Single-family Homes and Reinvestment: Variation by Ownership Type

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Abstract

We examine whether reinvestment in single-family homes (SFHs) varies by housing tenure and by the size of the landlord's portfolio of homes. Using micro-level parcel data from Minneapolis (2017–2024) and Charlotte (2004–2023), we link annual tax assessor records with publicly available building permit data to measure reinvestment. In Minneapolis, SFHs for renters file 20% fewer building permits and invest 35% less in permitted work than otherwise comparable owner-occupied units. Homes owned by large landlords in cities file 57% fewer permits and invest 45% less than smaller landlords. Importantly, we find no statistical difference in plumbing permits, suggesting that landlords and large owners will forego proactive reinvestment, but not primarily reactive repair activity. Results on permitting activity and reinvestment are directionally consistent in Charlotte even though the data in Charlotte do not represent the full universe of reinvestment activity. Taken together, these findings suggest that the growing prevalence of rental occupancy and large-landlord ownership in the SFH market may lead to diminished reinvestment over time, thus increasing depreciation of the overall single-family housing stock.

Keywords: local homeownership, housing reinvestment, rental markets, small vs large landlords

*Pilgram email: pilgram@ksu.edu. This is a working draft, please do not circulate without prior permission from the authors. This paper has been presented at the University of Cincinnati's Real Estate Brownbag Seminar, the Spring 2025 Sandy Klein Real Estate Seminar at Baruch College and CREDA Real Estate Research Symposium at UNC Chapel Hill. We would like to thank attendees of both seminars and others who provided helpful comments.

1 Introduction

Literature from the 1980s and 1990s (Galster, 1983; Shilling et al., 1991; Gatzlaff et al., 1998) generated what has become a stylized fact in the mind of researchers and practitioners; namely, owners of single-family homes that also occupy them reinvest more in single-family homes than owners that rent out single-family homes. Despite being viewed as a settled question, this question has garnered renewed relevance given recent shifts in the U.S. single-family housing market. Over the past decade, large landlords have substantially expanded their holdings of single-family rentals (SFRs), prompting widespread policy interest in whether the size and ownership structure of the holdings of SFRs will affect the reinvestment of the single-family housing stock.

The increased attention in the literature on holdings of single-family homes by institutional or large investors have focused on a number of questions, including how such investors manage their portfolio and what impacts their ownership has both on households and on the communities in which those homes are located (Gorback et al., 2025; Polimeni and An, 2024; Giacoletti et al., 2025; Coven, 2023). For example, Billings and Soliman (2023) observe that homes in neighborhoods with more investor purchases of single-family homes pull fewer building permits themselves; however, they do not measure associations between ownership of a given property and reinvestment into that particular property. Finally, An et al. (2024) observes that properties owned by larger portfolio owners more frequently experience code violations.

The older literature on reinvestment and maintenance of single-family homes also suffers from a lack of direct test of reinvestment in single-family homes with different tenure types. Other than Galster (1983), which draws on a survey conducted in Wooster, Ohio, research like Shilling et al. (1991) and Gatzlaff et al. (1998) estimate models that focus differences in the resale values of otherwise similar single-family homes that are renter and owner-occupied. Both attribute these differences in price appreciation to differences in reinvestment, without measuring reinvestment of properties directly. Collectively, both the older and more recent literature study what is effectively a long-term consequence of differential reinvestment and depreciation.

This study proposes a direct test of whether home reinvestment differs across ownership and resident types using tax parcel data and building permits from two American Cities: Minneapolis, Minnesota, and Charlotte, North Carolina. In addition to looking at differences between owners and renters, we investigate differences between different types of landlords based on the size of their holdings. To our knowledge, this paper thus constitutes the first study to measure both reinvestment activity and tenure status in two major metropolitan areas without relying on proxies for either variable of interest. This study is timely given

the policy backdrop of increased prevalence of single-family houses being renter-occupied and the growth of institutional ownership across the U.S (Naamane, 2024). This increase in concentration of ownership has changed property transaction prices and thus who can access neighborhoods (Coven, 2023; Polimeni and An, 2024), and led to decreases in local property tax receipts (Austin, 2022).

Our findings demonstrate substantial differences in reinvestment by tenure status and by landlord size. In Minneapolis where we have the best data, single-family rentals file 20% fewer building permits and invest 35% less in permitted work than otherwise comparable owner-occupied homes. Moreover, we detect a strong inverse relationship between the size of a landlord's portfolio and the degree of reinvestment; specifically, larger landlords file 57% fewer permits and invest 45% less than smaller landlords. Notably, we find no statistically significant difference in the volume of plumbing permits across these groups, suggesting that reactive work (e.g., urgent repairs) is less likely to be cut than proactive work (e.g., roof inspections), and hence, showing that large landlords tend to 'procrastinate' on home reinvestment. Even with much less coverage of permits in Charlotte, the results affirm the inverse relationship between the size of landlord holdings and the level of permit and reinvestment activity in single-family homes. These results point toward the possibility that ongoing shifts in single-family rental ownership - particularly the growth in SFHs owned by large landlords, could reduce reinvestment in the existing housing stock, with implications for property conditions and neighborhood trajectories.

2 Data

2.1 Sources

Our paper draws upon data from two study areas: Minneapolis, Minnesota, and Charlotte, North Carolina. For each study area, we draw upon two primary types of data: Permits that record any modifications to properties including reinvestment activity, and tax assessor data that report parcels' characteristics ownership histories. As we note below, the permit and tax assessor data are much more complete in Minneapolis for two reasons. First, permits are required for much smaller projects and many more project types in Minneapolis. Second, the homestead exemption is much more generous in Minneapolis than in most states, which incentivizes local government to ensure that properties are occupied by owners.

2.1.1 Permit Data

The construction permits data for Minneapolis, Minnesota are from the City of Minneapolis's Construction Code Services office, available via the city's Open Data web site (OpenData Minneapolis, 2024b). Minneapo-

lis requires building permits for more types of work than most other jurisdictions, exempting only minor construction or mechanical work, as well as flooring (City of Minneapolis, 2024).[1] As such, Minneapolis' construction permits are uniquely suited for the purposes of this study, as they create a log of all but the smallest home improvements performed on any structure within the city.

