Effect of Streetscape Improvements on Tenant Stability in San Francisco

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Abstract

Cities commonly invest in infrastructure improvements to enhance neighborhood appeal, ranging from beautification projects to practical infrastructure such as bike lanes and expanded pedestrian protections. While popular, concerns exist that these projects may accelerate gentrification and destabilize housing for low-income residents. This study examines the effect of streetscape improvements on housing stability in San Francisco using eviction filing data from 1997-2025. Employing a staggered difference-in-differences framework that compares six treated corridors to seven geographically matched counterfactual streets, I find evidence of modest, short-term increases in eviction filings 2-3 years following project implementation. These effects shrink over time, with no persistent impact by year 10. Results are robust to alternative control group and treatment threshold specifications as well as synthetic control methods, however heterogeneity across corridors suggests impacts vary across local contexts.

1 Introduction

Urban improvement projects are often implemented to enhance safety, walkability, and economic activity. These investments increase neighborhood desirability, potentially accelerating rent increases and displacement of long-term tenants. This is particularly concerning in tight housing markets like in San Francisco.

Beginning in the early 2000s, San Francisco initiated a series of *Streetscape Improvement Projects* installing bike lanes, landscaping, lighting infrastructure, and pedestrian protections to improve safety and neighborhood vitality. The staggered implementation of these projects across different neighborhoods and years provides an opportunity to study their local effects on housing stability.

This paper examines whether Streetscape Improvement Projects contribute to tenant instability in San Francisco by increasing eviction filings in nearby areas. Using a staggered difference-in-differences approach that compares eviction filing rates before and after project implementation between treated corridors and carefully matched counterfactual streets, I estimate the causal impact of these improvements on housing stability. I find evidence of modest increases in evictions 2-3 years post treatment, however the effects vanish long term. Results are robust to alternative specifications, including city-wide comparisons and synthetic control methods.

2 Data and Descriptive Statistics

2.1 Data Sources

The eviction data comes from the City of San Francisco's Open Data Portal, covering all eviction filings from 1997 through 2025. Each observation includes the filing date, location (anonymized at the block level), and eviction type. Information on streetscape improvement projects including construction corridors and implementation years was obtained from Latterman (2011) and verified using city planning records.

Using GIS software, I spatially joined eviction records to treatment corridors. Evictions occurring within 100 meters of a streetscape project corridor are classified as treated, while those within 100 meters of matched counterfactual corridors serve as controls. The 100-meter threshold captures eviction filings in immediate proximity to improvements while maintaining spatial separation between treatment and control areas.

2.2 Treatment and Control Corridors

Six corridors received streetscape improvements between 1999 and 2011:

- Valencia Street (1999)
- North Polk Street and South Polk Street (2000)
- Divisadero Street and Leland Avenue (2010)
- Powell Street (2011)

For each treated corridor, I borrow the counterfactual corridors specified in Latterman (2011). The corridors are similar to their respective treatment corridors in terms of economic activity and residential/commercial makeup. The seven control corridors are: Fillmore Street, Grant Avenue, Kearny Street, North Van Ness Avenue, South Van Ness Avenue, Mission Street, and San Bruno Avenue.

2.3 Summary Statistics

Table 1 presents summary statistics for the pooled sample. The analysis includes 3,051 total eviction filings: 1,741 in treatment areas and 1,310 in control areas, observed over 29 years (1997-2025). Treatment corridors exhibit higher average eviction rates in the pre-treatment period (8.88 evictions per corridor-year) compared to controls (6.45 evictions per corridor-year).

Table 1: Summary Statistics: Pooled Sample

	Treatment Corridors	Control Corridors
Number of corridors	6	7
Total eviction filings	1,741	1,310
Mean evictions per corridor-year (pre-treatment)	8.88	6.45
Median evictions per corridor-year (pre-treatment)	4.5	3.0
Years observed	1997-2025	1997-2025

3 Empirical Strategy

To estimate the impact of streetscape improvements on eviction activity, I employ a staggered difference-in-differences (DiD) framework that exploits variation in treatment timing across corridors. The outcome variable, Y_{it}, represents the log-transformed count of eviction filings for corridor i in year t:

$$Y_{it} = \sum_{g \in G} \sum_{e \neq -1} \delta_{e,g} \cdot \mathbf{1}\{G_i = g\} \cdot \mathbf{1}\{t - G_i = e\} + \alpha_i + \gamma_t + \varepsilon_{it}, \tag{1}$$

where G_i is the year corridor i received its streetscape improvement (indicating treatment cohort), and $t - G_i = e$ marks observation time relative to treatment. The coefficients $\delta_{e,g}$ measure the effect of the improvement for cohort g at event time e, relative to one year prior to treatment ($e = -1$), which serves as the reference period. Location fixed effects (α_i) control for time-constant corridor characteristics, while year fixed effects (γ_t) account for any city-wide shocks. The error term ε_{it} captures unobserved variation.

