

Long Shadow of Racial Discrimination: Evidence from Housing Covenants¹

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Introduction

- **Racial covenants:** sale of property to racial minorities prohibited

\$1500.00.

The party of the second part hereby agrees that the premises hereby conveyed shall not at any time be conveyed, mortgaged or leased to any person or persons of Chinese, Japanese, Moorish, Turkish, Negro, Mongolian or African blood or descent. Said restrictions and covenants shall run with the land and any breach of any or either thereof shall work a forfeiture of title, which may be enforced by re-entry.

To Have and to Hold the same together with all hereditaments and appurtenances thereunto in anywise by any means lawfully to be made use of, unto the said party of the first part, his heirs and assigns forever.

Other Examples

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Other Examples

- Prevalent throughout cities in the U.S. (1899 on-ward)
 - D.C., Seattle, San Francisco, Philadelphia, Chicago, Minneapolis

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- Prevalent throughout cities in the U.S. (1899 on-ward)
 - D.C., Seattle, San Francisco, Philadelphia, Chicago, Minneapolis
- Legally enforceable until 1948

This Paper

- **Question:** Time persistent effects of covenants → present-day socioeconomic geography of Minneapolis, suburbs
 - House Prices (1950 - 2018)
 - Segregation (2010)

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 - House Prices (1950 - 2018)
 - Segregation (2010)
- **This paper:**
 - Uses only census data on racial covenants in U.S.
 - Regression discontinuity design at 1948 Supreme Court ruling
- **Findings:**
 - 3.4% higher 2018 house prices for covenanted lots
 - Higher share of covenants in neighborhood → higher home value
 - Covenants used in historic lower-middle class neighborhoods
 - 1% increase in covenanted houses in census block → 11% reduction in Black residents

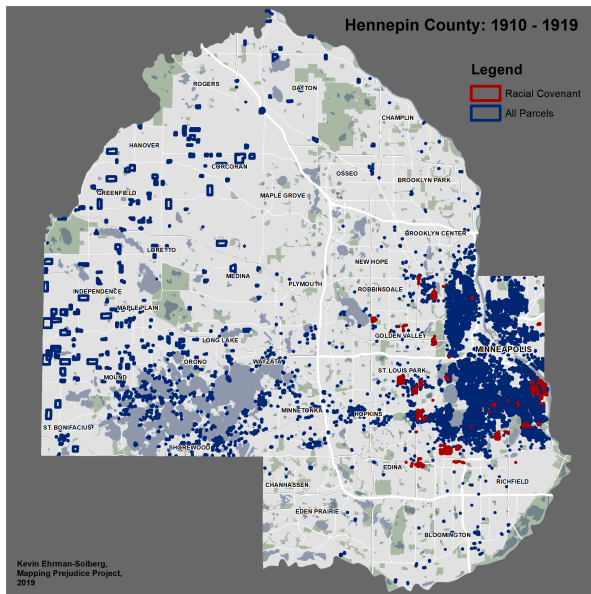
Literature Review

- **Path dependence:** David (1985), Bleakley & Lin (2012), Henderson, Squires, Storeygard, & Wei (2018), Allen & Donaldson (2020), Heblich, Trew, & Zylberberg (2021)
- **City structure and externalities:** Redding & Strum (2008), Chetty & Hendren (2016), Ahlfeldt, Redding, Sturm, & Wolf (2015)
- Covenants predate these racially discriminatory housing practices:
 - **Redlining:** Aaronson, Hartley, and Mazumder (2020), Fishback, LaVoice, Shertzer, & Walsh (2020) ▶ [HOLC and Covenants](#)
 - **Highways:** Brinkman & Lin (2017), Baum-Snow (2007)
 - **Zoning:** Shertzer, Twinam, & Walsh (2016), Troesken & Walsh (2019)
- **Preference externality/ Tiebout:** George & Waldfogel (2003), Tiebout (1956), Boustan (2006), Banzhaf & Walsh (2013)

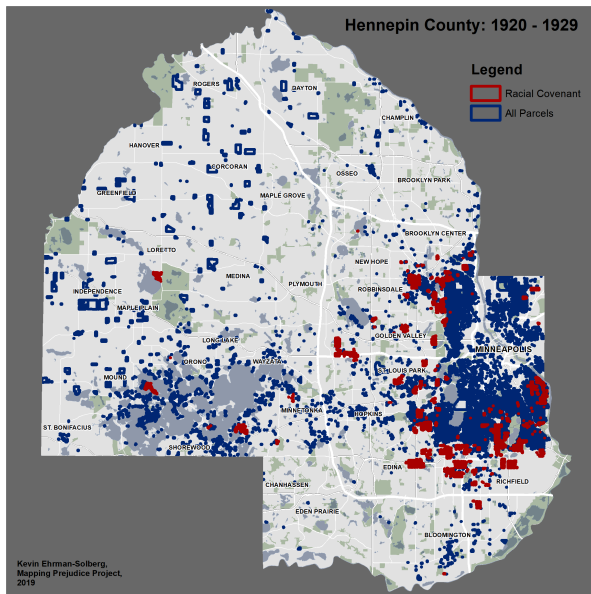
Outline

- Historical Context for Racial Covenants
- Hypothesis and Mechanisms for Persistent Effects
- Data
- Empirical Strategy
- Results

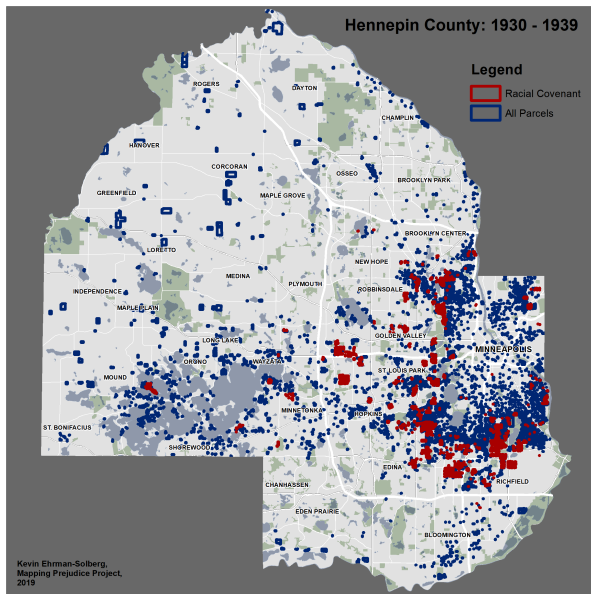
Racial Covenants in Hennepin County (1910-1919)



