Historical Immigration and the Market for Schooling in American Cities

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Motivation

- Immigrants change local private and public goods through
  - Tax revenue
  - Skill mix (Mayda et al., 2023)
  - Preferences
- Immigrants can affect market structure – schooling is an example:
  - native flight towards private schools (Boustan et al., 2023; Betts and Fairlie, 2003; Murray, 2016)
- What if immigrants have special school preferences?
  - Catholic immigrants demanded private ed, public schools too Protestant
  - Did Catholic school demand change long-term public-private schooling shares, quality, educational attainment?

Research Question

- **What was the impact of Catholic migration on public and private schooling in the US?**
  - Focus on migration of Catholic southern Europeans from 1880-1930
  - Catholics landed in northeastern cities, often forming concentrated ethnic enclaves
- How might Catholics affect public school market?
  - Competitive pressures
  - Peer effects, sorting
  - Native flight
  - Teacher labor market

This project

Leverage immigration shocks at neighborhood level to study effect of more or less Catholic migrants on schools and native pupils

- What is the impact of relatively more Catholic migrants in a neighborhood on:
  - public and private school openings, size
  - teacher quality (measured by socioeconomic status)
  - educational attainment of native children
  - long-term demand for private education

Contribution

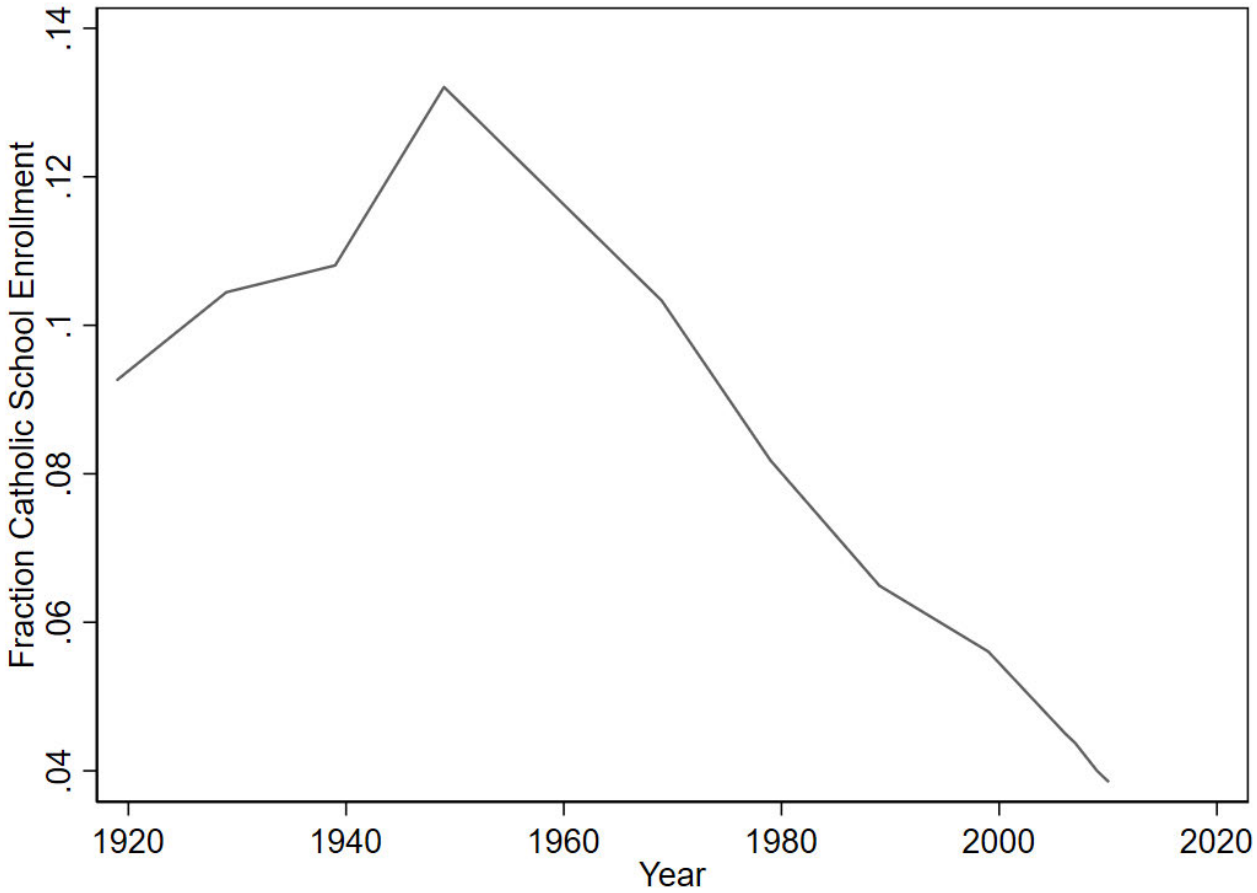
- **Impacts of historic US migration on outcomes** (Abramitzky et al., 2023; Ager et al., 2023; Abramitzky et al., 2025; Gagliarducci and Tabellini, 2022)
  - within-city
  - local public goods
  - comparing immigratn neighborhoods (Catholics vs. non-Catholics) (Gagliarducci and Tabellini, 2022)
- **Public-Private School Markets** (Urquiola, 2016; Bagde et al., 2022; Andrabi et al., 2023)
  - past work often instrumented using Catholic share (Cohen-Zada, 2009)
  - impact on opening and closing of public schools, teacher quality, impact on children over time
- **"Native flight"** (Boustan et al., 2023; Betts and Fairlie, 2003; Murray, 2016)