This specification follows Sun and Abraham (2021), which corrects potential bias in traditional two-way fixed-effects DiD models with staggered treatment adoption. Estimation uses the `feols()` function from the `fixest` package in R, with the `sunab(G, year, ref.p = -1)` command constructing event-time indicators. Standard errors are clustered at the corridor level to account for the fact that observations from the same corridor are correlated with eacho ther accross years.

The $\delta_{e,g}$ coefficients serve two purposes for this study. Pre-treatment coefficients ($e < 0$) test the parallel trends assumption to check whether treatment and control corridors would have followed similar trajectories without treatment. Post-treatment coefficients ($e > 0$) reveal the treatment effects and how they changed over time relative to project start dates.

4 Results

4.1 Main Results: Matched Counterfactual Analysis

Figure 1 presents the event study estimates comparing the six treated corridors to their seven matched counterfactual counterparts. The figure plots coefficients δ_e for event times ranging from five years before to ten years after treatment implementation, along with 95% confidence intervals.

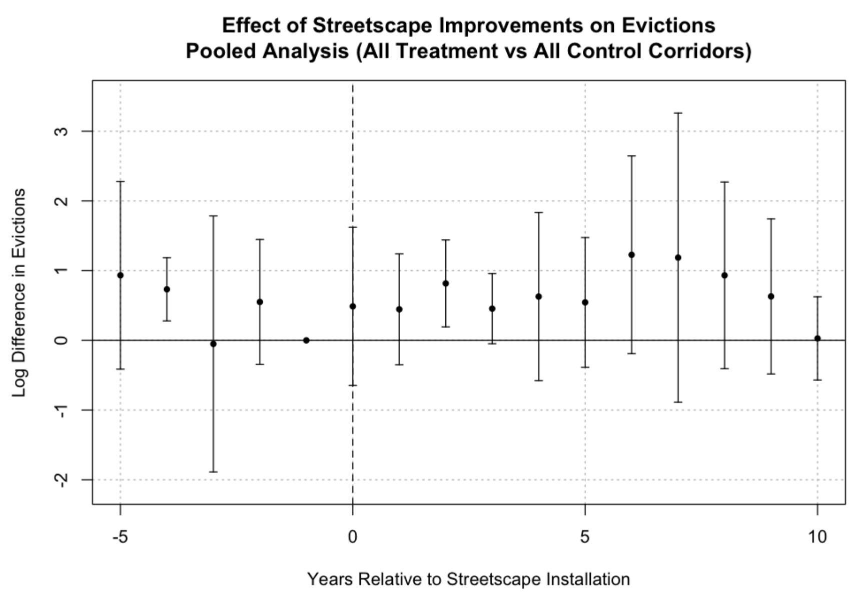

Figure 1: Effect of Streetscape Improvements on Evictions: Matched Counterfactual Analysis. Points represent coefficient estimates from equation (1); bars show 95% confidence intervals. Standard errors clustered at corridor level. Event time -1 is the reference period.

Pre-treatment trends. Examining pre-treatment coefficients reveals mixed evidence on parallel trends. Most pre-treatment periods show no significant differences between treatment and control corridors. Years -5, -3, and -2 have coefficients statistically indistinguishable from zero. However, year -4 exhibits a significant positive coefficient (0.732, p=0.009) which suggests possible pre-existing differences. This is a sign to be cautious while interpreting the results, however the lack of a consistent pre-trend pattern and robustness across different specifications (discussed below) supports the validity of the design.

Post-treatment effects. Following streetscape implementation, increases in eviction rates in treated corridors are limited relative to controls. The most pronounced effects occur 2-3 years post-treatment:

- **Year 2**: Coefficient of 0.817 (SE=0.243, p=0.020), statistically significant at the 5% level
- **Year 3**: Coefficient of 0.455 (SE=0.196, p=0.068), marginally significant at the 10% level
- **Year 6**: Coefficient of 1.227 (SE=0.552, p=0.077), marginally significant at the 10% level

The year 2 coefficient of 0.817 implies evictions increased approximately 82% in treated corridors relative to controls, with a 95% confidence interval ranging from 34% to 129%.