Our permits data for Minneapolis cover the time frame from January 2017 to December 2024, and include information on the applicant, on the type of work performed (both in categorical terms and via short description), on what property the work is to be performed, and the date a permit was issued.[2] For single-family homes, work is broken out into three categories: Mechanical permits cover work such as heating, ventilation, air conditioning, refrigeration, and gas piping. Plumbing permits cover any installation or replacement of water fixtures, water piping, water heaters, backflows, or gas appliances such as stoves. Finally, building permits cover any other work performed on a house, such as roofing, window replacements, or remodels. Permits for any work beyond mechanical work or plumbing - approximately 40% of permits in our data - report the dollar value of the work performed.

The permits data for Charlotte spans from January 2004 to December 2023 and is provided by Mecklenburg County GIS Services Department (Mecklenburg County GIS, 2025a), covering all of the same fields as our Minneapolis data. Unfortunately, the permit data for Charlotte only includes building permits, as opposed to building, plumbing and mechanical permits available for Minneapolis. Moreover, compared to Minneapolis, building permits data for Charlotte cover a narrower range of types of work, as Mecklenburg County only requires building permits for more extensive forms of remodeling. One advantage of Charlotte data is that while Minneapolis' permit data spans eight full years, our Charlotte data covers a much longer time horizon.

2.1.2 Tax Assessor Parcel Data

To establish ownership and housing tenure status for each parcel, we rely on annual tax parcels data. For Minneapolis, we take this data from Hennepin County Tax Assessor for each year from 2017 to 2024 (Minnesota Geospatial Commons, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024)[3]. Since Hennepin County, Minnesota is only a small portion of the Minneapolis-Saint Paul metropolitan area we also use tax parcels data from the other six counties of that metropolitan area[4] for the years 2005-2024 in addition to that for

[1] Examples for construction work that is exempt from permit requirements include constructing decks, fencing, flooring, countertops, or installation of appliances. See, City of Minneapolis (2024).

[2] While the Minneapolis 2040 Plan and its associated upzoning does fall into the time frame covered by our data, we believe it is unlikely to affect reinvestment decisions for existing properties due to legal uncertainty surrounding the plan's implementation.

[3] While our permit data begins in 2016, it does not cover the entire year. For this reason, we do not include permits from 2016 in our analysis.

[4] Specifically, we use tax parcels data for Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties, Minnesota.

Hennepin County for identifying large owners within the region.

To construct a similar dataset for Mecklenburg County, North Carolina, we use tax parcel data covering the period from 2004 to 2023 (Mecklenburg County GIS, 2025b)[5]. These data contain information on all parcels within the county, encompassing ownership details, property characteristics, land use, property values and parcel boundaries. In addition to the aforementioned permit and parcel datasets, we collect data on property characteristics such as the size, bedrooms, bathrooms, heated area, parcel area above ground, and construction year of any given property, as well as which neighborhood a given property is located in, identified by different community, neighborhood variables as well as census tracts. For our Minneapolis data, we take this information from the Hennepin County Tax Assessor (OpenData Minneapolis, 2024a). For our Charlotte study area, property characteristics are reported by the tax assessor in the tax parcels data. In both study areas, we use spatial matching to identify the census block location for each property[6].

2.2 Data Processing

For our analyses, we compile the aforementioned sources into a dataset that links property ownership histories with reinvestment records as measured through parcel permits. In this dataset, each observation represents one parcel in one year. We begin this process by compiling ownership histories for each parcel from the annual tax parcel datasets. In Minneapolis, the same tax parcel data also reports for any given parcel-year whether the owner of that parcel claimed the homestead tax exemption, which we interpret as that parcel being owner-occupied in that year. The homestead exemption in Minneapolis reduces the taxable value by 40% up to $95,000 in value, which is one of the most generous homestead exemptions in the US. Since Mecklenburg County data do not report homestead exemptions, we identify owner-occupants in our Charlotte study area by flagging parcels for which the property's tax address - i.e. the address to which the property tax bill is mailed - is identical to the property's street address. This approach was previously employed by Ihlanfeldt (2021).

We use Federal Reserve Bank (FRB) of Minneapolis's definition of very large landlords and specified a rental property owner as a 'large landlord' if the number of single-family properties owned by the landlord exceeded a certain threshold (Ky and Starling, 2023). In the primary models we estimate, we use 20 as the threshold to identify large landlords, while using thresholds of 10, 50 and 100 to test the robustness of our

[5]2024 data were available but had undergone major changes compared to previous decade so we did not consider it in our final analysis for consistency.

[6]All spatial matching is performed in *R* using the *sf* and *tigris* software packages. Since census blocks are perfect subsets of census blockgroups and census tracts, the same matching also tells us which blockgroup and tract a given property is located within.

findings and assess how reinvestment behavior changes across different scales of landlord ownership[7][8].

3 Methodology

First, we compare the simple means for the number of permits per parcel-year between the different types of housing tenure and ownership, and perform a simple Welch Two Sample Difference of Means t-test. While this does not account for systematic differences in upkeep—such as those based on demographic lines or neighborhood characteristics, as noted by Galster (1987, 174)—it provides a crude glimpse into whether any differences exist between groups.

Knowing that owner-occupiers, small landlords, and large landlords likely differ in both property and location characteristics, we next turn to regression-based models that can control for those differences. Our primary interest lies in modeling two related outcomes:

1. **The count of permits** for each single-family property in a given year, modeled via a *negative binomial* (NB) regression. To capture over-dispersion in count data, we employ a negative binomial regression for the count of permits:

$$\ln(\mu_{it}) \;=\; \beta_1 \mathbf{1}_{\{\text{Rental}_{it}\}} \;+\; \beta_2 \mathbf{1}_{\{\text{Large Landlord}_{it}\}} \;+\; \alpha_{c(i)} \;+\; \gamma_t \;+\; \mathbf{Z}_{it}'\boldsymbol{\beta}_5 \;+\; \varepsilon_{it},$$

   where $\ln(\mu_{it})$ is the expected number of permits for property i in year t. The variables $\mathbf{1}_{\{\text{Rental}_{it}\}}$ and $\mathbf{1}_{\{\text{Large Landlord}_{it}\}}$ denote whether the property is renter-occupied and also owned by a large landlord (under various definitions). Depending on the specification, we include *municipality*, *neighborhood*, or *community* fixed effects, denoted collectively here by $\alpha_{c(i)}$, and year fixed effects γ_t. The vector $\mathbf{Z}_{it}$ captures continuous property characteristics (e.g., bedrooms, baths, heated area, lot size, and age). We rely on standard negative binomial likelihood to estimate this model, as it appropriately handles over-dispersion in the permit counts.