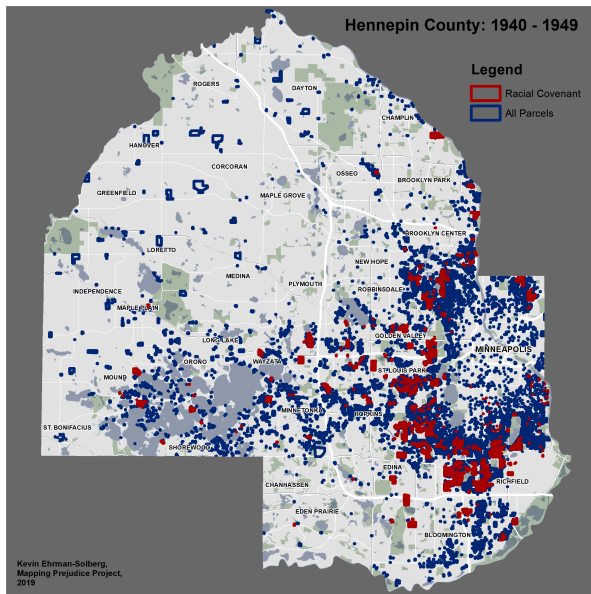
Racial Covenants in Hennepin County (1920-1929)



Racial Covenants in Hennepin County (1930-1939)



Racial Covenants in Hennepin County (1940-1949)



Historical Context for Racial Covenants (1/2)

- Like all covenants, racial covenants run with land
- Legally enforced until 1948
- Private instrument: individual/group instrument
- Role of developers:
 - Mostly added by developers on newly platted land (94%)
 - Covenants advertised by developers, creating "amenity"

► News Ad

Historical Context for Racial Covenants (2/2)

- Covenants and Twin Cities:
 - Data available for Hennepin
 - Ideal setting: no racial zoning, city fast expanding, precedes HOLC and highways
- Covenants and other housing policies:
 - Supreme Court upheld legality of racial covenants in 1926
 - Redlining/HOLC maps (1935): Top ratings only if covenants in area ▶ Redlining
 - Discrimination for FHA loans (1936 FHA underwriting manual)
 - Preferred candidate for loans if house covenanted

Potential effects of Racial Covenants: Past and Present

- Racial covenants on past outcomes:
 - Racial composition: by design ▶ African American Population 1910-1940
 - House prices: higher prices for “all white amenity”

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- Racial covenants on racial composition over time (endogenous location amenity)
 1. Public investment: parks (lakes), highways, schools ▶ [Hways](#) ▶ [Lakes](#)
 2. Preference externality/Sorting: covenants → keep similar types of people together → sorting ▶ [Model](#)

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 1. Public investment: parks (lakes), highways, schools ▶ Hways ▶ Lakes
 2. Preference externality/Sorting: covenants → keep similar types of people together → sorting ▶ Model
- Effects of racial covenants on house prices over time:
 1. Public investment
 2. Sorting
 3. Difference in house quality, investment over time

Data (1/2)

1. Mapping Prejudice data

- Complete census of covenanted deeds in Hennepin County
- About 3 million warranty pages analyzed (1900-1960)
- 16,986 of 156,970 extant houses have covenants (1910-1949)
- Date of covenant execution and specific racial restrictions

2. Tax assessor + Zillow

- Assessed values (2017-18): marked to market, yearly home visits
- House characteristics (e.g. bedrooms, bathrooms, parcel and built area, roof type)

3. Historic house prices:

- Mortgage documents [1945-1951]: 1709 random houses
- Sales prices: 2001-2005

Data (2/2)

4. Neighborhood characteristics:

- Census 2010, ACS 2018
- Geocoded, digitized 1940 Enumeration District (E.D.) boundaries
- Minneapolis + 10 suburbs (90% of houses [1945-1952])

5. Public Amenities and Investments:

- Distance to lakes (parks), highways
- Elementary school attendance boundaries

Baseline sample: 24,700 extant homes with 2,678 covenanted lots [1945-1952] [▶ Baseline Sample Map](#) [▶ Summary Stats](#)

Empirical Strategy

- Study causal impact of covenants on socioeconomic outcomes in and around Minneapolis today
- Analysis at two levels:
 1. Individual lot level: house prices
 2. Census block level: neighborhood racial composition, home ownership by race
- Key variable of interest: covenanted lot, share of covenanted lots in 100-500m radius around house, share of census block with covenanted lots
 - Treatment: covenanted lots
 - Control: not-covenanted lots

Empirical Model for House Prices

$$\log Y_{ijt} = \alpha_0 + \alpha_1 \mathbb{1}\{\text{cov}_{js}\} + \beta_1 X_{jt} + \beta_2 X_{it} + \theta \eta_i + \epsilon_{ijt}$$

- j = individual house, $t = 2018$
- Y : Log of assessed house values (2018)
- $\mathbb{1}\{\text{cov}_{js}\}$: Dummy for a house j covenanted in past period s
- X_{jt} house characteristics, X_{it} Census block/tract controls
- θ_i neighborhood fixed effects: Census Block Group
 - Compare treated houses with non-treated within same neighborhood

Regression Discontinuity Time

- **Endogeneity**: Likelihood of having racial covenants could be correlated with unobserved location quality
- Strategy: RD in time
 - Exploit the 1948 U.S. Supreme court ruling: made racially restrictive covenants unenforceable
 - Compare houses built *right before and after* 1948 ruling
 - Houses built < 1949 had **positive** probability of enforced covenants
 - Houses built > 1948 had **zero** probability of enforced covenants
 - Avoid historical trends: restrict analysis to houses built
 - 1945-1952, 1945-1954 ▶ Houses Built (1900-2018)

1948 SC Ruling as Instrument

- SC ruling is correlated with probability of having a covenant
 - \leq 1948-racial covenants legal & probable
 - $>$ 1948-illegal & improbable
- Unobservable *location quality* of houses built right before and right after 1948 not correlated with present day houses prices
 - Comparing houses/blocks within neighborhood
 - City expanding outward: farmland \rightarrow residential
- “Randomness” of SC ruling:
 - 1948 ruling was not anticipated
 - 1926 US SC ruling upheld legality of racial covenants (Rose, 2015)