Notably, the effects shrink substantially over time. By year 10, the estimated treatment effect is near zero, indicating no long-run impact on eviction rates. This suggests short-term displacement pressures that vanish as the housing market adjusts or the initial population of vulnerable tenants is displaced.

Table 2 presents selected coefficient estimates with standard errors and p-values.

Table 2: Treatment Effects at Selected Event Times: Matched Counterfactual Analysis

Event Time	Estimate	Std. Error	P-value	Significance
Year -5	0.933	0.524	0.135	
Year -4	0.732	0.176	0.009	***
Year -3	-0.051	0.714	0.945	
Year -2	0.551	0.348	0.175	
Year 0	0.488	0.441	0.320	
Year 1	0.445	0.309	0.210	
Year 2	0.817	0.243	0.020	**
Year 3	0.455	0.196	0.068	*
Year 5	0.545	0.362	0.193	
Year 6	1.227	0.552	0.077	*
Year 10	0.028	0.232	0.910	

Standard errors clustered at corridor level.

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

4.2 Interpretation

The results indicate that streetscape improvements have moderate, short term effects on eviction rates. The clearest evidence of increased evictions appears 2-3 years after project completion. This is consistent with a mechanism where improvements increase neighborhood desirability, leading to property value appreciation and landlord incentives to replace existing tenants with higher-paying renters. The lag structure aligns with the time required for improvements to become fully operational, for property values and neighborhood perception to adjust, and for landlords to pursue eviction filings.

The dissipation of effects by year 10 suggests that either: (1) housing markets reach equilibrium after initial adjustments, (2) the most vulnerable tenants are displaced early, leaving a more stable population, or (3) policy responses or broader market changes attenuate the impact over time.

The average post-treatment effect across years 0-10 is 0.671 log points corresponding to roughly a 67% increase in eviction rates. Three out of eleven post-treatment years show statistical significance at standard levels. This pattern suggests meaningful but not universally sustained impacts.

5 Robustness Checks

5.1 City Wide Comparison and Varied Thresholds

As a first robustness check, I re-estimate equation (1) using all untreated neighborhoods in San Francisco as the control group, rather than restricting to matched counterfactual corridors. This specification increases statistical power and tests how sensitive the results are to control group selection. Additionally, I use three different treatment thresholds to test sensitivity to threshold distance. In addition to the same 100 meter threshold used above, I specify a 200 meter and 300 meter threshold for each corridor.

Table 3 presents treatment effects at key time points across all three specifications, using all untreated San Francisco neighborhoods as the control group.

Figure 2 visualizes the event study estimates for all three distance thresholds side-by-side.