2. **The permit value** (in dollars), using an *OLS* model on the log-transformed permit value:

$$\ln\big(\text{Value}_{it}\big) \;=\; \beta_1 \mathbf{1}_{\{\text{Rental}_{it}\}} \;+\; \beta_2 \mathbf{1}_{\{\text{Large Landlord}_{it}\}} \;+\; \alpha_{c(i)} \;+\; \gamma_t \;+\; \mathbf{Z}_{it}'\boldsymbol{\beta}_5 \;+\; \eta_{it}.$$

In this framework, the key distinction is that some specifications use *municipality* fixed effects while others use *census tract* fixed effects (or different scales of geographic controls). Missing or zero permit values remain a limitation for Minneapolis data: some projects may not have a recorded value, and large-scale or

[7] Note that we exclude all permits for the construction of new properties or for the demolition of existing properties, as well as permits that have been canceled.

[8] We explored other ways to identify SFHs owned by large landlords. For example, Government Accountability Office (GAO) (Naamane, 2024).

formal projects might be more likely to specify costs. Hence, interpretation of these permit-value results should be mindful of potential non-random missingness. In contrast, the Charlotte data exhibit a more complete and consistently reported record of permit values.

In both the NB count model and the OLS log-value model, we always include year fixed effects and the same set of housing characteristics ($\mathbf{Z}_{it}$). The difference lies in whether we control for *community/neighborhood/census tract* fixed effects, as well as in how we define a 'large landlord' (e.g., 10+, 20+, 50+, or 100+ properties). This allows us to separately identify how rental units differ from owner-occupied ones, and how large-scale landlords differ from smaller investors, while properly controlling for the location- and parcel-specific factors that could influence reinvestment.

4 Summary Data

4.1 Single-Family-Home Characteristics

Table 1: Mean Property Characteristics by Owner Type

Panel A: Minneapolis

Ownership Type	**Owner Occupied**	**Rental, < 20 Properties**	**Rental, ≥ 20 Properties**
Lot Size (sqft)	6,030	5,891	5,505
	(1,985)	(2,229)	(1,210)
Building Size (sqft)	1,404	1,382	1,249
	(572)	(726)	(326)
Bedrooms	3.06	3.13	3.26
	(0.92)	(1.12)	(0.99)
Bathrooms	1.87	1.84	1.45
	(0.91)	(1.00)	(0.63)
Building Age	92.29	94.13	91.71
	(24.14)	(27.03)	(28.46)
Number of Properties	62,463	11,159	1,229

Panel B: Charlotte

Ownership Type	**Owner Occupied**	**Rental, < 20**	**Rental, ≥ 20**
Lot Size (sqft)	16,376	22,276	11,698
	(20,766)	(68,435)	(73,507)
Building Size (sqft)	2,357	2,164	1,799
	(1,082)	(1,153)	(587)
Bedrooms	3.50	3.31	3.20
	(1.14)	(0.89)	(0.68)
Bathrooms	2.23	2.10	1.94
	(0.79)	(0.86)	(0.47)
Building Age	33.7	38.1	28.6
	(20.7)	(26.8)	(19.6)
Number of Properties	158,802	89,171	20,584

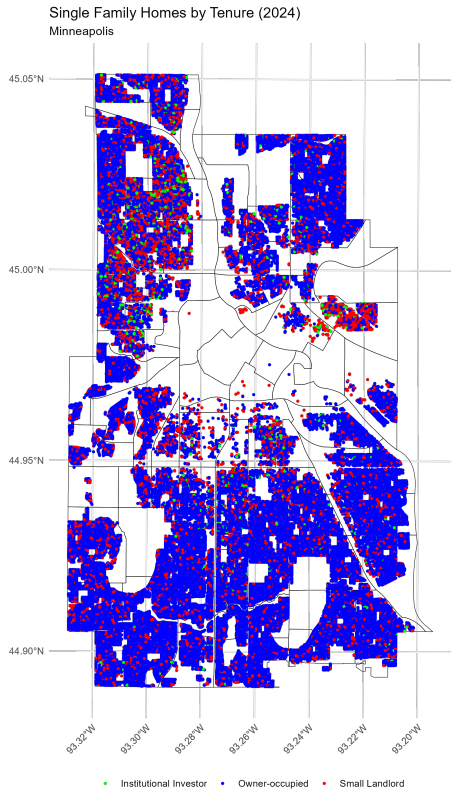
Notes: Means are computed for property characteristics of single-family homes (SFHs). Standard deviations appear in parentheses. For Minneapolis, Owner-occupied parcels are identified via homestead exemption. For Charlotte, Owner-occupied parcels are identified where the tax-bill mailing address matches the property address. "Rental, < 20" indicates small landlords with fewer than 20 single-family homes (SFHs); "Rental, ≥ 20" indicates large landlords with 20+ SFHs. Lot size is parcel area (sqft); Building size is heated living area (sqft). Minneapolis statistics refer to 2024. Charlotte statistics refer to 2023.

Table 1 reports mean property characteristics by ownership type for single-family homes in Minneapolis (Panel A) and Charlotte (Panel B). In Minneapolis, owner-occupied homes tend to have slightly larger lot sizes than those owned by small landlords, while properties owned by large landlords (20+ properties) stand out for having smaller lot sizes, fewer bathrooms, and somewhat older buildings. These differences are not dramatic but suggest that large landlords may be drawn to slightly smaller or older housing stock, potentially shaping the extent and type of reinvestment they undertake. In Charlotte, owner-occupied parcels are smaller in lot size than those owned by small landlords (16,376 vs. 22,276 square feet), but they maintain a larger heated area (2,357 vs. 2,164 square feet). Rentals owned by small landlords also have more bedrooms and bathrooms on average than those owned by large landlords, suggesting that large landlords in Charlotte, as observed for Minneapolis, gravitate towards smaller houses with smaller lot sizes, fewer bedrooms and bathrooms, although the age of SFHs owned by large landlords is younger than those owned by owners or small landlords. Overall, these descriptive patterns align for Minneapolis and Charlotte, indicating that properties owned by large landlords often differ from both owner-occupied homes and from small-scale rental holdings. In our analysis, we control for these differences in properties to isolate the difference in home reinvestment coming from ownership type, regardless of the variation in other property characteristics.