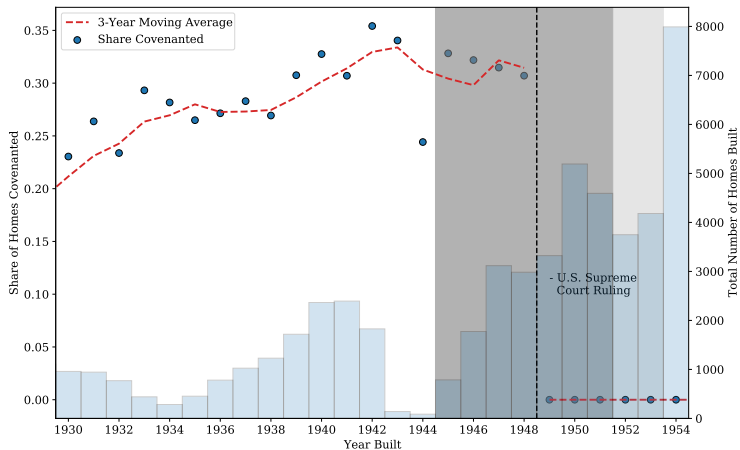
Effect of 1948 Ruling on Non-White Homeownership

- Use surname-race bayesian routine to identify race (1709 mortgage documents)
- Use 1940 Census names
- Undercounting (Dahis, Nix & Qian, 2020)

Time Period	White	Black	Other	Black Conventional	Black FHA	Black VA
≤ 1948 Covenanted	224	1*	1	0	1	0
> 1948 Non-Covenanted	434	3	0	2	0	1
Homes Built 1949-51	1031	14	1	4	5	5

Note: 1* references two individuals with identical names in the United States. One White individual from Illinois and a Black from Georgia.

Regression Discontinuity on Covenant Deeds



Fuzzy RD-IV for House Prices

- j = individual house and i = 2010 census block group
- s = 1945 – 1952 (or sub-sample)

$$\log Y_{ijt} = \alpha_0 + \alpha_1 \mathbf{1}\{\text{cov}_{js}\} + \beta_1 X_{jt} + \beta_2 X_{it} + \theta \eta_i + \epsilon_{ijt}$$
$$\mathbf{1}\{\text{cov}_{js}\} = \gamma_0 + \gamma_1 \mathbf{1}\{\text{pre1949}_{ej}\} + f(\text{Date}_s) + \beta_2 X_{es} + \eta_e + \epsilon_{ejs}$$

- Instrument: Dummy for house built right ≤ 1948 $\{\text{pre1949}_{ej}\}$
 - γ_1 : probability of enforceable covenant
- $f(\text{Date}_s)$: nth-order polynomial in time, estimated flexibly

Control variables

RD-IV at Neighborhood Level (1/2)

$$Y_{it} = \alpha_0 + \alpha_1 \%cov_{is} + \beta_1 X_{it} + \theta \eta_i + \epsilon_{it}$$

- Y_{it} : Arcsinh percent home ownership by race, Arcsinh percent resident population by race in block i
- $\%cov_{is}$: Arcsinh percent houses covenanted within census block
 - Consider blocks with 75-100% houses built 1945-1951
- Arcsinh: inverse hyperbolic sine transformation [▶ Arcsinh-Log Plot](#)
 - Non-normal distribution; meaningful zeros in dependent and independent variables
 - Similar to log of variable, allows retaining zero-valued observations

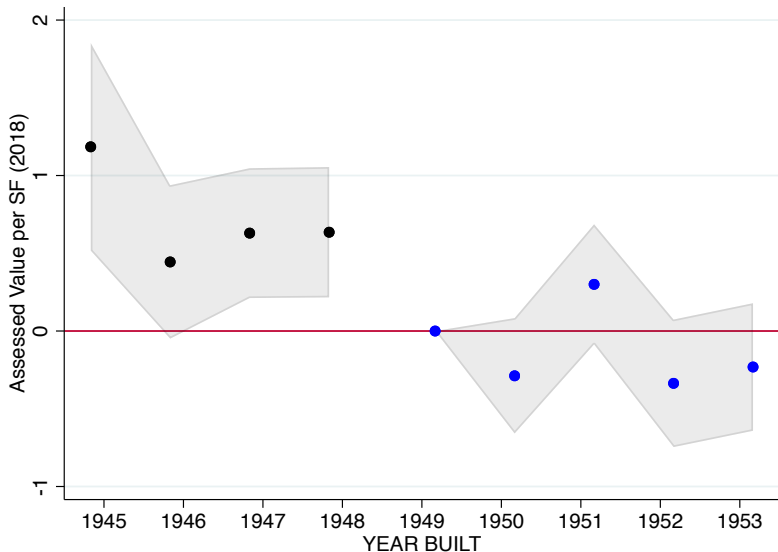
RD-IV at Neighborhood Level (2/2)

$$Y_{it} = \alpha_0 + \alpha_1 \%cov_{is} + \beta_1 X_{it} + \theta \eta_i + \epsilon_{it}$$
$$\%cov_{is} = \gamma_0 + \gamma_1 \%built_{is} + f(Date_s) + \beta_1 X_{es} + \eta_e \epsilon_{es}$$

- $\%cov_{is}$: Arcsinh percent houses covenanted within census block
- $\%built_{is}$: Percent houses built ≤ 1948 within census block
- Neighborhood FE: compare Census blocks within tracts
- **Externalities:**
 - Endogenous: share covenants in 100-500 meter radius around house
 - Instrument: share houses ≤ 1948 in 100-500 meter radius around house

Results

House Value per Square Feet and Year Built



Fuzzy RD: Individual House Values (2018)

	OLS (I)	First-Stage (II)
Dep. Var.	Log House Value	Covenanted
Covenanted	0.009 (0.005)	
Dummy built 1948		0.308*** (0.082)
1940 region FE	N	ED
2010 region FE	BG	N
Housing Characteristics	Y	N
1940 Census Controls	N	Y
Share White	0.520*** (0.011)	
2010 Census Controls	Y	N
Clustered S.E.	Block	ED
Observations	24,182	25,389
R-sq	0.856	0.297

Fuzzy RD: Individual House Values (2018)

