Green Resilience, Rising Rents

A Spatial Regression Analysis of Climate Investment and Displacement Risk in NYC

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Background

Urban climate resilience projects (green infrastructure, flood protection) aim to mitigate hazards like flooding and heat.

Paradox: These projects may trigger ”resilience gentrification," displacing vulnerable residents through rising rents and property values.

NYC Context: Post-Hurricane Sandy investments ($20B+) have raised concerns about equitable outcomes.

Research Gap: Limited citywide, longitudinal studies on how resilience infrastructure impacts displacement.

Research Questions

Is proximity to resilience projects associated with rising rents and displacement risk?

How do effects vary by neighborhood vulnerability (race, income, eviction rate)?

What policy insights can reconcile climate adaptation with housing justice?

Data Sources

Socioeconomic	American Community Survey (2013–2023): Tract-level rents, demographics, poverty.
Resilience Projects	NYC Mayor's Office of Resiliency: Geocoded flood barriers, bioswales, greenways.
Displacement Metrics	NYC Open Data: Eviction filings by tract.
Spatial Data	Census tract boundaries (TIGER/Line) for spatial analysis.

Methodology

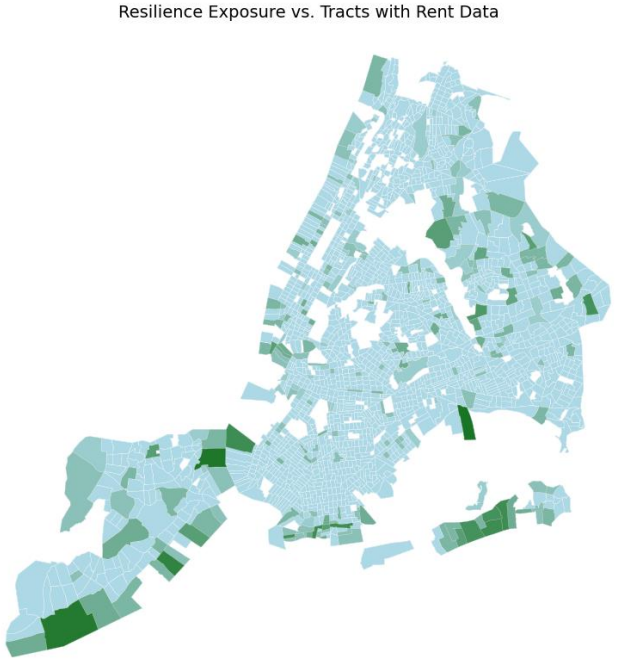
Spatial Error Model (SEM): Accounts for spillover effects between neighboring tracts.

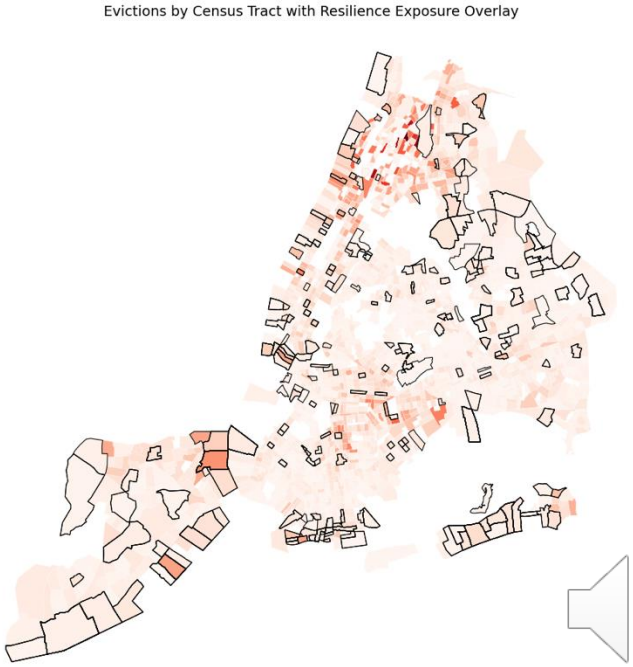
Key Variables:

- **Dependent:** Median rent (log transformed).
- **Independent:** Proximity to resilience projects, project count, temporal lags.