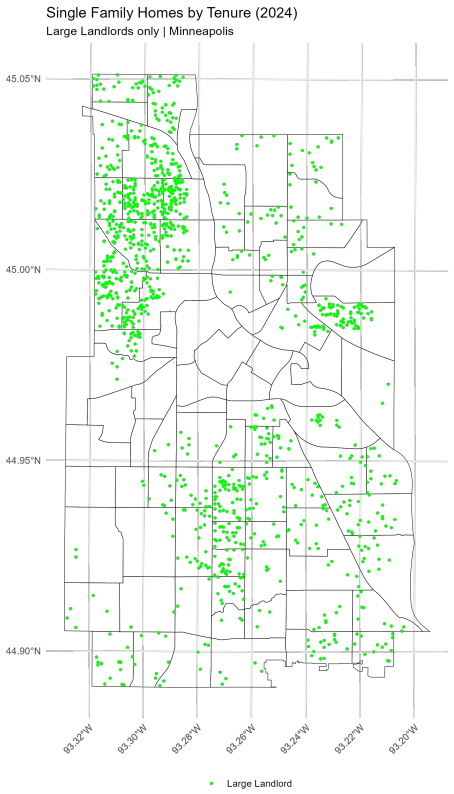
4.2 Spatial Distribution of Single-Family Homes

Figures 1a and 1b show the spatial distribution of single-family homes (SFHs) in Minneapolis by ownership type. Panel (a) illustrates the broad coverage of owner-occupied versus rental properties, revealing that owner-occupied units dominate many southern neighborhoods, while rentals are loosely interspersed throughout the city, with greater proximity to central Minneapolis or downtown compared to owner-occupied properties. Panel (b) highlights SFHs owned by large landlords, defined under various thresholds in Section 2. These SFHs appear less numerous but exhibit pockets of concentration in select areas, such as the northwestern part of the city. Together, these maps underscore that while the rental share is sizable, large-landlord ownership remains a smaller but distinct segment of the Minneapolis SFH market.

Figure 2 provides a spatial view of SFH ownership types in Charlotte. Figure 2(a) shows the distribution of SFHs by tenure status, revealing a broad mix of owner-occupants and rentals across the city. Panel (b) focuses on SFHs owned by large landlords, illustrating that such holdings are much more dispersed in Mecklenburg County.