	OLS (I)	First-Stage (II)	RD-IV (III)
Dep. Var.	Log House Value	Covenanted	Log House Value
Covenanted	0.009 (0.005)		0.034* (0.014)
Dummy built 1948		0.308*** (0.082)	
1940 region FE	N	ED	ED
2010 region FE	BG	N	BG
Housing Characteristics	Y	N	Y
1940 Census Controls	N	Y	Y
Share White	0.520*** (0.011)		0.124*** (0.014)
2010 Census Controls	Y	N	Y
Clustered S.E.	Block	ED	Block
Observations	24,182	25,389	24,182
R-sq	0.856	0.297	0.856

Fuzzy RD: Individual House Values (2018)

	OLS (I)	First-Stage (II)	RD-IV (III)	RD-IV (IV)
Dep. Var.	Log House Value	Covenanted	Log House Value	Log House Value
Covenanted	0.009 (0.005)		0.034* (0.014)	0.029* (0.014)
Dummy built 1948		0.308*** (0.082)		
1940 region FE	N	ED	ED	ED
2010 region FE	BG	N	BG	BG
Housing Characteristics	Y	N	Y	Y
1940 Census Controls	N	Y	Y	Y
Share White	0.520*** (0.011)		0.124*** (0.014)	
2010 Census Controls	Y	N	Y	Y
Clustered S.E.	Block	ED	Block	Block
Observations	24,182	25,389	24,182	24,182
R-sq	0.856	0.297	0.856	0.855

Fuzzy RD: Individual House Values (2018)

	OLS (I)	First-Stage (II)	RD-IV (III)	RD-IV (IV)	Reduced-Form (V)
Dep. Var.	Log House Value	Covenanted	Log House Value	Log House Value	Log House Value
Covenanted	0.009 (0.005)		0.034* (0.014)	0.029* (0.014)	
Dummy built 1948		0.308*** (0.082)			0.016*** (0.005)
1940 region FE	N	ED	ED	ED	N
2010 region FE	BG	N	BG	BG	BG
Housing Characteristics	Y	N	Y	Y	Y
1940 Census Controls	N	Y	Y	Y	Y
Share White	0.520*** (0.011)		0.124*** (0.014)		0.114*** (0.014)
2010 Census Controls	Y	N	Y	Y	Y
Clustered S.E.	Block	ED	Block	Block	Block
Observations	24,182	25,389	24,182	24,182	24,182
R-sq	0.856	0.297	0.856	0.855	0.856

Results: Discussion

OLS underestimates the effect of racial covenants:

- Unobserved location quality negatively correlated with probability of being covenanted ▶ Buffer Zones
- Better locations: price, other mechanisms keep out minorities
- Covenants added in swamp location (Almagro & Sood, 2021)
 - 1% increase in hydric soils (swamp indicator), 2-3.4% increase in likelihood of covenanted lot
- Consistent with amenity-income persistence theory (Lee & Lin, 2017)
- Covenants keeping African Americans out of lower-middle/middle/working class neighborhoods

RD-IV and Mechanisms for Persistence

	(I)	(II)	(III)	(IV)	(V)	(VI)
Covenanted	-0.061* (0.024)	0.034* (0.014)	0.036* (0.015)	0.037** (0.014)	0.025 (0.015)	0.030* (0.015)
Share White	-0.481*** (0.028)	0.12*** (0.014)	0.124*** (0.014)	0.121*** (0.014)		0.133*** (0.014)
Highways			0.147*** (0.017)		0.158*** (0.017)	0.154*** (0.017)
Highways-sq			-0.040*** (0.007)		-0.044*** (0.007)	-0.043*** (0.007)
Water					-0.085*** (0.010)	-0.081*** (0.010)
Schools	N	N	N	Y	Y	Y
1940 region FE	ED	ED	ED	ED	ED	ED
2010 region FE	N	BG	BG	BG	BG	BG
Housing Char.	Y	Y	Y	Y	Y	Y
1940 Controls	Y	Y	Y	Y	Y	Y
2010 Controls	Y	Y	Y	Y	Y	Y
Clustered S.E.	Block	Block	Block	Block	Block	Block
Observations	24,182	24,182	23,872	24,182	24,182	23,872
R-sq	0.695	0.856	0.858	0.857	0.859	0.862

Robustness

- "Donut" RD [1945-47, 1950-52]:
 - Avoids short-run selection issues: 0.031 (0.008) ▶ Donut
- Different bandwidth:
 - 1945-1954: 0.037 (0.012)
 - 1946-1951: 0.023 (0.016) ▶ Bandwidth
- Balance checks in housing characteristics ▶ Balance Checks
- Placebo RD, anticipation effects 1947 cut-off: 0.005 (0.012)
▶ 1947 Cut-off
- After effects 1949 cut-off: 0.037 (0.011) ▶ 1949 Cut-off

Covenants and Past House Prices

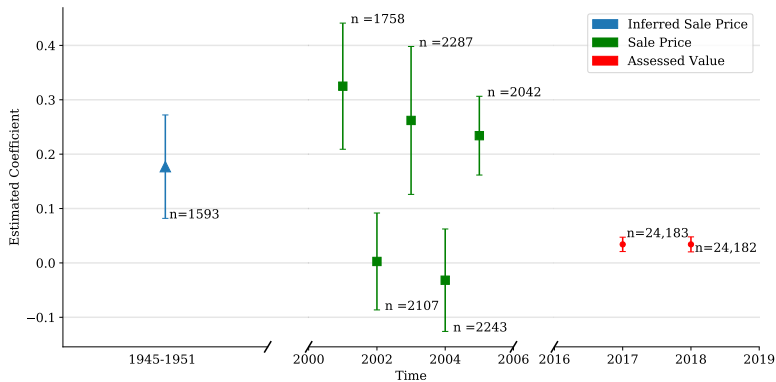
1. Random sample of 1709 properties, preserving share covenants [1945-1951]

- Mortgage documents: terms, names of mortgagee
 - Type of mortgage: conventional, Veteran Affairs (VA) or G.I. Bill, Federal Housing Authority (FHA)
- Estimate prices with down payment based on type of mortgage
 - 10-20% down payment for VA, FHA
 - 20% down payment for conventional loans

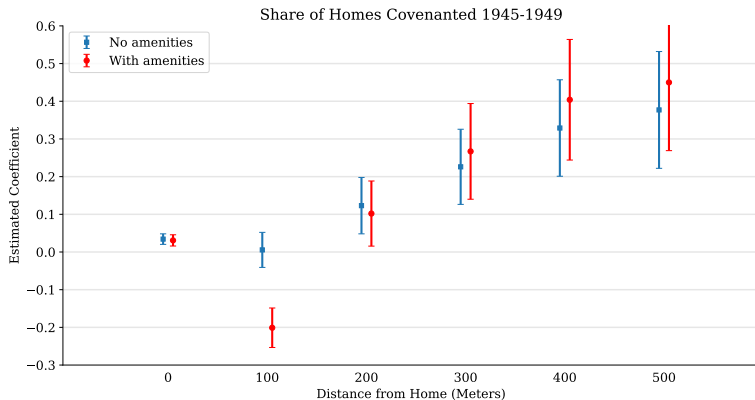
2. Sales prices [2001-2005]

