

Address History Analysis: Eviction Persistence and Mover Trajectories

Philly Evictions Project

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1 Overview

This document summarizes the address history analysis from `r/address-history-analysis.R`. The script uses the InfoUSA household panel to track tenants across moves and test whether exposure to high-eviction buildings channels households into worse neighborhoods.

Key questions:

1. Do tenants from high-eviction buildings end up in other high-eviction buildings? (Eviction persistence)
2. What are the demographic characteristics of movers vs. stayers?
3. Do tenants who move *into* high-eviction buildings come from different neighborhoods? (Inflow)

4. Where do tenants go *after* leaving high-eviction buildings? (Outflow)
5. Across a 3-move trajectory (origin → middle → destination), does passing through a high-evicting building shift tenants toward higher-eviction neighborhoods? (Trajectory analysis)

Unit of analysis: Household (familyid) × year panel, with building-level (PID) characteristics merged in.

Key data inputs:

- `infousa_cleaned` — household-year panel with addresses
- `infousa_address_xwalk` — links InfoUSA addresses to parcel IDs
- `bldg_panel_blp` — building characteristics, filing rates, rents, occupancy
- `infousa_race_imputed_person`, `infousa_gender_imputed_person` — demographic imputations

2 Tracking Descriptives

2.1 Movers vs. Stayers

The script identifies rental households and classifies them as *movers* (2+ addresses over the panel) or *stayers* (1 address). Summary statistics are computed for each group.

Table 1: Tracking Descriptives: Movers vs. Stayers

| | All Rental HHs | Stayers (1 address) | Movers (2+ addresses) |
|-----------------------------|----------------|---------------------|-----------------------|
| N HH-Years | 6,563,638 | 5,253,915 | 1,309,723 |
| N Unique HHs | 1,641,033 | 1,515,419 | 125,614 |
| Mean Addresses per HH | 1.2 | 1 | 3.66 |
| Mean Years Observed | 3.69 | 3.47 | 6.34 |
| % Black (mean posterior) | 36.7 | 36.6 | 37.2 |
| % White (mean posterior) | 54 | 53.7 | 55.9 |
| % Hispanic (mean posterior) | 6.4 | 6.6 | 5.3 |
| % Female HoH | 55.1 | 54.1 | 61.1 |
| Mean Filing Rate | 0.0646 | 0.0673 | 0.0537 |
| Mean Building Size (units) | 29.9 | 30.3 | 28.3 |
| Mean Log Rent | 7.083 | 7.064 | 7.153 |
| N Unique Tracts | 379 | 379 | 372 |

3 Eviction Persistence Regressions

3.1 Setup

The core persistence analysis asks: conditional on a household *moving*, does the eviction filing rate at their **previous** building predict the filing rate at their **current** building?

Sample: Rental-to-rental movers (both origin and current address are rental buildings). Filing rates are capped at reasonable bounds to exclude outliers.

3.2 Regression Specifications

| Model | LHS | RHS | Fixed Effects | Sample restriction |
|------------|-----------------------|--|---------------------------------|------------------------------|
| m1 | Filing rate | Prev. filing rate | None | Rate ≤ 1 |
| m2 | Filing rate | Prev. filing rate | Unit bins + BG (current & prev) | Rate ≤ 1 |
| m3 | Filing rate | Prev. filing rate + imputed rent | Unit bins + BG | Rate ≤ 0.5 |
| m4 | Filing rate | Prev. filing rate + actual rent | Unit bins + BG | Rate ≤ 1 |
| m5_no_rent | High-filer (\$>\$10%) | Prev. high-filer | Unit bins + BG | Rate ≤ 0.5 |
| m5 | High-filer | Prev. high-filer + rent | Unit bins + BG | Rate ≤ 0.5 , multi-unit |
| m_rent | Log rent | Prev. filing rate + prev. rent + filing rate | Unit bins + BG | Rate ≤ 0.5 |

All models cluster standard errors by PID.