Background: Catholics and US Immigration

- Wave of migration 1880-1920
  - 20 million+ immigrants arrive at Eastern ports, largely from Europe
  - Major sending countries: Catholic (Ireland, Italy, Poland) as well as Lutheran, Anglican (Germany, England)
- Growth in private schooling demand
  - In response to the inflow, Catholic dioceses expand in the urban areas where immigrants settle
  - Catholic immigrants often preferred private Catholic education for children, which was offered cheaply through the neighborhood church.
- 1920s border closure restricts immigration from Southern and Eastern Europe

Catholic School Enrollment over Time

Figure: Catholic School Enrollment over Time

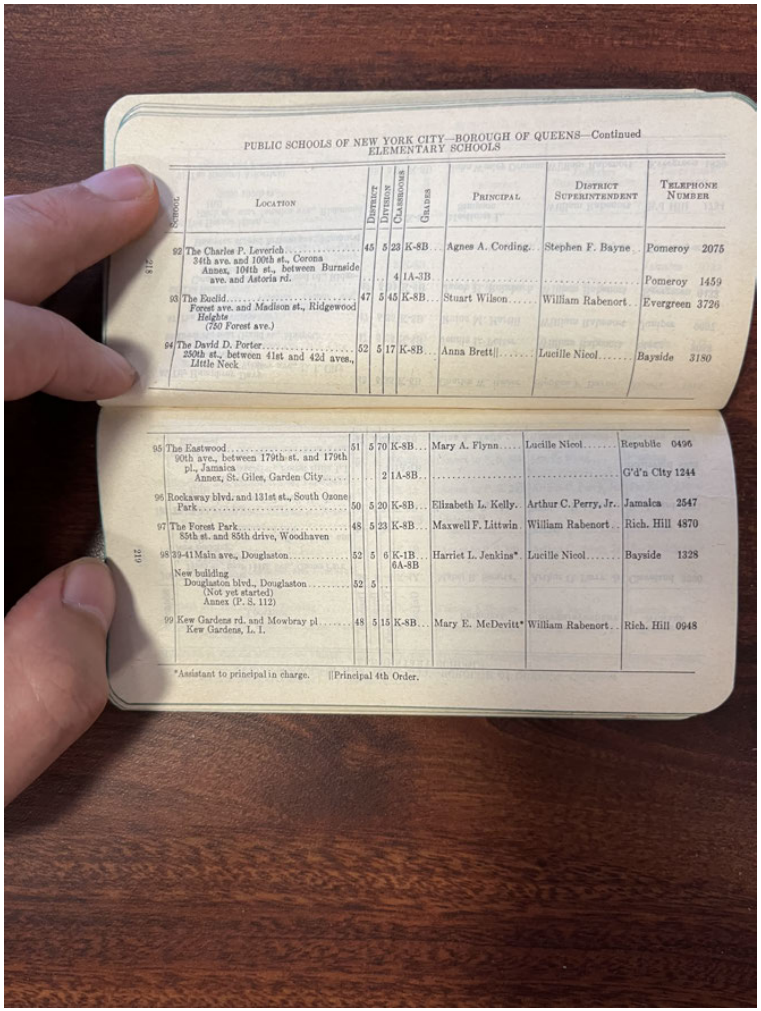


Notes: Data from NCES

Data

- 100% Census files 1880-1940
  - CensusTree links to generate panel of native children exposed to Catholic neighborhoods (Buckles et al., 2023)
- Enumeration district maps
  - digitized by Urban Transition Historical GIS project for northern cities (NYC, Baltimore, Pittsburgh, Philadelphia, Boston, Chicago, etc) and linked them to the census files (Shertzer et al., 2016; Logan et al., 2011).
- School locations, characteristics:
  - Official Catholic Directory
  - Board of Education Directories
  - Board of Education Teacher directories