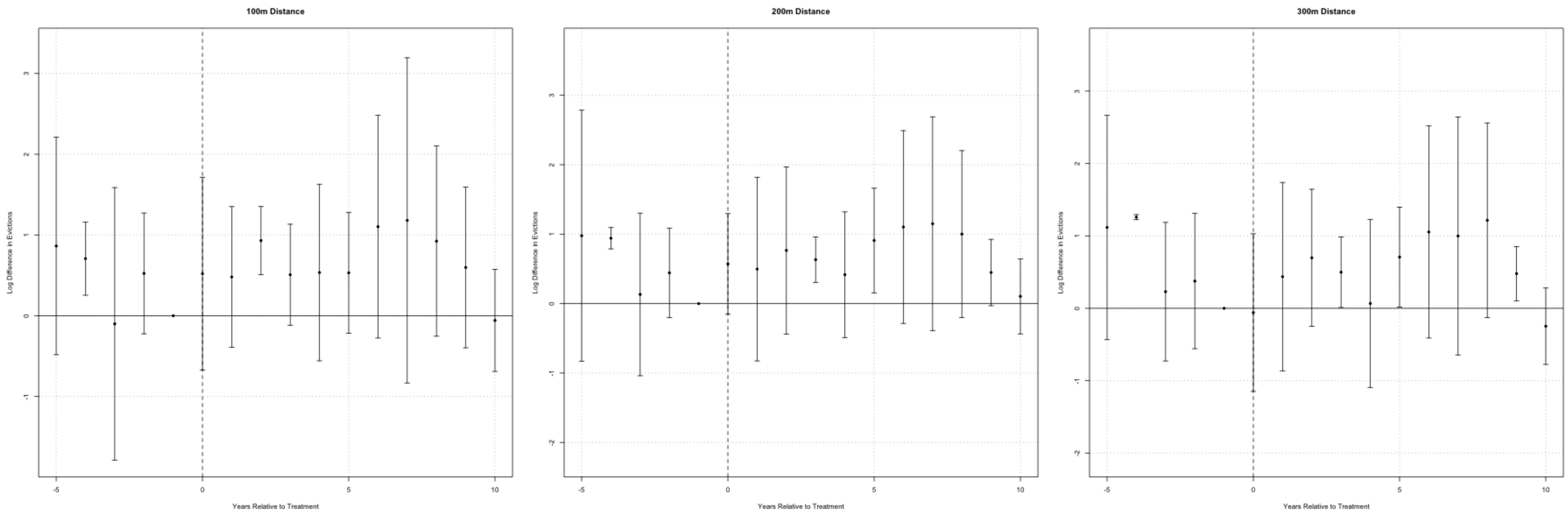

Figure 2: Effect of Streetscape Improvements Across Distance Thresholds. Event study estimates using 100m, 200m, and 300m proximity definitions for treatment assignment. All specifications use city-wide untreated neighborhoods as controls. Points represent coefficient estimates; bars show 95% confidence intervals.

Results are broadly consistent across specifications. All three thresholds show:

- Positive treatment effects emerging 2-3 years post-implementation
- Peak effects occurring in years 3-5
- Dissipation of effects by year 10

Table 3: Treatment Effects Across Distance Thresholds: City-Wide Control Group

Event Time	100m	200m	300m
Year 0	0.521	0.571*	-0.060
	(0.464)	(0.282)	(0.423)
Year 1	0.480	0.497	0.436
	(0.339)	(0.515)	(0.506)
Year 3	0.508*	0.633***	0.498**
	(0.243)	(0.128)	(0.189)
Year 5	0.532	0.908**	0.708**
	(0.291)	(0.293)	(0.268)
Year 10	-0.058	0.104	-0.248
	(0.246)	(0.210)	(0.205)
Mean (Years 0-10)	0.659	0.691	0.531
Significant years (10% level)	4 of 11	6 of 11	4 of 11
Model R^2	0.905	0.929	0.932

Standard errors in parentheses, clustered at corridor level.

* p<0.10, ** p<0.05, *** p<0.01

The 200m specification shows the strongest and most statistically significant effects, with Year 3 exhibiting a coefficient of 0.633 ($p<0.01$) and six of eleven post-treatment years significant at the 10% level. The 100m and 300m specifications show somewhat smaller effects, though the overall pattern remains similar.

The stronger effects at 200m may reflect that this threshold optimally captures the geographic extent of impact. It is close enough to capture affected properties but not so wide it dilutes effects by including marginally affected areas. Alternatively, larger treatment areas may simply provide greater statistical power by increasing the number of treated observations.

Importantly, the core finding of modest, short-term increases in evictions that disappear over time holds across all three spatial definitions. This consistency strengthens confidence that results are not a result of arbitrary threshold selection. The matched counterfactual analysis (Section 4.1) uses the 100m threshold to maintain spatial separation between treatment and control corridors, though results would be qualitatively similar at 200m.

5.2 Synthetic Control Method

To further improve the robustness of results and examine heterogeneity across corridors, I implement the synthetic control method from Abadie et al. (2010) for each of the six treated corridors individually. For each treated unit, I construct a synthetic control as a weighted combination of untreated neighborhoods, with weights calculated to minimize pre-treatment differences in eviction counts.

Table 4 reports the post-treatment fit measured by the Root Mean Squared Prediction Error (RMSPE) ratio and p-values from placebo permutation tests. P-values represent the proportion of placebo units (untreated neighborhoods assigned fake treatment dates) with RMSPE ratios equal to or exceeding the treated corridor's ratio.

Table 4: Synthetic Control Inference Results

Corridor	Treatment Year	RMSPE Ratio	P-value	Significant at 10%
Valencia	1999	12,763,687	0.138	No
Polk North	2000	182,611	0.241	No
South Polk	2000	24.17	0.552	No
Divisadero	2010	6.39	0.103	Borderline
Leland	2010	1.09	0.759	No
Powell	2011	0.21	1.000	No

None of the corridors exhibit treatment effects statistically significant at conventional levels. Only Divisadero approaches borderline significance (p=0.103). Figure 3 visualizes the treatment-synthetic control gaps for all corridors (red lines) alongside placebo gaps for untreated neighborhoods (gray lines).