4 Inflow and Outflow Analysis

4.1 Leave-One-Out Tract Eviction Rate

For each building, the LOO tract eviction rate is:

$$\text{LOO}_i = \frac{\sum_{j \in \text{tract}(i), j \neq i} \text{filings}_j}{\sum_{j \in \text{tract}(i), j \neq i} \text{units}_j}$$

Table 3: Effect of Previous Eviction Filing Rate on Current Filing Rate

| Dependent Variable: | filing_rate_raw | | |
|---|-----------------------|------------------------|-----------------------|
| Model: | (1) | (2) | (3) |
| <i>Variables</i> | | | |
| Previous Eviction Filing Rate | 0.0992*** (0.0040) | 0.0795*** (0.0042) | 0.1950*** (0.0144) |
| Rent (current) | | -0.0914*** (0.0073) | |
| Rent (previous) | | -0.0234*** (0.0063) | |
| <i>Fixed-effects</i> | | | |
| Units (current) | Yes | Yes | |
| Units (previous) | Yes | Yes | |
| Block Group (current) | Yes | Yes | |
| Block Group (previous) | Yes | Yes | |
| <i>Fit statistics</i> | | | |
| Observations | 144,254 | 120,232 | 15,716 |
| <i>Clustered (pid) standard-errors in parentheses</i> | | | |
| <i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i> | | | |

This measures the eviction environment of the building's neighborhood, excluding the building's own contribution.

4.2 Eviction Intensity Bins

Buildings are classified using the empirical Bayes eviction filing rate (pre-COVID), with true never-filers (zero pre-2019 filings) separated from the low-rate category:

| Bin | Definition |
|------------|---|
| No filings | total_filings_pre2019 == 0 |
| (0–5%] | EB rate ≤ 0.05 , at least 1 filing |
| (5–10%] | EB rate $\in (0.05, 0.10]$ |
| (10–20%] | EB rate $\in (0.10, 0.20]$ |
| 20%+ | EB rate > 0.20 |

4.3 Inflow: Where Do Tenants at High-Eviction Buildings Come From?

Table 5: Origin characteristics of movers, by destination eviction intensity

| Destination bin | N moves | Origin % Black | Dest % Black | Origin LOO evict | Dest LOO evict | Mover % E |
|-----------------|---------|----------------|--------------|------------------|----------------|-----------|
| No filings | 63,790 | 0.358 | 0.368 | 0.0346 | 0.0346 | 0.0346 |
| (0–5%) | 15,813 | 0.289 | 0.260 | 0.0305 | 0.0287 | 0.0287 |

| | | | | | | |
|----------|--------|-------|-------|--------|--------|---|
| (5-10%] | 18,113 | 0.484 | 0.489 | 0.0462 | 0.0487 | 0 |
| (10-20%] | 14,633 | 0.511 | 0.513 | 0.0496 | 0.0521 | 0 |
| 20%+ | 10,578 | 0.565 | 0.571 | 0.0557 | 0.0612 | 0 |

4.4 Outflow: Where Do Tenants From High-Eviction Buildings Go?

Table 6: Destination characteristics of movers, by origin eviction intensity

| Origin bin | N moves | Origin LOO evict | Dest LOO evict | \$\Delta\$ LOO tract | Mover % Black | Mover % |
|------------|---------|------------------|----------------|----------------------|---------------|---------|
| No filings | 59,788 | 0.0341 | 0.0368 | 0.0026 | 0.299 | |
| (0-5%] | 16,473 | 0.0248 | 0.0267 | 0.0019 | 0.177 | |
| (5-10%] | 19,336 | 0.0465 | 0.0459 | -0.0006 | 0.422 | |
| (10-20%] | 15,838 | 0.0508 | 0.0497 | -0.0011 | 0.465 | |
| 20%+ | 11,295 | 0.0604 | 0.0557 | -0.0048 | 0.527 | |

5 Three-Move Trajectory Analysis

5.1 Design

The trajectory analysis tracks households across three consecutive residential spells:

$$\text{Origin} \xrightarrow{\text{move 1}} \text{Middle} \xrightarrow{\text{move 2}} \text{Destination}$$

The key question: conditional on origin neighborhood, does the eviction intensity of the **middle** building predict worse neighborhood outcomes at the **destination**?