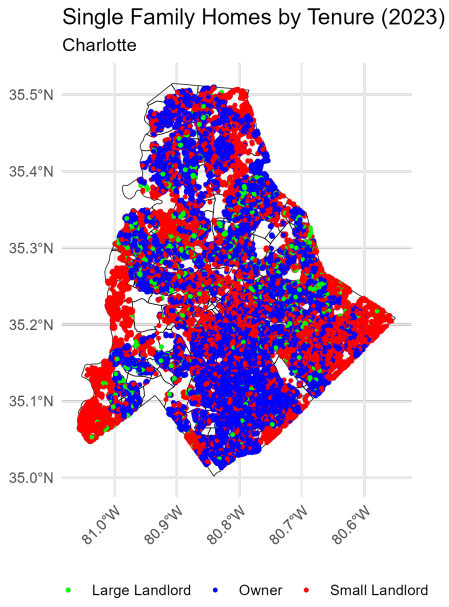


(a) SFHs by Tenure status

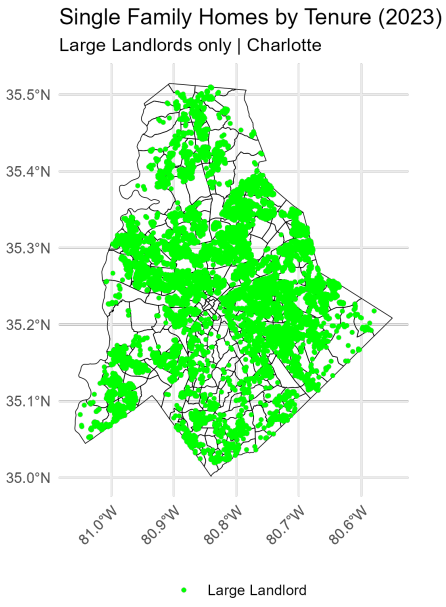


(b) SFHs owned by large landlords

Figure 1: Single-Family Homes in Minneapolis



(a) SFHs by Tenure status



(b) SFHs owned by large landlords

Figure 2: Single-Family Homes in Charlotte

4.3 Large Landlord Ownership over time

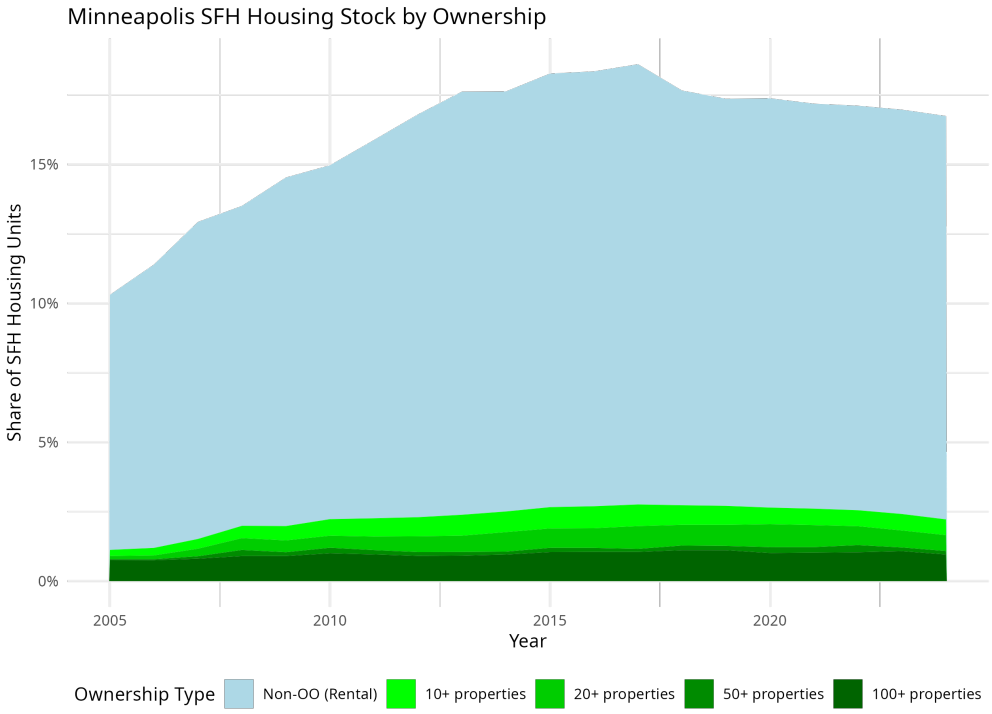


Figure 3: Large-Landlord Ownership over Time - Minneapolis

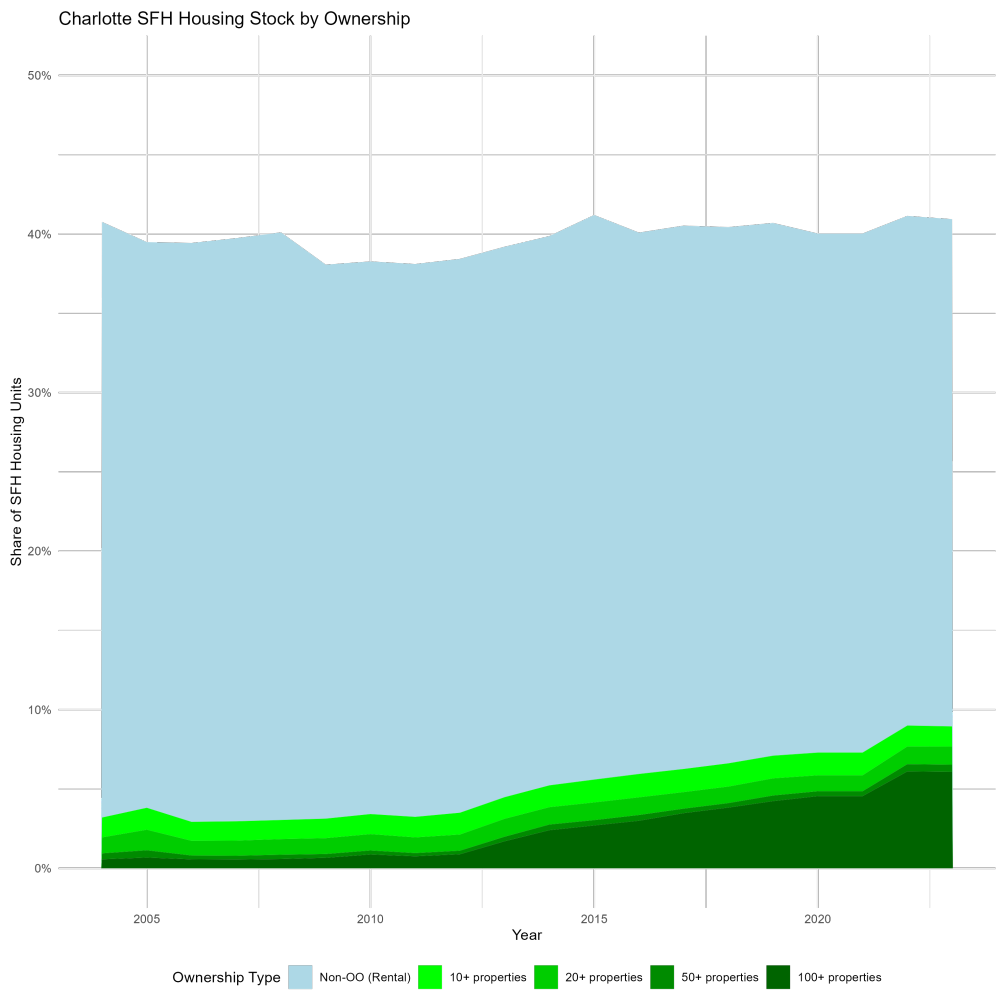


Figure 4: Large-Landlord Ownership over Time - Charlotte

Figures 3 and 4 trace the share of single-family homes (SFHs) held by large rental portfolios in Minneapolis (2005–2024) and Charlotte (2004–2023). Across both markets the trajectory is unmistakably upward, yet the pace and scale differ in ways that foreshadow our later regression results.

In Minneapolis, the overall share of non-owner occupied single-family properties has grown over time. Moreover, beginning from a small base in 2005, the proportion of SFHs owned by landlords with greater than 10 properties more than doubles by 2024. Growth is most pronounced between 2020 and 2022, coinciding with the pandemic-era surge in single-family rental demand and cheap mortgage credit. Even at the end of the sample, however, very large owners (with more than 50 or 100 properties) still account for only a small sliver—roughly 1–2 percent—of the city's detached-housing stock. The slow, steady climb suggests a market where large investors are active but have yet to displace the traditional mix of owner-occupants and small landlords.

Charlotte's time series reveals a steeper expansion. Although the share of non-owner occupied single

family properties remains relatively flat, large-landlord penetration accelerates in the wake of the Great Financial Crisis, pauses mid-decade, and then surges again after 2018. By 2023, owners with portfolios of more than 20 properties control close to nine percent of all SFHs, and even the *more than 100-property* group grows substantially over this time period. The pattern aligns with Charlotte's faster population growth and the city's attractiveness to institutional single-family REITs, as noted in a recent GAO report (Naamane, 2024).

Overall, Charlotte's descriptive patterns are consistent with the study's broader framing: the prevalence of single-family rental housing has grown, led in part by large landlords whose portfolios now comprise a noteworthy share of the market. Coupled with the observed variation in building age and lot size, these data provide essential context for our analysis of how tenure status and landlord size relate to the quantity and dollar value of reinvestment in SFHs.

5 Findings

5.1 Descriptive Evidence

Table 2 reports differences in mean annual permit activity for single-family homes in Minneapolis (Panel A) and Charlotte (Panel B). In Minneapolis, where detailed permitting records are available, owner-occupied properties are consistently more likely to show activity across all permit categories—mechanical, plumbing, and building—than rentals. For example, owners average 0.343 permits per parcel–year compared with 0.270 among rentals, with significant differences across categories. Within the rental sector, small landlords (fewer than 20 properties) exhibit significantly higher permitting activity than large landlords (20+ properties), both in terms of permit counts and permit values. This pattern suggests that large landlords reinvest less frequently and at lower dollar amounts, even after normalizing by property–year. As noted previously, permit data has a much smaller coverage, yet we observe a similar gradient in permit activity by the size of landlord holdings. Owner-occupied homes pull slightly more building-permit, though their permit values are lower on average than those of rental properties. At the same time, small landlords invest more heavily than larger landlords. Small-landlords apply for nearly twice as many (0.0122 vs 0.0061) and spend $557 per year compared to large-landlord parcels, who only spend $144 per year. Overall, Charlotte confirms that ownership structure matters for housing reinvestment, but the city's permit regime leads to far lower levels of observable activity.