- Not a random sample of houses

Value of Covenants over Time



Externalities from Covenants



► 1911-1948 ► 1925-1948 ► 1935-1948 ► Redlining and Covenants

Covenants and Neighborhoods

- Covenants shape demographics of neighborhoods today:
 - Affects where Black and non-White/non-Black residents live
 - 1% increase in share covenanted lots in Census blocks:
 - 11%↓ Black residents
 - 13%↓ non-White and non-Black residents
- Covenants shape home ownership in 21st century:
 - Affect Black home ownership location (1% increase 18% fall)
 - No effects on home ownership rate or ownership by other minorities
 - No effects on rental location across races

▶ Resident Location and Covenants

▶ Home Ownership and Covenants

Conclusion

- Document persistent causal effects of racial covenants in and around Minneapolis on:
 - Higher property values on covenanted lots (↑ 3.4% in 2018)
 - Covenanted lots in previously lower amenity regions: keeping African Americans out of lower-middle and middle class (blue collar neighborhoods)
 - Larger the share of neighborhood covenants, higher house values
 - Location of Black residents (↓ 11% in 2010)
- Implications for racial wealth gap and mobility

Thank you!

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Appendix

Covenant Deeds Examples

be done thereon which may be or become an annoyance or nuisance to the neighborhood.

(e) No race or nationality other than the Caucasian Race shall use or occupy any building on any lot, except that this covenant shall not prevent occupancy by domestic servants of a different race or nationality employed by an owner or tenant.

Let it be understood, however, that such covenants have no effect on buildings erected or

the title herein in the vendors, their heirs or assigns,
his heirs, executors, administrators, or assigns, agrees not to
i premises to be occupied by persons of African or Semitic
t thereof on file and of record in the office of the Register
unity of Hennepin and State of Minnesota.

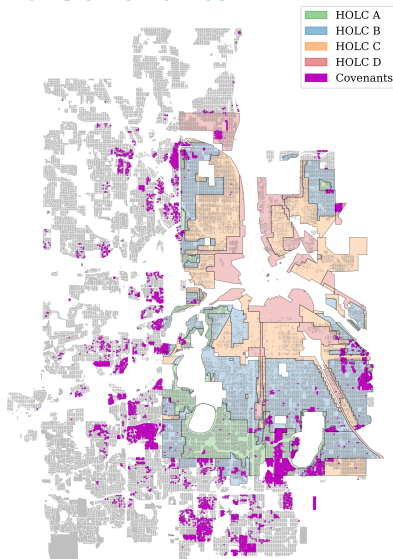
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Table: Tests for Valid Instruments

Tests of endogeneity
Ho: variables are exogenous
Robust regression $F(1,1776) = 13.926$ ($p = 0.0002$) (Adjusted for 1777 Census Blocks Clusters)
Shea's partial R-squared
0.1826

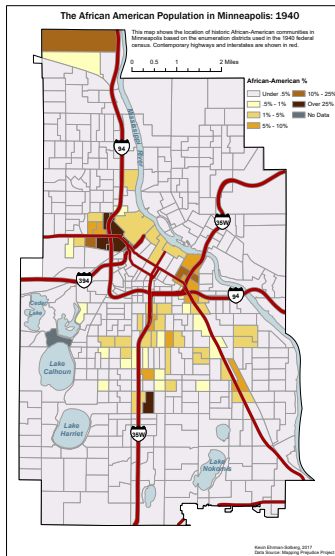
This table presents the valid instruments tests for the IV regressions. The endogenous variable is a dummy for a covenanted house and the instrument is a dummy for house being built before 1949. The analysis is restricted to [1945-1951]. The data comes from census (1940, 1950, 2010), ACS(2010), Hennepin county tax assessor data, and the Mapping Prejudice project.

HOLC Grades and Covenants

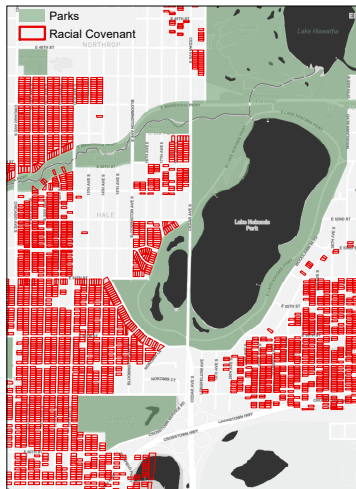


Note: This figure presents covenanted lots and HOLC grades. Purple: covenanted lots, Green: Grade A, Blue: Grade B, Yellow: Grade C, Red: Grade D

