The Emergence of Exclusionary Zoning Across American Cities

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Paper: Importance of Racial Exclusionary Zoning

In U.S., local land use regulations shape urban form

- ▶ Would local competition over zoning provide efficiency, even if some actors **exclude** certain groups?
- ▶ What historical trends, through a local regulation channel, locked in urban form?

Research question: When U.S. suburbs were first planned, were they zoned restrictively in reaction to Black migration?

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Research question: When U.S. suburbs were first planned, were they zoned restrictively in reaction to Black migration?

Empirical context: U.S. postwar suburbanization, 1940–70

- ▶ Simultaneous with "Second Great Migration": 4 million Black Americans moved out of South

Two challenges to causal inference

1. No database on how U.S. land use controls were first adopted exists
▶ Scant surviving records of local, decentralized process

2. Black migrants did not select cities at random
▶ Example: In cities with good jobs, rich left for suburbs earlier
  $\rightarrow$ Rich incumbents have non-racial motive to "zone out" poor

Empirical strategies

1. Novel algorithm measuring timing and restrictiveness of suburban zoning regulation: **minimum lot sizes**

▶ Oldest homes where lots bunch inform first adoption of lot size

▶ Degree of "bunching on lot sizes" quantify zoning restrictiveness

2. Shift-share IV for Black migration (Boustan (2010), Derenoncourt (2022))

▶ Four findings support postwar exclusionary zoning as reaction to migrants' race more than by income

Algorithm finds which minimum lots ever adopted

From oldest to newest housing vintages in each jurisdiction:

▶ Classify **bunching bins** with **excess mass**, or to left has **missing mass**
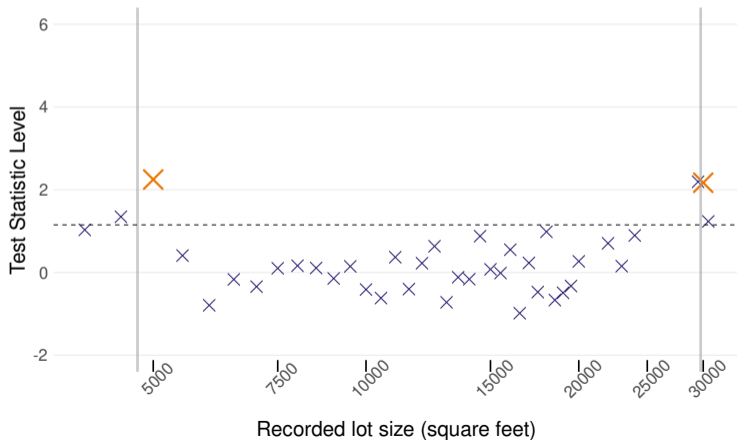
Example: PA,
Lower Merion,
1940–60 homes
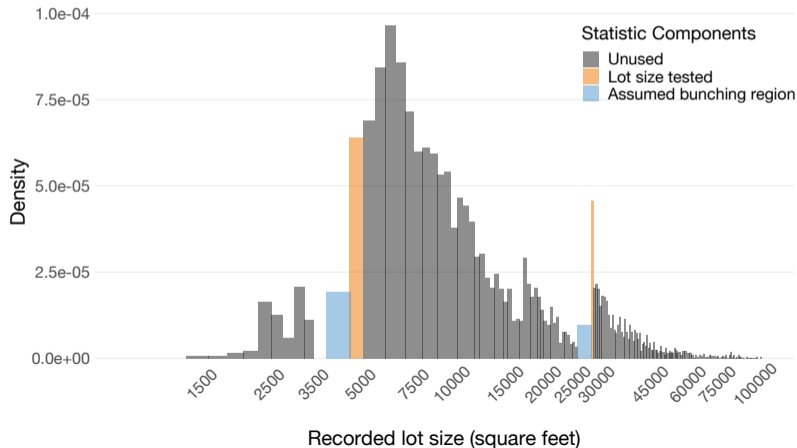
Algorithm finds which minimum lots ever adopted