The synthetic control analysis reveals substantial heterogeneity in treatment effects across corridors. Some show positive post-treatment gaps, others follow minimal or negative deviations from their synthetic controls. This heterogeneity is consistent with varying local contexts. Differences in neighborhood characteristics, building types, or rental market conditions may moderate the impact of streetscape improvements.

The lack of statistical significance in individual synthetic control estimates, despite the significant pooled results may reflects limited statistical power when analyzing single corridors or between-corridor heterogeneity that averages out to a modest positive effect in the pooled specification. The pooled staggered DiD design aggregates information across all treated units, detecting an average treatment effect that individual-level analyses may miss.

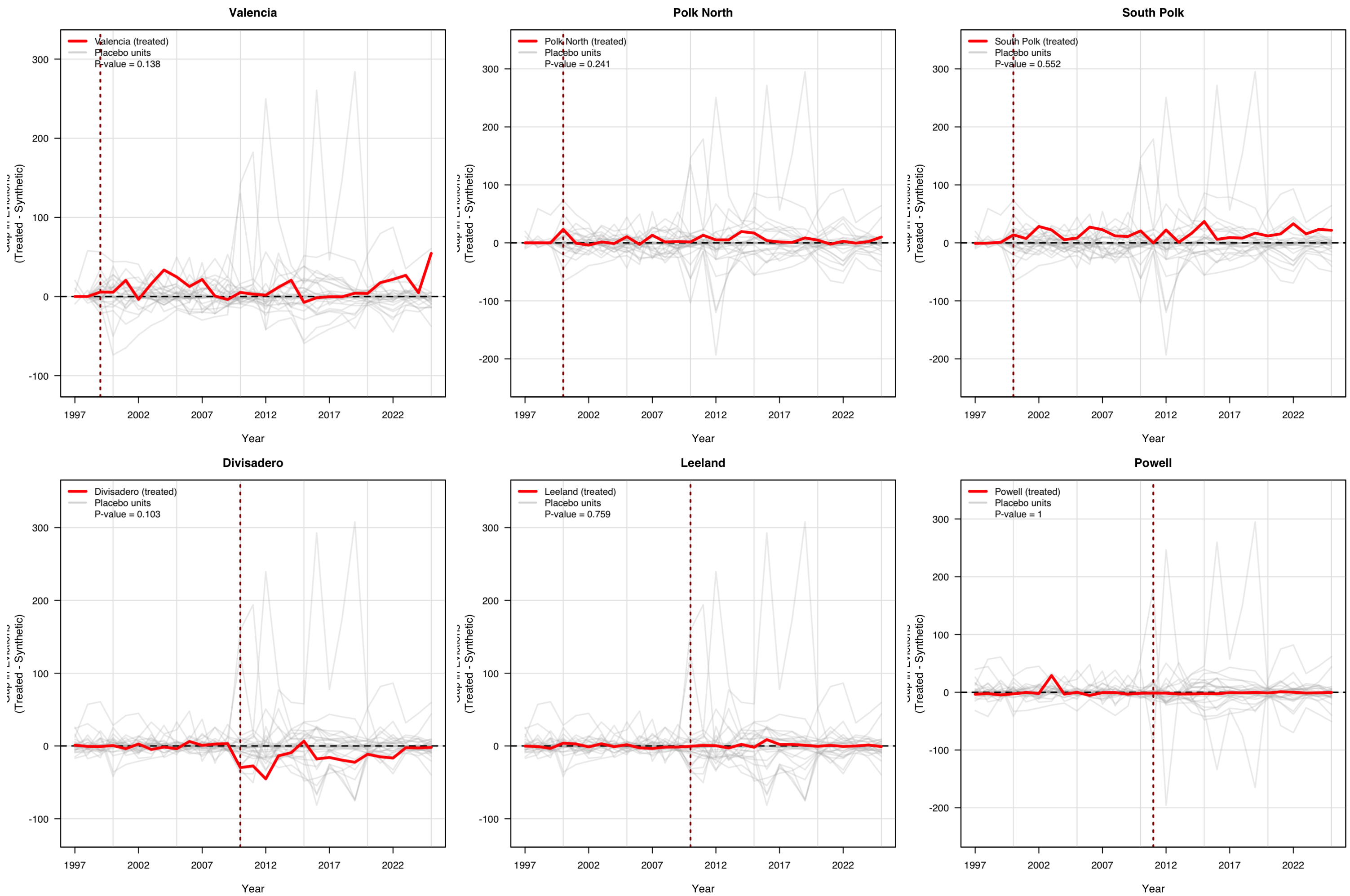

Figure 3: Synthetic Control Robustness Analysis. Each panel shows the gap between actual evictions (treated) and synthetic control evictions for one corridor. Red lines represent treated corridors; gray lines show placebo tests where untreated neighborhoods are assigned fake treatment dates. P-values indicate the proportion of placebo gaps equal to or exceeding the treated corridor's gap. Vertical dashed lines mark treatment implementation years; horizontal dashed lines indicate zero effect.

6 Discussion and Conclusion

This study provides evidence that streetscape improvements in San Francisco have modest, short-term effects on eviction rates in adjacent areas. Using a staggered difference-in-differences design comparing six treated corridors to seven matched counterfactual streets, I find statistically significant increases in evictions 2-3 years following project implementation. However, these effects dissipate over time, with no clear long-run impact by year 10.

Results are robust to alternative specifications, including city-wide control groups and synthetic control methods, however, the synthetic controls method reveals substantial heterogeneity across individual corridors. This heterogeneity suggests that local context matters. The impact of streetscape improvements on housing stability depends on neighborhood-specific factors such as rental market tightness, existing tenant protections, and the composition of housing stock.