African-American Population and Highway Location



Racial Covenants and Amenities–Lake Nokomis

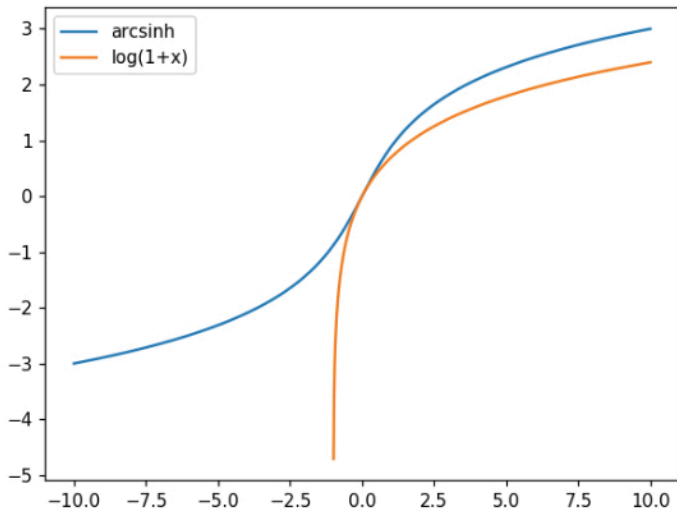


Fuzzy RD-IV: Controls

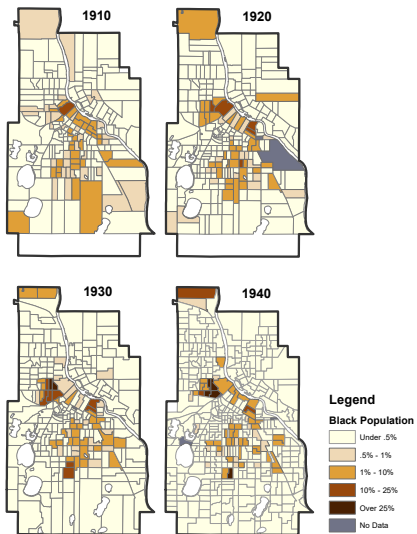
$$\begin{aligned}\log Y_{ijt} &= \alpha_0 + \alpha_1 \mathbf{1}\{\text{cov}_{js}\} + \beta_1 X_{jt} + \beta_2 X_{it} + \theta \eta_i + \epsilon_{ijt} \\ \mathbf{1}\{\text{cov}_{js}\} &= \gamma_0 + \gamma_1 \mathbf{1}\{\text{pre1949}_{ej}\} + f(\text{Date}_s) + \beta_2 X_{es} + \eta_e + \epsilon_{ejs}\end{aligned}$$

- House characteristics: parcel area (sq feet), built area (sq feet), number of floors, bedrooms, bathrooms, heating, roof type, construction type
- X_{es} 1940s enumeration district e characteristics: median household income, population density, ownership rate
- η_e enumeration district fixed effects
- Neighborhood characteristics (2010): block population density, share of residents above 18, median income, share white

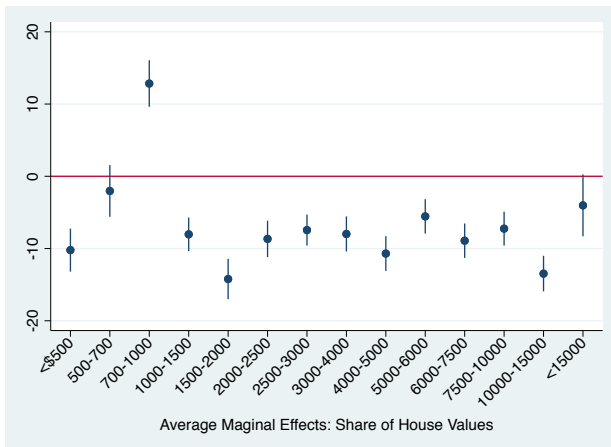
Arcsinh and Log



African American Population 1910-1940



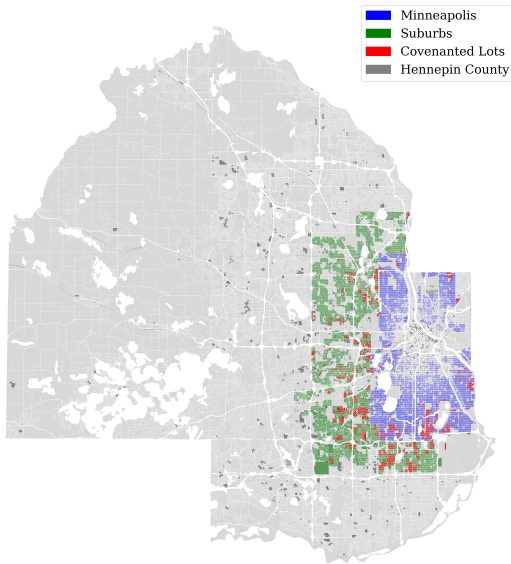
Covenants as Buffer Zones



Marginal effects from Logit specification on probability to write a covenant between 1945-48. Independent variable is share of houses with values between ranges in 1940 Census.

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Our Sample: Houses Built [1945-54]



Stylized Model of Time Persistent Effects

- Mechanism for long-term effect of covenants on neighborhood sorting and house price differentials
 - Time persistent effect arises out of endogenous amenity location
- Initial racial sorting in neighborhoods by covenants
- Post 1948 or 1968 (Fair Housing Act):
 - Revert to symmetric distribution by across neighborhoods

Toy Model of Time Persistent Effects

- j discrete locations in a city
- Residents choose neighborhood at time t to maximize:

$$V(j, t) = A(j, t)c(j, t) \quad \text{s.t.} \quad c(j, t) + R(j, t) = I$$

- c : consumption, R : rent, I : income
- Amenity of neighborhood: $A(j, t) = a(j) + d(j, t)$
- a : natural amenity
- d : endogenous amenity
 - Changes over time

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Endogenous Amenity

- Endogenous amenity follows AR1 process

$$d(j, t) = (1 - \delta)d(j, t - 1) + e(j, t) - b(j, t)$$

- $e(j, t)$ is increasing in I : higher average incomes increase attractiveness
- $b(j, t)$: if share of non-white population falls below threshold \rightarrow dis-amenity
- Without $e(\cdot)$ or $b(\cdot)$ channels, reversion to symmetric distribution
- If initial segregation by covenants caused e or b amenity perturbation to operate:
 - Sorting of neighborhoods across income and race will persist

The Minneapolis morning tribune. Pub. Date August 8, 1913

Hit 1 of 1



BIG SALE ALL DAY SATURDAY AUG. 9TH AND MONDAY AUG. 11 FROM 8 A. M. TO 8 P. M. OF CHOICE RESIDENCE LOTS IN **FRANKSON'S COMO PARK ADDITION**

YOU CANNOT AFFORD TO MISS THIS OPPORTUNITY, CAN YOU?

For this is unquestionably one of the most desirable and the most beautiful tracts ever platted and offered for sale in the Twin Cities. These lots are very rapidly selling, so if you want selected locations come early Saturday and make your selection.

Did you ever stop to consider that

"A RENTED HOME IS NOT A HOME"

Why not come out Saturday and buy a lot in this fine addition, that for soil, price and location has no fair comparison or rival in the two cities?

WHY PAY RENT ANY LONGER? OWN YOUR OWN HOME.

If you haven't the money to build a home yourself, buy a lot and I will build it for you.

Did you ever stop to consider that NEVER BEFORE IN ST. PAUL OR MINNEAPOLIS was so large a tract as 120 acres offered for sale with such rigid restrictions? This will protect every owner and assure to every purchaser a selected and choice residence district.