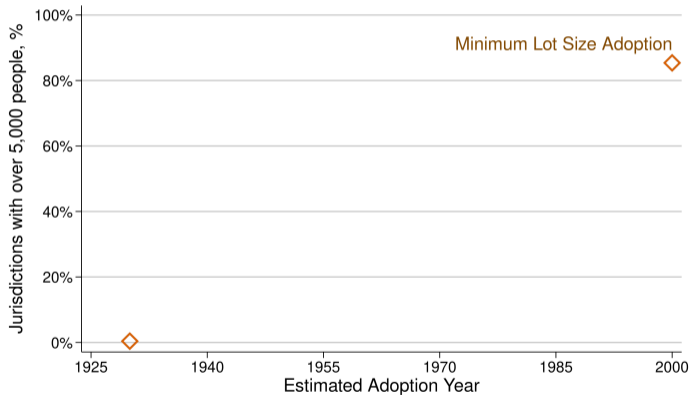From oldest to newest housing vintages in each jurisdiction:

▶ Measure bunching relative to baseline with **gradient statistic**
   More on statistic

Example: PA,
Lower Merion,
1940–60 homes

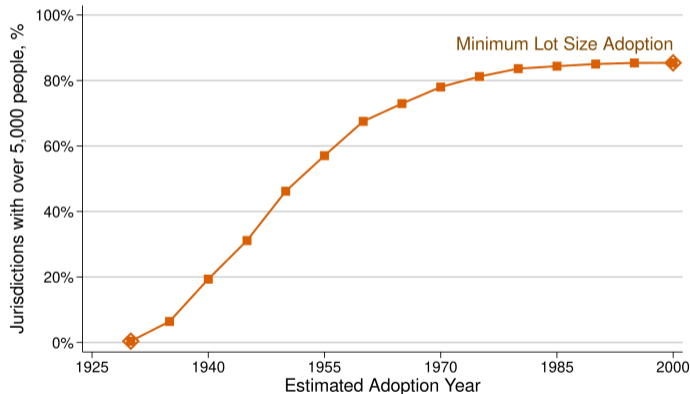Recorded lot size (square feet)

Measuring lot size adoption

Using administrative assessments data, algorithm processes 4,800 jurisdictions

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▶ 60% of cities adopted lot size controls from 1940–70

Data span 85 years: empirical strategy focuses on 1940–70

Addressing endogeneity: Shift-share instrument

Strip out how the destination factors into ΔCC^{black} with **shift-share instrument** Z^{Black}: For destination central city c and sending counties k,

$$Z_{ct}^{Black} = \sum_{\text{Southern } k} \overbrace{\widetilde{\omega}_{c,1940}(k)}^{\text{Mig. share from } k} \times \underbrace{\hat{g}_k(t)}_{\text{Mig. shock on } k},$$

With additional prediction of shocks through county k push factors

▶ Shares taken over counties from which prewar Black migrants migrated

▶ Shifts in Black willingness to leave those counties changes instrument

Estimated causal effects are sizable

Baseline panel regression $\rightarrow$ cumulative Great Migration effect:
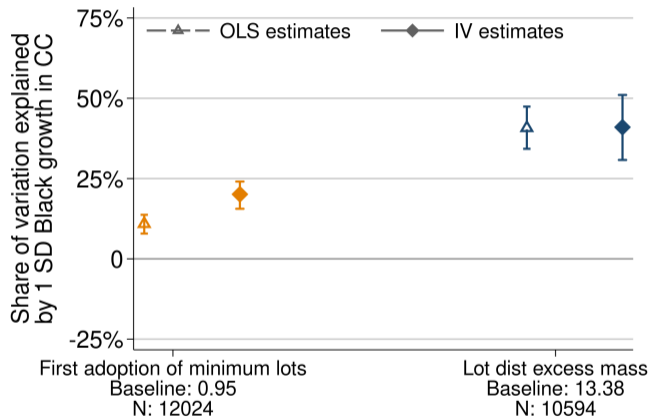
Bootstrapped 95% confidence intervals shown

Broken down by decade   Reweighed by jurisdiction construction

Mechanisms of postwar exclusion

1. Small lot size effects where there was low-income, non-Black migration

▶ **Implications:** Racial exclusionary zoning separate effect from fiscal zoning ("excluding free-riders")

▶ **Method:** Repeat shift-share design using variation in migration of 8 million Southern White migrants   Results

Mechanisms of postwar exclusion

1. Small lot size effects where there was low-income, non-Black migration

▶ **Implications:** Racial exclusionary zoning separate effect from fiscal zoning ("excluding free-riders")