5.2 Regression Results

Table 2: Differences in Mean Permit Activity for Single-Family Homes

	Mean		Difference	
	(1)	(2)	(1)–(2)	t-stat
Panel A: Minneapolis				
Owner-Occupied vs. Rental Properties				
	Owner	**Rental**		
Any permit count	0.343	0.270	0.073^{***}	30.94
Mechanical permit count	0.072	0.058	0.014^{***}	15.30
Plumbing permit count	0.136	0.117	0.019^{***}	14.23
Building permit count	0.135	0.093	0.042^{***}	35.44
Building permit value (USD)	2,397	1,780	617^{***}	11.08
Rental Properties: Small vs. Large Landlords				
	Small	**Large**		
Any permit count	0.283	0.163	0.120^{***}	23.56
Mechanical permit count	0.062	0.031	0.031^{***}	16.35
Plumbing permit count	0.122	0.084	0.038^{***}	12.34
Building permit count	0.098	0.049	0.049^{***}	19.47
Building permit value (USD)	1,919	674	$1{,}245^{***}$	13.19
Panel B: Charlotte				
Owner-Occupied vs. Rental Properties				
	Owner	**Rental**		
Building permit count	0.0121	0.0115	0.0006^{***}	5.51
Building permit value (USD)	418	516	-98^{***}	–8.13
Rental Properties: Small vs. Large Landlords				
	Small	**Large**		
Building permit count	0.0121	0.0061	0.0060^{***}	26.83
Building permit value (USD)	557	144	412^{***}	24.74

Notes: Means are annualised at the parcel–year level. Panel A uses Minneapolis permitting data, which include mechanical, plumbing, and building permits. Panel B uses Charlotte data, where only building-permit information is available. In each city, Panel A compares owner-occupied with rental properties, while Panel B compares small landlords (fewer than 20 parcels) with large landlords (20+ parcels). Differences are computed as column (1) minus column (2). Welch two-sample t-statistics are reported in the final column. $^{***}\,p < 0.01$.

Table 3: Home Reinvestment by Tenure Status and Landlord Scale: Minneapolis and Charlotte

	Dependent variable:			
	Mechanical Permits (Count) *negative binomial* (1)	Plumbing Permits (Count) *negative binomial* (2)	Building Permits (Count) *negative binomial* (3)	Building Permits (Dollars) *OLS* (4)
Panel A: Minneapolis				
Owner-Occupied	0.069***	−0.002	0.227***	0.437***
	(0.015)	(0.011)	(0.012)	(0.024)
Large Landlord (20+)	−0.471***	−0.172***	−0.503***	−0.595***
	(0.054)	(0.034)	(0.043)	(0.064)
Housing Characteristics	✓	✓	✓	✓
Neighborhood F.E.	✓	✓	✓	✓
Year F.E.	✓	✓	✓	✓
Observations	597,248	597,248	597,248	597,248
Panel B: Charlotte				
Owner-Occupied			0.040***	0.010***
			(0.011)	(0.003)
Large Landlord (20+)			−0.530***	−0.079***
			(0.033)	(0.006)
Housing Characteristics			✓	✓
Municipality F.E.			✓	✓
Year F.E.			✓	✓
Observations			4,114,816	4,114,816

Notes: Each column reports regressions of permitting outcomes on tenure status and landlord scale, controlling for housing characteristics where indicated. Minneapolis (Panel A) includes mechanical, plumbing, and building permits (counts via negative binomial; value via OLS). Charlotte (Panel B) has only building permits. Minneapolis models include neighborhood and year fixed effects; Charlotte models include municipality and year fixed effects. Standard errors (in parentheses) are clustered at the corresponding fixed-effect level. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3 presents results from our regression models. In Panel A, we show the differences in reinvestment by ownership type for Minneapolis. Comparing owner-occupied SFHs with similar single-family rentals suggests that owner-occupied units receive more reinvestment, though this is not true for all types of reinvestment. After controlling for housing characteristics, year and community of a SFH, owner-occupied single family homes have a 7.1%[9] higher expected count rate for mechanical permits than otherwise similar rental single-family homes, and a 25.5%[10,11] higher rate of building-permit filings. Furthermore, building permits for owner-occupied units represent approximately 54.8%[12] greater annual dollar values of work performed than for rental units, all else held equal.[13]. Comparing large-landlord owned single-family homes to otherwise similar units not owned by large landlords, homes with large-landlord ownership have a 39.5%[14] lower expected count of building permits with 44.8%[15] lower annual dollar values for building permits, all else held equal. Both comparing owner-occupied to rental SFHs, and large landlords to small landlords, there is no statistical difference in filings for plumbing permits after controlling for property and neighborhood characteristics.

In Panel B, we show results for Charlotte using two specifications that are directly comparable to the Minneapolis building-permit outcomes: Column (3) reports a negative binomial model of building-permit counts with municipality-level fixed effects (FE), and Column (4) reports an OLS model of (logged) building-permit values with municipality FE.[16] As in Minneapolis, we are interested in whether owner-occupied single-family homes exhibit systematically different reinvestment behavior than similar rental properties, and whether large landlords differ from smaller-scale rental owners. We first focus on differences in reinvestment between rental and owner-occupied single-family homes. In Column (3), the negative-binomial coefficient on *Owner-Occupied* of 0.040 implies that owner-occupied SFHs have approximately a 4.1%[17] higher expected count of building permits compared to otherwise similar renter-occupied single-family homes. Moving to Column (4), which measures (logged) permit values, we find that owner-occupied properties exhibit about a 1.0%[18] higher total expenditure on building work[19]. Next, Table 3 also highlights reinvestment differences for large landlords in Charlotte. The coefficients are negative and statistically significant: *Large Landlord (20+)*