With this opportunity staring you in the face, CAN YOU AFFORD TO BUY A LOT WITH VIEW OF BUILDING A HOME WHEN YOU ARE SURROUNDED BY "CHEAP JOHN" HOUSES, STORES AND FACTORIES?

Also Please Remember

1. There is only one Midway.
2. Only one farm to either city.
3. Free telephone to either city.
4. That these lots adjoin Como Park on the east—one of the most beautiful parks in the state.

I will have my salesman, THOMAS GARRETT, on the Ground Every Day This Week Except Sunday from 8 A. M. to 8 P. M.

OFFICE ON GROUNDS

Corner of Midway Parkway and Snelling avenue. East side of STATE FAIR GROUNDS. OUR AUTOS WILL TAKE YOU TO THE GROUND BY APPOINTMENT.

TELEPHONES:

H. W. Tolpelt, Reside 381
T. E. Tolpelt, Office 377

For Sale by THOMAS FRANKSON, Owner

400 LINCOLN BUILDING, 302 NICOLLET AVENUE
MINNEAPOLIS, MINN.

Don't forget my restrictions—read them again:

First, that no gravel shall be removed from said lots except such as is used in the erection, construction or alteration of buildings on the premises.

Second, that no building shall be erected upon said premises nearer than 30 feet from the front line, and the top of the same foundation shall be at least three and a half feet above the sidewalk grade, and that no building shall be erected for occupancy as a dwelling house, or occupied as such which shall cost less than \$2,500 to \$4,000, provided, however, that temporary structures for occupancy may be erected and constructed upon the rear ends of said lots in case the same are sold, dropped, painted and shingled, but no tar paper buildings or what is commonly designated as shacks shall be erected on said premises or any part thereof.

Third, that no factory, that no store buildings shall be erected on said premises, nor shall any buildings be used or occupied as a factory or store building on said premises.

Fourth, that granite cannot sell or lease said real estate in a colored person.

With this assurance can you afford to pay \$250 to \$500 for a lot in such a desirable and beautiful location? You have my assurance that the above restrictions will be enforced to the fullest extent of the law.

Prices and Terms

\$400 PER LOT AND UP

Small payment cash; balance \$20.00 per month and 6% interest.

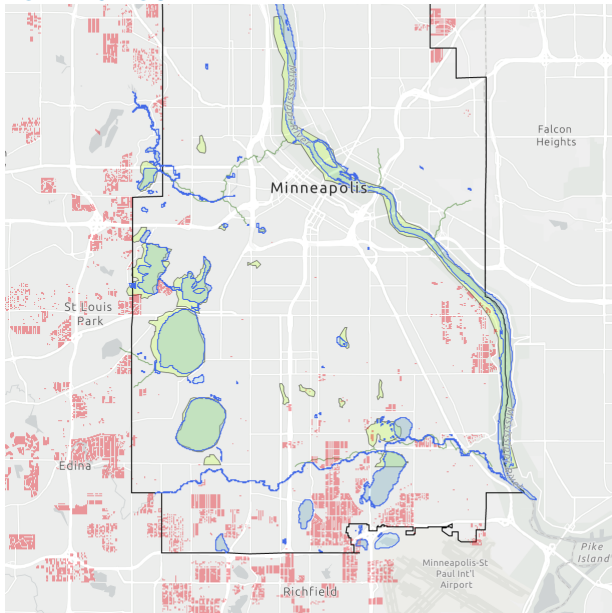
2% DISCOUNT FOR ALL CASH.

How to Get There

From St. Paul—Take Como-Harriet car to Snelling avenue and walk two blocks north.

From Minneapolis—Take Como-Harriet car to Snelling avenue and walk two blocks north.

Old and New Lakes



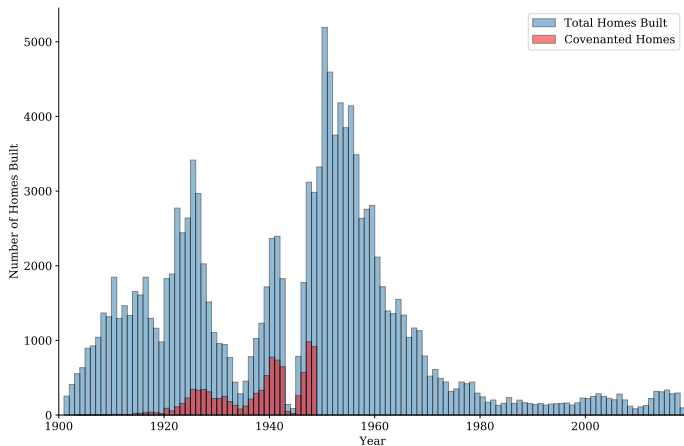
Summary Statistics 1945-1952

1945-1952	Non-covenanted	Covenanted
Total Home Value	274,164 (151,350)	293,503 (163,801)
Parcel Sq. Ft.	8,633 (10,712)	8,425.53 (4,402)
Building Area Sq. Ft.	1,181 (862)	1,227 (414)
Bedrooms	2.99 (0.80)	3.07 (0.80)
Bathrooms	1.47 (0.66)	1.49 (0.65)
2010 Med. HH Income	86,551 (32,255)	95,796 (34,137)
2010 Share 18+	0.78 (0.08)	0.77 (0.08)
2010 Share White	0.82 (0.17)	0.87 (0.12)
2010 Population	62.96 (63.99)	62.71 (53.34)
Share of Total	89.15%	10.84%
Observations	22,022	2,678

Note: This table's summary statistics. The variables House Value and Year Built are from Hennepin County Tax Assessor data. Housing characteristics is from ZTrax. House Value is for 2018. Variables on income is from 2010 Census and the share of races is from 2010-2014 ACS estimates.

