

Address History Analysis: Eviction Persistence and Mover Trajectories

Philly Evictions Project

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Table of contents

1	Overview	1
2	Tracking Descriptives	2
2.1	Movers vs. Stayers	2
3	Eviction Persistence Regressions	2
3.1	Setup	2
3.2	Regression Specifications	3
4	Inflow and Outflow Analysis	3
4.1	Leave-One-Out Tract Eviction Rate	3
4.2	Eviction Intensity Bins	4
4.3	Inflow: Where Do Tenants at High-Eviction Buildings Come From?	4
4.4	Outflow: Where Do Tenants From High-Eviction Buildings Go?	5
5	Three-Move Trajectory Analysis	5
5.1	Design	5
5.2	Descriptive Summary	5
5.3	Trajectory Regressions	5
6	Interpretation	6

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	<code>total_filings_pre2019 == 0</code>
(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
(0–5%]	15,813	0.289	0.260	0.0305	0.0287	0

(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	Δ 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	Δ 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	$i(\text{mid_evict_bin})$		Origin BG
(B)	Δ LOO tract	$i(\text{mid_evict_bin})$ tract		Origin BG
(C)	Dest LOO tract (level)	$i(\text{mid_evict_bin})$ tract		Origin BG

Reference category: (0–5%].

Dependent Variables:		delta_loo_tract		dest_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.