[9] $\exp(0.069) - 1 = 0.071$, where 0.069 comes from Table 3, Panel A, Col. (1).
[10] $\exp(0.227) - 1 = 0.255$, where 0.227 comes from Table 3, Panel A, Col. (3).
[11] This translates to about 20.3% fewer building-permit counts for rental SFHs relative to owner-occupied homes, since $\frac{25.5\%}{1+25.5\%} \approx 20.3\%$.
[12] $\exp(0.437) - 1 = 0.548$, where 0.437 comes from Table 3, Panel A, Col. (4).
[13] This corresponds to about 35.5% lower building-permit values for rental SFHs relative to owner-occupied homes, computed as $\frac{54.8\%}{1+54.8\%} \approx 35.5\%$.
[14] $\exp(-0.503) - 1 = -0.395$, where -0.503 comes from Table 3, Panel A, Col. (3).
[15] $\exp(-0.595) - 1 = -0.448$, where -0.595 comes from Table 3, Panel A, Col. (4).
[16] A tract-FE variant for permit values is available in an alternative specification and yields similar conclusions.
[17] $e^{0.040} - 1 \approx 4.1\%$, Table 3, Panel B, Col. (3).
[18] $e^{0.010} - 1 \approx 1.0\%$, Table 3, Panel B, Col. (4).
[19] In the tract-FE specification, this difference is not statistically distinguishable from zero.

shows a coefficient of -0.530 in Column (3), implying that these owners have about a 41.1%[20] lower expected count of building permits than smaller landlords, and a coefficient of -0.079 in Column (4), implying roughly a 7.6%[21] lower total dollar value of permitted work[22].

6 Discussion and Conclusion

This paper investigates whether there are systematic differences in how the housing stock is maintained across different types of ownership and housing tenure, using novel datasets that combine parcel-level ownership records with reinvestment records for the same buildings. We compiled two such datasets: one for all single-family homes in the city of Minneapolis, Minnesota from 2017 to 2024, and another for Charlotte, North Carolina from 2004 to 2023. In both cities, we find that owner-occupiers perform significantly more work on their homes than landlords. Additionally, we find that differences exist between small and larger landlords, where larger landlords perform less work requiring permits. Importantly, differences in reinvestment behavior cannot be explained solely by those properties' characteristics or the neighborhoods where SFRs are concentrated.

As we observe in Minneapolis - where data on multiple permit types are available - the greatest differences across owner and tenure types - are in building permits. Importantly, we find little differences in the numbers of mechanical or plumbing permits that are issued across single family homes owned by individual or large landlords. Such permits likely cover work that is arguably not optional for the livability of a unit; whereas investments that rejuvenate aging properties are more discretionary. In Charlotte - where large owners are more prevalent - we find additional evidence that even among large owners, reinvestment into properties decreases with the number of properties owned.

The data employed in this study only cover a small fraction of all homes in the United States and only include work large enough to require permits under the respective rules of Minneapolis and Charlotte. However, our findings are consistent between the two study areas and are broadly consistent with the results of studies that use a different approach compared to ours - i.e., those Galster (1983) found via a survey or Shilling et al. (1991); Gatzlaff et al. (1998) by systematically documenting differential rates of housing between owner-occupied homes and rental housing units. Further, unlike prior literature, our empirical design allows us to control for property and neighborhood characteristics, permitting us to rule out that differences in observed reinvestment are due to other observable differences between the types of units used as rentals or occupied by owners. Until the American Housing Survey (AHS) expands its set of questions

[20] $e^{-0.530} - 1 \approx -41.1\%$, Table 3, Panel B, Col. (3).

[21] $e^{-0.079} - 1 \approx -7.6\%$, Table 3, Panel B, Col. (4).

[22] In extended robustness checks (not displayed in the combined table), using alternative thresholds to define large landlords—10+, 50+, and 100+ properties—the coefficients remain negative and statistically significant, indicating fewer permits and lower dollar values for these owners.

about reinvestment to also cover rental units, this approach may be the most viable way to systematically answer our research question.

Coupled with the observation of an increase in prevalence of permanent single-family rentals and the increase in large-landlord ownership of SFHs – as documented by Naamane (2024); Ky et al. (2021); Ky and Starling (2023) and observed within our own sample – our finding that rentals receive less reinvestment than otherwise similar owner-occupied SFRs implies that the aggregate amount of reinvestment performed across the housing stock may decline if the shift towards permanent rental units continues. Any such decline would bear consequences for the physical condition of the housing stock, as well as for employment among contractors, handymen, and other professionals involved in housing reinvestment work.

Policymakers may be able to counteract such trends via several policy levers that encourage reinvestment. First, with proactive code enforcement, cities may be able to identify under-maintained properties at an earlier stage of dilapidation. Second, cities and counties may be able to use fiscal policy measures such as tax incentives to encourage building reinvestment.

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Appendix

Parcel Age and Permits

Figure 5 illustrates how the average number of permits filed by a single-family home (SFH) in Charlotte varies with property age. We group building ages into deciles from 0 to 120 years. As properties mature, they typically experience more wear and tear, which corresponds to an increase in reinvestment activity. Indeed, the figure shows a rising trend in permits for older deciles, followed by a slight dip at the 9^{th} decile (around 100 years)[23]. While this relationship is not strictly monotonic, it highlights the expectation that older homes often require more upkeep, consistent with findings in the broader housing literature (Davidoff, 2004).