2. Exclusionary zoning explained by demand for segregated public schools

▶ **Implications:** Exclusionary zoning a supply-side response to prejudiced demand, as some households "voted with their feet"

▶ **Method:** Interact Black migration effects with early bans on school segregation across states   Results

Conclusion

Introduce a novel algorithm recovering dynamics of U.S. suburban
lot size restrictiveness

▶ Time-varying measure of exclusionary zoning offers
  causal evidence on determinants

Local panel on lot size restrictiveness part of ongoing work:

▶ Are neighbourhood change dynamics different in restrictively zoned areas?
▶ Do metros with more exclusionary neighbourhoods face higher
  infrastructure costs and job sprawl?

Thank you!

More on gradient statistic

Wit lot size distribution $f^j(\ell)$, post-period h^τ after adoption τ:

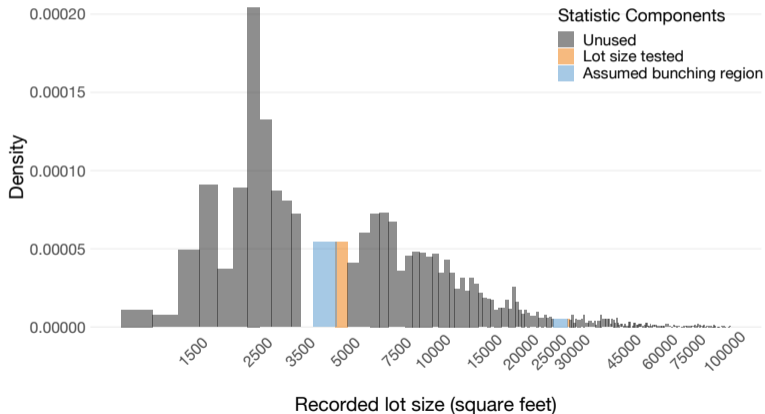Estimating $\Delta f^j(\ell) = \log m_\ell - \log m_{[\ell - \mu, \ell]}$

Recorded lot size (square feet)
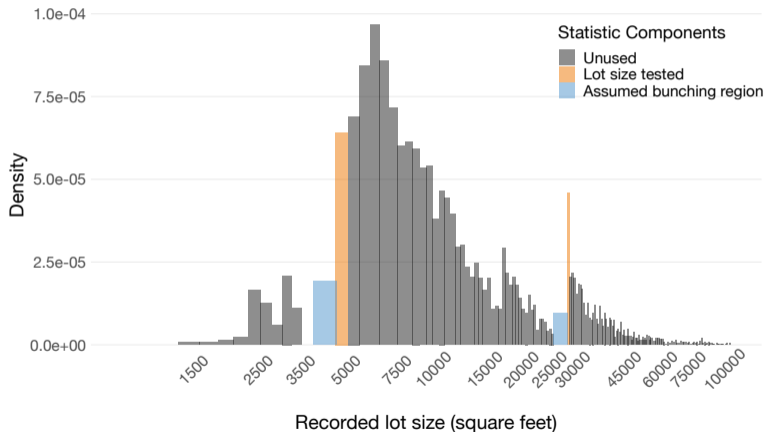
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More on gradient statistic

Distribution for pre-period before τ, $h^{\tau\prime}$:

Estimating $\Delta f_{CF}^{j}(\ell) = \textcolor{orange}{\log m_{\ell}^{CF}} - \textcolor{blue}{\log m_{[\ell-\mu,\ell]}^{CF}}$

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More on gradient statistic
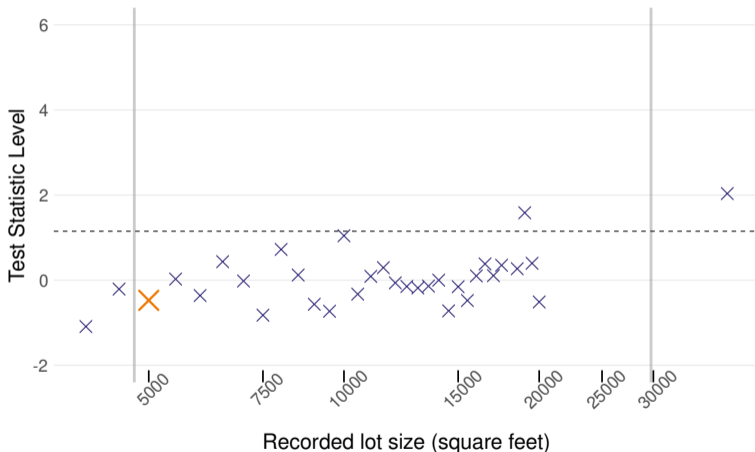
Calculate $\hat{G}(\ell, \tau) = \Delta f^j(\ell) - \Delta f^j_{CF}(\ell)$, save ℓ whose stat above critical value