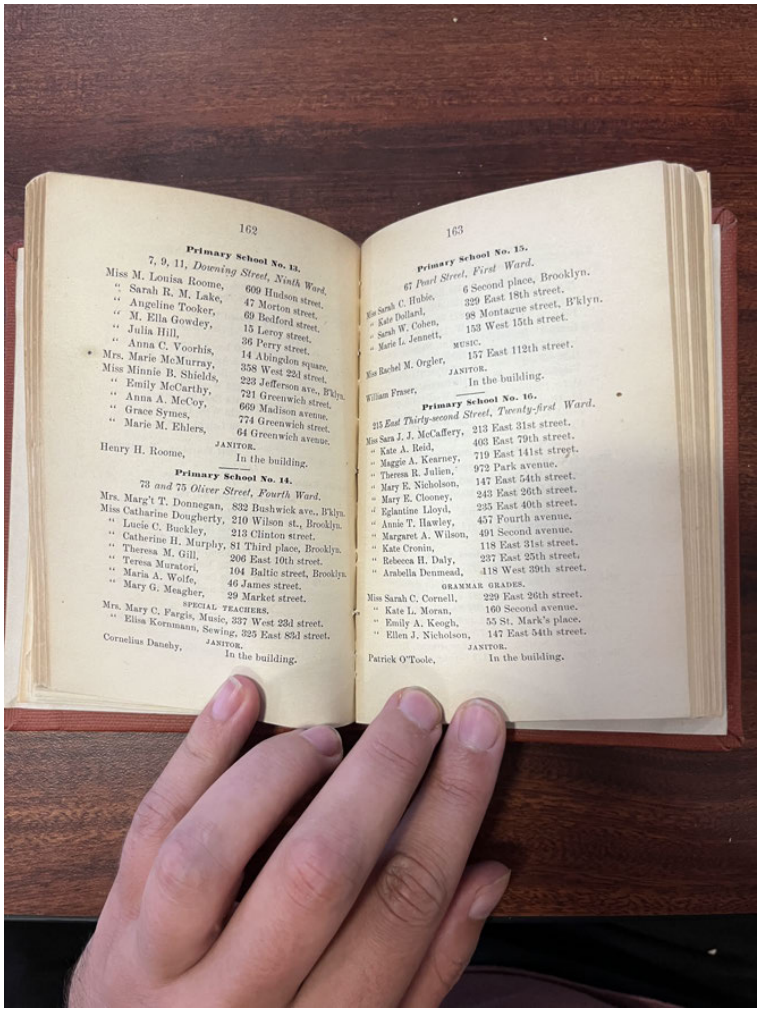
Directory Examples



PUBLIC SCHOOLS OF NEW YORK CITY—BOROUGH OF QUEENS—Continued
ELEMENTARY SCHOOLS

School	Location	District	Divisions	Classrooms	Grades	Principal	District Superintendent	Telephone Number
92	The Charles P. Leverich, 34th ave. and 100th st., Corona Annex, 104th st., between Burnside ave. and Astoria rd.	45	5	23	K-8B	Agnes A. Cording	Stephen F. Bayne	Pomeroy 2075
				4	1A-3B			Pomeroy 1459
93	The Euclid, Forest ave. and Madison st., Ridgewood Heights (750 Forest ave.)	47	5	45	K-8B	Stuart Wilson	William Rabenort	Evergreen 3726
94	The David D. Porter, 250th st., between 41st and 42d aves., Little Neck	52	5	17	K-8B	Anna Brett‖	Lucille Nicol	Bayside 3180
95	The Eastwood, 90th ave., between 179th st. and 179th pl., Jamaica Annex, St. Giles, Garden City	51	5	70	K-8B	Mary A. Flynn	Lucille Nicol	Republic 0496
				2	1A-8B			G'd'n Cty 1244
96	Rockaway blvd. and 131st st., South Ozone Park	50	5	20	K-8B	Elizabeth L. Kelly	Arthur C. Perry, Jr.	Jamaica 2547
97	The Forest Park, 85th st. and 85th drive, Woodhaven	48	5	23	K-8B	Maxwell F. Littwin	William Rabenort	Rich. Hill 4870
98	39-41 Main ave., Douglaston	52	5	6	K-1B, 6A-8B	Harriet L. Jenkins*	Lucille Nicol	Bayside 1328
	New building, Douglaston blvd., Douglaston (Not yet started) Annex (P. S. 112)	52	5					
99	Kew Gardens rd. and Mowbray pl, Kew Gardens, L. I.	48	5	15	K-8B	Mary E. McDevitt*	William Rabenort	Rich. Hill 0948

*Assistant to principal in charge. ‖Principal 4th Order.



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Primary School No. 13.
7, 9, 11, *Downing Street, Ninth Ward.*

Miss M. Louisa Roome, 609 Hudson street.
" Sarah R. M. Lake, 47 Morton street.
" Angeline Tooker, 69 Bedford street.
" M. Ella Gowdey, 15 Leroy street.
" Julia Hill, 36 Perry street.
" Anna C. Voorhis, 14 Abingdon square.
Mrs. Marie McMurray, 358 W 22d street.
Miss Minnie B. Shields, 223 Jefferson ave., B'klyn.