Controls: Race, poverty, education, population density.

Spatial Matrix: Queen contiguity (adjacent tracts influence each other).





Results

Modest Rent Increases:

Single projects: No significant effect.

Cumulative projects: +1.6% median rent increase (p=0.057).

Temporal Effects:

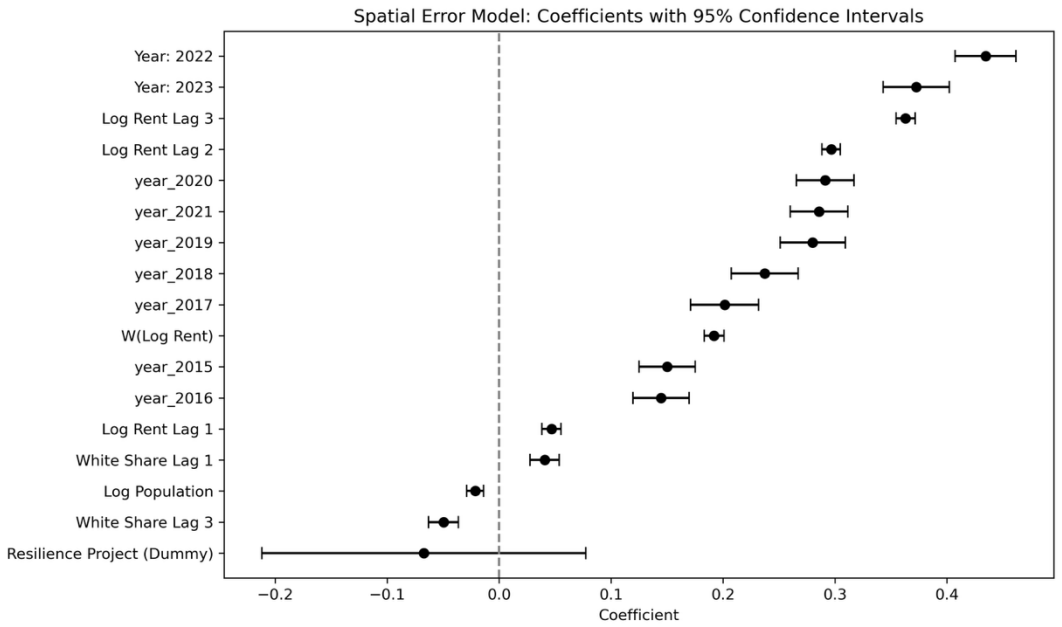
Short-term rent spikes (1-year lag: +0.5%, p=0.062), fading by Year 5.

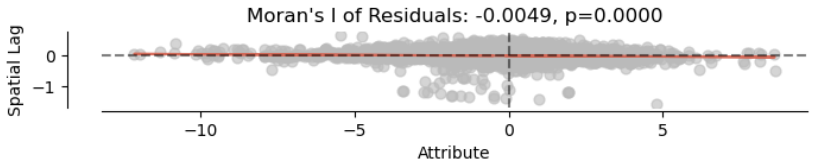
Spatial Spillovers:

Strong rent contagion (neighboring tracts influence rents: p<0.001).

Demographic Shifts:

“Greening whitens”: Increasing white population linked to rent increases (1-year lag: +4.1%, p<0.001).





Conclusions

Resilience projects contribute to rent pressures, but effects are context-dependent and moderated by policy.

Decouple climate adaptation from speculative growth to ensure equitable resilience.

Policy Implications:

Time-sensitive protections (rent freezes post-project)	**Regional anti-displacement strategies** to address spillovers	**Race-conscious planning** (community input)