Recorded lot size (square feet)
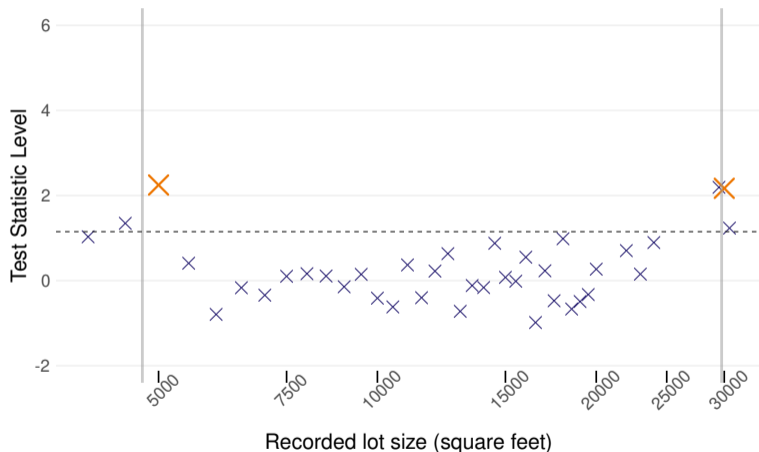
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More on gradient statistic

Bunching not statistically apparent for real vintages before known adoption

Recorded lot size (square feet)
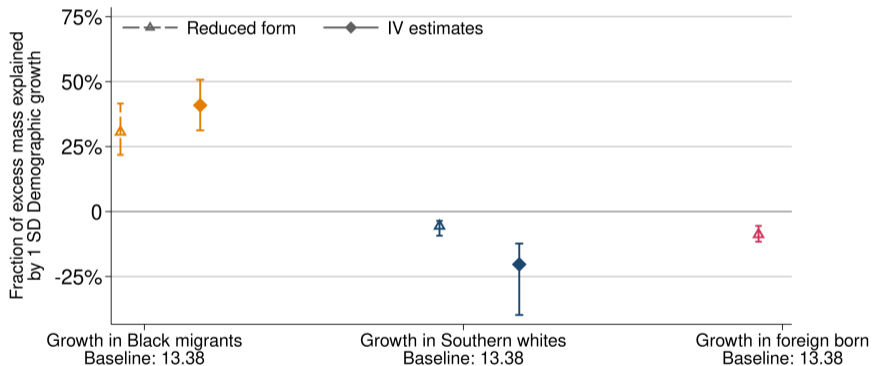
White migrations yield opposite effects

Southern whites (+ foreign born) lower income than non-Southern whites

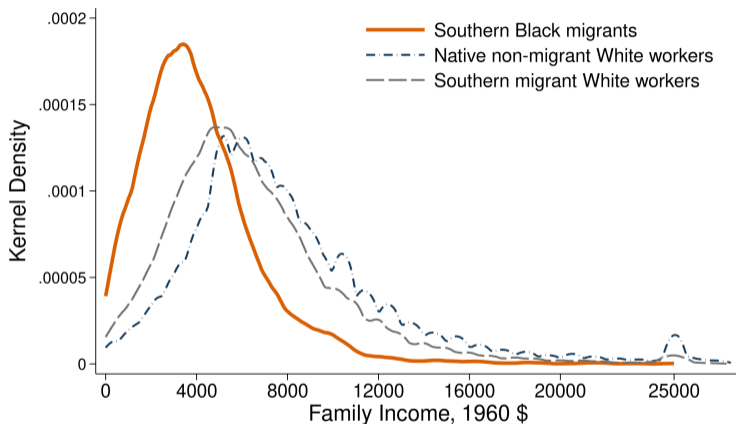▶ Null results on lot size outcomes, contrary to exclusion only on income