The findings have implications for urban policy. While streetscape improvements carry tangible benefits to pedestrian safety and neighborhood appeal, policymakers should be aware of potential short run displacement pressures that accompany them. Areas planning new projects may want to consider implementing additional tenant protections such as pausing evictions during and immediately after construction of improvements that increase neighborhood appeal. Additionally, strengthening right-to-return laws may help to prevent low-income tenants from being permanently displaced when landlords renovate buildings to capitalize on housing demand when neighborhood appeal increases.

Limitations of this study include endogeneity in project placement (though staggered timing helps mitigate this concern), and the focus on a single city (limiting external validity). Future research could examine: (1) mechanisms linking improvements to evictions (such as property value changes or landlord behavior), (2) heterogeneity by neighborhood characteristics or tenant demographics, and (3) the effectiveness of policy interventions designed to mitigate displacement.

In conclusion, streetscape improvements in San Francisco appear to generate short-term increases in eviction rates, though effects are limited and temporary. Careful policy design can potentially preserve the benefits of urban improvements while minimizing adverse consequences for housing stability.

7 Appendix: Full Regression Results

Table 5: Full Event Study Estimates: Matched Counterfactual Analysis

Event Time	Coefficient (Std. Error)
Year -14	0.464
	(0.000)
Year -13	1.107
	(0.460)
Year -12	0.964
	(0.245)
Year -11	0.774
	(0.513)
Year -10	1.104
	(0.633)
Year -9	0.796
	(0.557)
Year -8	1.890*
	(0.603)
Year -7	0.930
	(0.904)
Year -6	0.809
	(0.478)
Year -5	0.933
	(0.524)
Year -4	0.732**
	(0.176)
Year -3	-0.051
	(0.714)
Year -2	0.551
	(0.348)
Year -1	[Reference]
Year 0	0.488
	(0.441)
Year 1	0.445
	(0.309)
Year 2	0.817**
	(0.243)
Year 3	0.455*
	(0.196)
Year 4	0.628
	(0.469)
Year 5	0.545
	(0.362)
Year 6	1.227*
	(0.552)
Year 7	1.187
	(0.807)
Year 8	0.932
	(0.521)
Year 9	0.630

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Table 5 – continued from previous page

Event Time	Coefficient (Std. Error)
	(0.433)
Year 10	0.028
	(0.232)
Year 11	0.358
	(0.705)
Year 12	0.962
	(0.512)
Year 13	0.731
	(0.322)
Year 14	1.048
	(0.496)
Year 15	1.674**
	(0.258)
Year 16	0.602
	(0.410)
Year 17	0.688
	(1.095)
Year 18	0.519
	(0.264)
Year 19	1.050***
	(0.027)
Year 20	1.214
	(0.717)
Year 21	0.641
	(0.269)
Year 22	1.535***
	(0.214)
Year 23	0.805*
	(0.230)
Year 24	1.205*
	(0.437)
Observations	174
Corridors	6 treatment, 7 control
R^2	0.888
Within R^2	0.559

Corridor and year fixed effects included.
Standard errors clustered at corridor level.
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

References

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