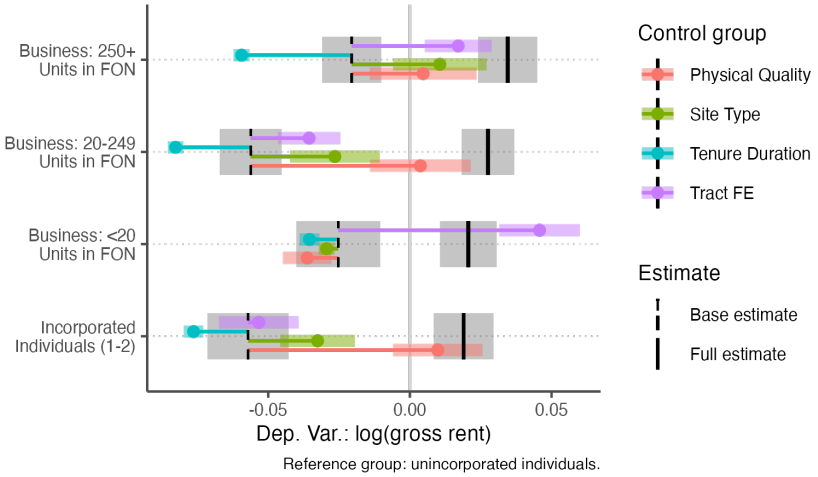

NEXT STEPS

Next steps

- Construct panel datasets at property-level and owner-level
  - Goal: observe changes in ownership and portfolio composition
- Link to the tax data and LBD to estimate cost and revenue of businesses and inc. indivs
- Explain differences in pricing behavior by landlord type
- Learn about how often assessments are mailed to someone other than the owner
- Learn about landlords that accept housing vouchers
- Link to rental listings data

Thank you!

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Procedure for matching owner name in Black Knight data to Business Register and Schedule K-1

1. Non-fuzzy (i.e., exact) merge to BR properties registered in a state of that property's CBSA
2. Fuzzy merge of unmatched BK names to BK names matched in step 1
3. Fuzzy merge of unmatched BK names to BR properties registered in a state of that property's CBSA

Back

Create property-site and MAF-site crosswalks

- Property: assessed unit (e.g., detached SFR, apartment building, condo in a building)
- MAF ID: sampling frame for Census surveys
- Site: set of properties and MAF IDs that map to the same parcel polygon

* One site may have multiple properties, e.g., condos in a building, or multiple buildings in a complex

Procedure for identifying rental properties

1. Restrict to MAF IDs seen in MAF-ARF at least once between 2016-2020
   - Excludes MAF IDs no longer in use & units never occupied between 2016-2020
2. Assume a MAF-ID is owner-occupied if any of the following holds:
   - Listed as owner-occupied in 2019 ACS
   - Listed as owner-occupied in 2019 BK assessment
   - MAF-ARF lists PIKd owner as resident in that MAF-ID
3. Compute site-level share of units or properties that are owner-occupied
4. Rental properties: site-level is less than 50% owner-occupied

Back

Procedure for calculating unit counts

1. Using MAF-site crosswalk, calculate the number of non-vacant units
2. If has at least 1 non-vacant units, unit count is max{1, MAF IDs/Properties}

Back

Defining site type using unit counts

1. Single family: 1 property, 1 unit at the site
2. Multi-family
   - Likely rental: 1 property, 2+ units
   - Likely condo: # units $\approx$ # properties (.8-1.25)
3. Exclude (in ACS merged sample) if properties $>>$ units or properties $<<$ units

Back

ACS-BK Matched Sample

1. Merge ACS 2019 universe to BK properties
   - On MAFID
   - on site index
2. Exclude ACS observations if
   - Public owner
   - Non-renters (tenure or rent amount)
   - Imputed/allocated rent
   - Bottom 5% of gross rent within CBSA (usually excessively low)
   - $<$3 observations in the tract

Back

Index of Physical Quality

1. Run OLS

$$\log rent_{ijk} = X'_{ij}\beta + \delta_i + \zeta_k + \varepsilon_{ijk}$$

   - X_{ij}: physical unit characteristic dummies and all first-order interactions

     bedroom count, non-bedroom room count, building age, heating source, high-speed internet access (ACS); unit count bins
   - δ_i: years ago moved in FE
   - ζ_k: Census Tract FE

2. Define index of physical quality $\hat{\psi}_i$:

$$\hat{\phi}_i = X'_{ij}\hat{\beta} + \hat{\zeta}_{k=k_1} + \underbrace{\hat{\delta}_0}_{\text{tenure=0}}$$

$$\hat{\psi}_i = \mathbb{E}[\log rent_{ijk}] - (\hat{\phi}_i - \mathbb{E}[\hat{\phi}_i])$$

Back

Correlation between rent and owner type + portfolio size

	(1)	(2)	(3)
Incorporated Individuals (1-2)	-64.820***	-52.300***	38.810***
	(11.89)	(11.49)	(8.67)
Business × <20 units in FON	-33.290***	-37.700***	38.250***
	(11.54)	(11.14)	(8.266)
Business × 20-249 units in FON	-56.420***	-48.900***	52.040***
	(10.29)	(9.945)	(7.543)
Business × 250+ units in FON	-6.886	-10.950	55.940***
	(10.69)	(10.33)	(8.435)
Observations	37000	37000	37000
Site type FE	X	X	X
ACS bed bins		X	X
Physical Characteristics			X
Tract FE			X

Back

Correlation between rent rank and owner type + portfolio size

	(1)	(2)	(3)
Incorporated Individuals (1-2)	-0.007	0.000	0.025***
	(0.005)	(0.005)	(0.004)
Business × <20 units in FON	0.011**	0.009*	0.018***
	(0.005)	(0.005)	(0.004)
Business × 20-249 units in FON	0.006	0.012***	0.028***
	(0.004)	(0.004)	(0.004)
Business × 250+ units in FON	0.056***	0.054***	0.038***
	(0.005)	(0.004)	(0.004)
Observations	37000	37000	37000
Site type FE	X	X	X
ACS bed bins		X	X
Physical Characteristics			X
Tract FE			X

◂ Back