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Houses Built in Hennepin County (1900-2018)



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Balance Checks

	1945-1952	1945-1954
Lot SF	508.5 (300.2)	-332.6 (464.2)
Built SF	105.8* (51.27)	62.72 (37.65)
Bedrooms	-0.074 (0.066)	0.015 (0.058)
Bathrooms	0.168*** (0.045)	0.167*** (0.040)
No. of Stories	-0.045* (0.022)	-0.090*** (0.020)
Nearest Water	-15.19 (22.37)	-2.238 (22.40)

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RD-IV: 1947 and 1949 Cut-Offs

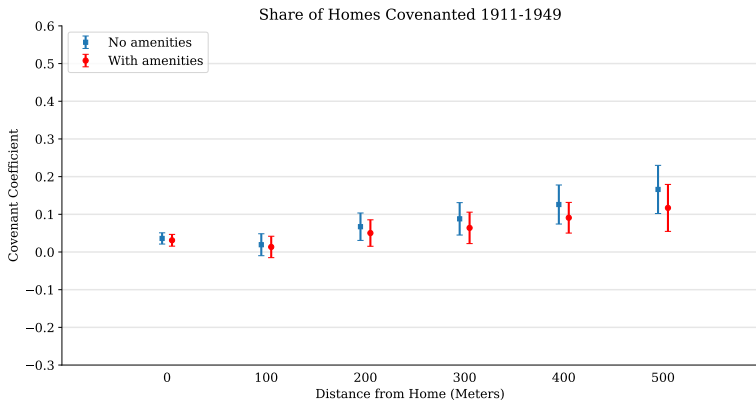
	RD-IV (1947 Cutoff)	RD-IV (1949 Cutoff)
Dep. Var.	Log House Price	Log House Price
Covenanted	0.005 (0.012)	0.037*** (0.011)
1940 region FE	ED	ED
ED	ED	
2010 region FE	BG	BG
BG	BG	
Housing Characteristics	Y	Y
1940 Census Controls	Y	Y
2010 Census Controls	Y	Y
Clustered S.E.	Block	Block
Observations	31,897	31,682
R-sq	0.857	0.858

RD-IV: Different Bandwidths and Donut RD

	1945-1954 (I)	1946-1951 (II)	1947-1950 (III)	Donut (IV)
Dep. Var	Log House Value	Log House Value	Log House Value	Log House Value
Covenanted	0.037** (0.012)	0.023 (0.016)	-0.003 (0.018)	0.030*** (0.008)
1940 region FE	ED	ED	ED	ED
2010 region FE	BG	BG	BG	BG
Housing Characteristics	Y	Y	Y	Y
1940 Census Controls	Y	Y	Y	Y
2010 Census Controls	Y	Y	Y	Y
Clustered S.E.	Block	Block	Block	Block
Observations	31,682	19,926	13,897	18,167
R-sq	0.858	0.858	0.885	0.855

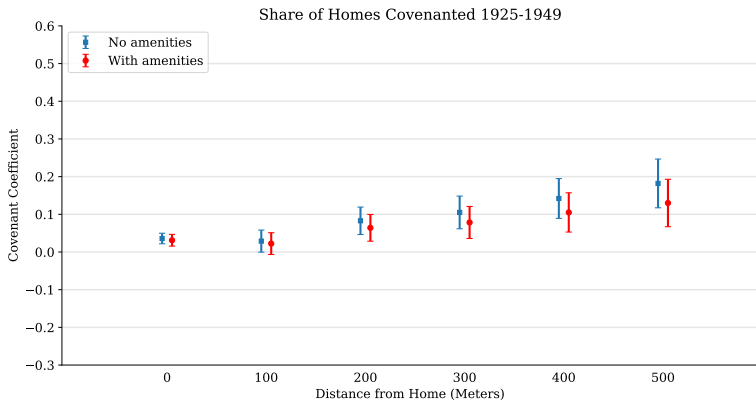
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Externalities from Covenants (1911-1948)



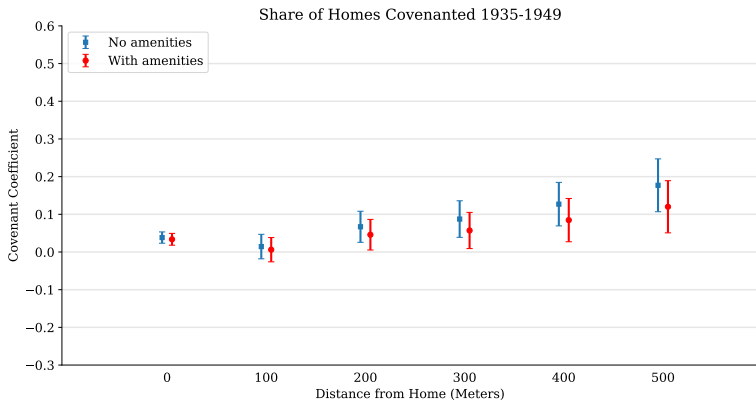
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Externalities from Covenants (1925-1948)



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Externalities from Covenants (1935-48)



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Redlining and Covenants

Covenanted	0.067 (0.053)
HOLC B	-0.050* (0.023)
HOLC C	-0.072** (0.024)
HOLC D	-0.096** (0.034)
Highways	0.187*** (0.037)
Highway-sq	-0.056*** (0.012)
Water	-0.172*** (0.019)
Schools	Y
1940 region FE	ED
2010 region FE	BG
Housing Characteristics	Y
1940 Census Controls	Y
2010 Census Controls	Y
Clustered S.E.	Block
Observations	6,176
R-sq	0.921

Covenants and Resident Population by Race (2010)

	First-Stage (I)	IV (II)	IV (III)	IV (IV)	IV (V)
Dep. Var.	Arcsin % Covenanted	Arcsin % Black	Arcsin % White	Arcsin % Non-White	Arcsin % Non-White Non-Black
Arcsin % Cov.		-0.111*** (0.024)	0.066*** (0.012)	-0.149*** (0.024)	-0.129*** (0.025)
Built %	0.0003*** (0.0000)				
Elasticity	1.798*** (0.062)				
1940 region FE	ED	N	N	N	N
2010 region FE	N	Tract	Tract	Tract	Tract
1940/50 Controls	Y	Y	Y	Y	N
2010 Controls	N	Y	Y	Y	Y
Clustered S.E.	ED	Block Group	Block Group	Block Group	Block Group
Observations	7,913	7,776	7,776	7,776	7,779
R-sq	0.279	0.480	0.563	0.405	0.274

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Covenants and Home Ownership Rates (2010)

[Minneapolis]

Dependent Var.	Arcsinh % ownership (II) All races	Arcsinh % ownership (III) Black	Arcsinh % ownership (IV) Non-white
Arcsinh % homes covenanted	-0.025 (0.018)	-0.189*** (0.058)	0.086 (0.069)
Percent of homes built <= 1948			
1940 Region FE	ED	ED	ED
2010 Region FE	Tract	Tract	Tract
1940/50 Census controls	Y	Y	Y
2010 Census Controls	Y	Y	Y
Clustered SE	Block	Block	Block
Observations	1,772	1,772	1,772
R-sqr	0.699	0.601	0.570

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