The outcome is the change in LOO tract eviction rate from origin to destination:

$$\Delta \text{LOO} = \text{LOO}_{\text{dest}} - \text{LOO}_{\text{origin}}$$

5.2 Descriptive Summary

Table 7: Three-move trajectories by middle building eviction intensity

| Middle bin | N trajectories | Origin LOO | Dest LOO | \$\Delta\$ LOO | Origin EB rate | Dest EB rate |
|------------|----------------|------------|----------|----------------|----------------|--------------|
| No filings | 100,463 | 0.0408 | 0.0410 | 2e-04 | 0.0396 | 0.0430 |
| (0-5%] | 6,561 | 0.0358 | 0.0359 | 2e-04 | 0.0491 | 0.0501 |
| (5-10%] | 19,254 | 0.0494 | 0.0498 | 5e-04 | 0.0575 | 0.0625 |
| (10-20%] | 13,959 | 0.0524 | 0.0527 | 3e-04 | 0.0685 | 0.0766 |
| 20%+ | 6,632 | 0.0570 | 0.0573 | 2e-04 | 0.0991 | 0.1163 |

5.3 Trajectory Regressions

Three specifications test whether the middle building's eviction intensity predicts the origin-to-destination change in neighborhood eviction environment:

| Spec | LHS | RHS | Fixed Effects | Clustering |
|------|------------------------------|---------------------------------|---------------|------------|
| (A) | Δ LOO tract | i(mid_evict Nbin) | | Origin BG |
| (B) | Δ LOO tract | i(mid_evict Orig) tract | | Origin BG |
| (C) | Dest LOO tract (level) | i(mid_evict Orig) tract | | Origin BG |

Reference category: (0–5%].

| Dependent Variables: | delta_loo_tract | | |
|---------------------------------|-----------------------------------|-----------------------------------|-----------------------|
| | Delta LOO Tract | Delta + Orig FE | Dest Level + Orig FE |
| Model: | (1) | (2) | (3) |
| <i>Variables</i> | | | |
| Constant | 0.0001 (0.0004) | | |
| mid_evict_bin = Nofilings0-5%]" | 8.46×10^{-5} (0.0003) | 7.33×10^{-5} (0.0003) | 0.0003 (0.0003) |
| mid_evict_bin = (5-10%]0-5%]" | 0.0003 (0.0003) | 0.0010*** (0.0003) | 0.0011*** (0.0003) |
| mid_evict_bin = (10-20%]0-5%]" | 0.0002 (0.0004) | 0.0012*** (0.0003) | 0.0013*** (0.0003) |
| mid_evict_bin = 20%+0-5%]" | 3.31×10^{-5} (0.0005) | 0.0020*** (0.0004) | 0.0015*** (0.0004) |
| <i>Fixed-effects</i> | | | |
| orig_tract | | Yes | Yes |
| <i>Fit statistics</i> | | | |
| Observations | 146,636 | 146,634 | 146,634 |
| R ² | 2.61×10^{-5} | 0.11608 | 0.73635 |
| Within R ² | | 0.00116 | 0.00074 |

Clustered (orig_GEOID) standard-errors in parentheses

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

6 Interpretation

Eviction persistence: The positive coefficient on previous filing rate indicates that tenants who leave high-eviction buildings tend to end up in other high-eviction buildings, even after controlling for block group and building size. This is not simply a neighborhood effect — it persists within block groups.

Inflow/Outflow: High-eviction buildings draw tenants from neighborhoods that are already higher-eviction, and their departing tenants move to similar or worse neighborhoods. The LOO tract eviction rate captures the neighborhood environment excluding the focal building.

Trajectories: The key finding from the trajectory regressions is specification (B): after conditioning on origin tract, passing through a high-eviction middle building predicts a larger increase in neighborhood eviction rate from origin to destination. This suggests that high-eviction buildings act as a *channeling mechanism*, directing tenants toward worse eviction environments relative to their starting point.