Bootstrapped 95% confidence intervals shown

Profiles of Southern migrants   Back
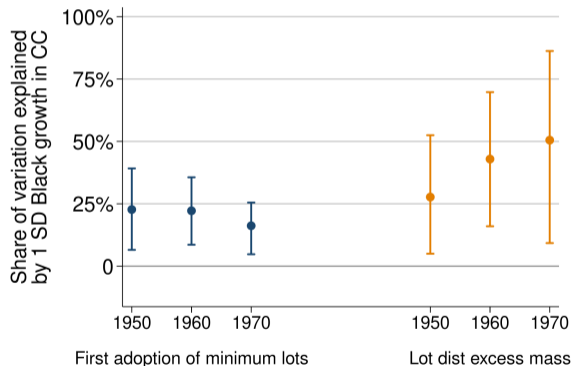
Comparison migrant group: Southern whites

Southern whites 20% poorer on average than incumbent White households
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Robustness: Decade-specific effects

Disaggregate effect conversion for each decade

After legal bans on racial covenants in 1948, local governments further upheld lot size restrictiveness
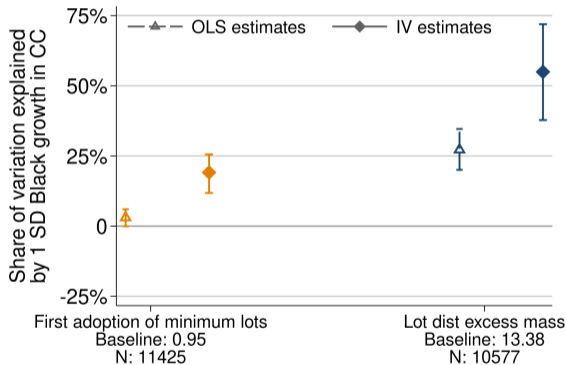

Bootstrapped 95% confidence intervals shown

Robustness: Alternate weighing

Effect increases when jurisdictions scaled by pre-1950 construction weights

Downweighting "never taker" jurisdictions not building in time period

Bootstrapped 95% confidence intervals shown

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Early variation in anti-discrimination laws

Immediately after WW2, certain states began banning institutional segregation (Murray 1950, Cook et. al. 2022)
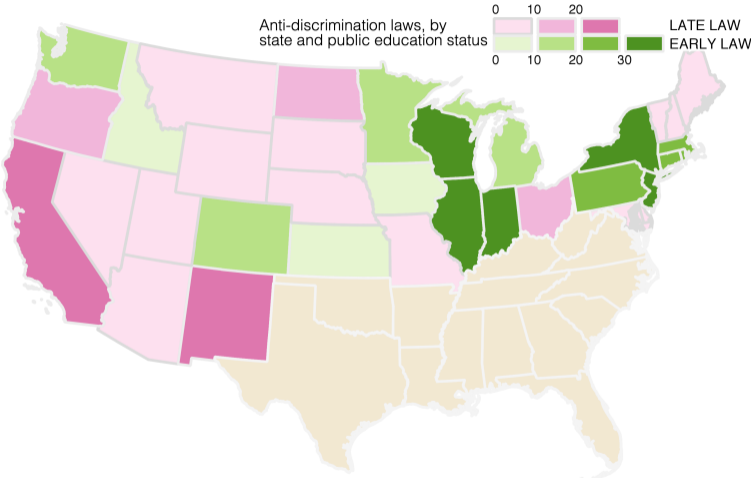
Main finding: States with early bans on segregating schools had strongest causal effects of Black migration on lot size outcomes
Main table

- ▶ Before federal Civil Rights legislation, households "voted with feet" to laws
- ▶ Exclusionary zoning rational as legal tool to capture households' WTP for segregated public goods?

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Map of early ADE states

Causal effects larger in ADE states

| | Lot Size Adoption | | Excess Mass | |
	OLS	IV	OLS	IV
β	0.0596	0.224	5.78	4.18
	(0.037)	(0.055)	(1.06)	(1.63)
β^{ADE}	0.110	0.186	3.54	6.17
	(0.052)	(0.078)	(1.58)	(2.24)
Outcome mean	0.783	0.783	6.352	6.352

Specifications include all controls; standard errors clustered over metro-decade

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