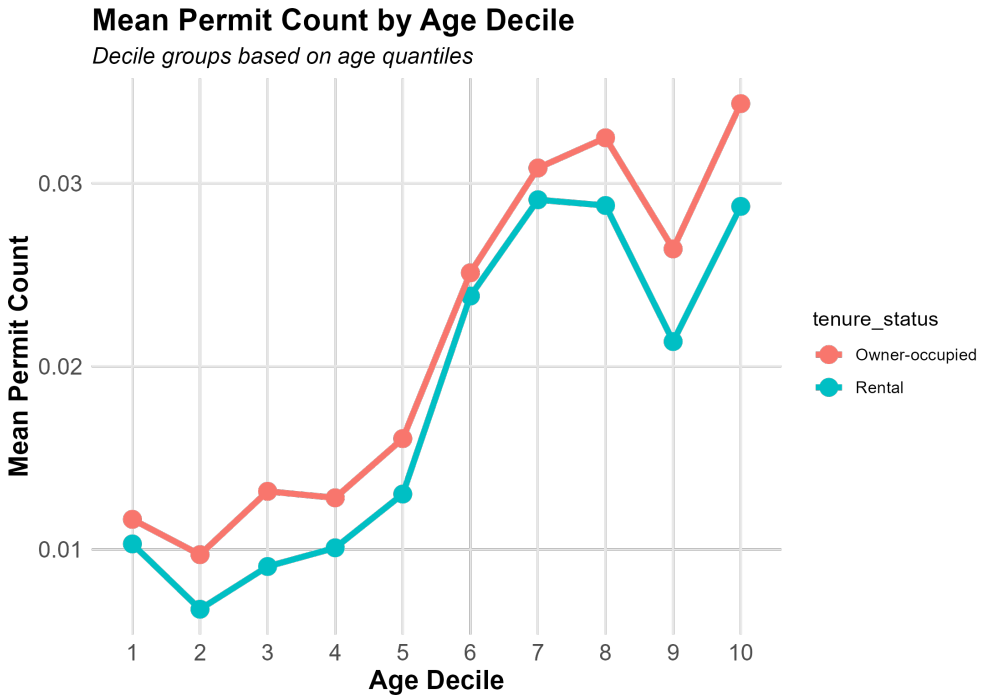

Figure 5: Mean Permit Count by Age and Tenure - Charlotte

[23]Although the median SFH in Minneapolis is much older than median SFH in Charlotte, we expect similar positive relationship between permit count and age in Minneapolis.

Permit Timing Analysis

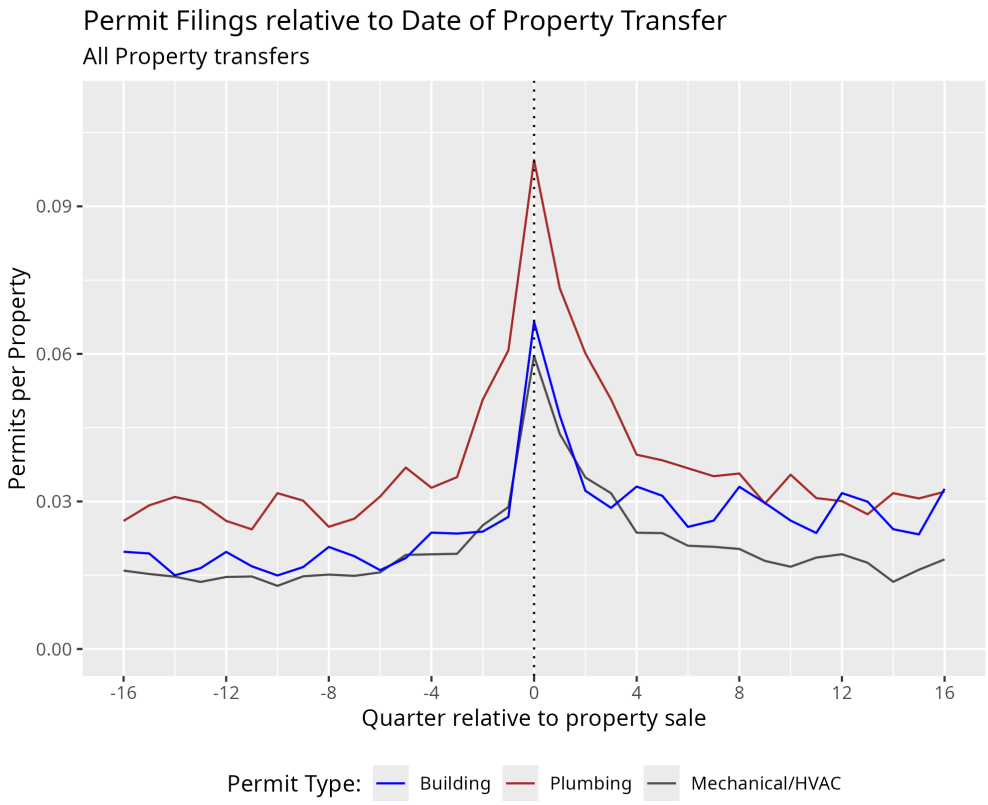

Figure 6: Permit Issuance Rates Surrounding Property Transfers - Minneapolis

We study the timing of the permit around the sale date to understand the reinvestment behavior of property buyers and sellers as they are about to either sell or purchase a property. Figure 6 presents results for Minneapolis for this permit timing analysis. Permits appear to largely reflect reinvestment performed by incumbent property owners: More than 85% of all permits occur more than a year away from any property transfer. Nonetheless, as is shown in Figure 6, permit issuance rates increase surrounding property transfers, in particular in the quarters immediately following a property changing hands[24].

[24]While Figure 6 displays data for Minneapolis, permit issuance behavior surrounding property transfers in Charlotte, North Carolina is comparable to that in Minneapolis.

Table 4: Home Reinvestment by Tenure Status and Large-Landlord Size – Charlotte (Count Models)

	Dependent variable: Building Permits (Count)	
	Neg. binomial	*Poisson*
	(1)	(2)
Owner-Occupied	0.040^{***}	0.121^{***}
	(0.011)	(0.010)
Large Landlord, 10+ properties	-0.353^{***}	-0.472^{***}
	(0.026)	(0.025)
Large Landlord, 20+ properties	-0.530^{***}	-0.664^{***}
	(0.033)	(0.032)
Large Landlord, 50+ properties	-0.746^{***}	-0.889^{***}
	(0.043)	(0.042)
Large Landlord, 100+ properties	-0.840^{***}	-0.982^{***}
	(0.048)	(0.047)
Observations	4,114,816	4,114,816
Housing Characteristics	✓	✓
Year F.E.	✓	✓
Municipality F.E.	✓	✓

Notes: Columns (1) and (2) report negative-binomial and Poisson regressions of permit counts, respectively. All specifications include housing characteristics (bedrooms, bathrooms, heated area, lot size, age, and age squared) and year fixed effects. Standard errors (in parentheses) are clustered at the municipality level. Results are robust to using a Poisson model instead of negative binomial: signs and significance are identical, and effect sizes are very similar; Poisson estimates are somewhat larger in magnitude, consistent with the negative binomial's extra dispersion parameter mildly attenuating coefficients in the presence of overdispersion. Significance levels: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.