" Emily McCarthy, 721 Greenwich street.
" Anna A. McCoy, 669 Madison avenue.
" Grace Symes, 774 Greenwich street.
" Marie M. Ehlers, 64 Greenwich avenue.

JANITOR.
Henry H. Roome, In the building.

Primary School No. 14.
73 *and* 75 *Oliver Street, Fourth Ward.*

Mrs. Marg't T. Donnegan, 832 Bushwick ave., B'klyn.
Miss Catharine Dougherty, 210 Wilson st., Brooklyn.
" Lucie C. Buckley, 213 Clinton street.
" Catherine H. Murphy, 81 Third place, Brooklyn.
" Theresa M. Gill, 206 East 10th street.
" Teresa Muratori, 104 Baltic street, Brooklyn.
" Maria A. Wolfe, 46 James street.
" Mary G. Meagher, 29 Market street.

SPECIAL TEACHERS.
Mrs. Mary C. Fargis, Music, 337 West 23d street.
" Elisa Kornmann, Sewing, 325 East 83d street.

JANITOR.
Cornelius Danehy, In the building.

163

Primary School No. 15.
67 *Pearl Street, First Ward.*

Miss Sarah C. Hubie, 6 Second place, Brooklyn.
" Kate Dollard, 329 East 18th street.
" Sarah W. Cohen, 98 Montague street, B'klyn.
" Marie L. Jennett, 153 West 15th street.

MUSIC.
Miss Rachel M. Orgler, 157 East 112th street.

JANITOR.
William Fraser, In the building.

Primary School No. 16.
215 *East Thirty-second Street, Twenty-first Ward.*

Miss Sara J. J. McCaffery, 213 East 31st street.
" Kate A. Reid, 403 East 79th street.
" Maggie A. Kearney, 719 East 141st street.
" Theresa R. Julien, 972 Park avenue.
" Mary E. Nicholson, 147 East 54th street.
" Mary E. Clooney, 243 East 26th street.
" Eglantine Lloyd, 235 East 40th street.
" Annie T. Hawley, 457 Fourth avenue.
" Margaret A. Wilson, 491 Second avenue.
" Kate Cronin, 118 East 31st street.
" Rebecca H. Daly, 237 East 25th street.
" Arabella Denmead, 418 West 39th street.

GRAMMAR GRADES.
Miss Sarah C. Cornell, 229 East 26th street.
" Kate L. Moran, 160 Second avenue.
" Emily A. Keogh, 55 St. Mark's place.
" Ellen J. Nicholson, 147 East 54th street.

JANITOR.
Patrick O'Toole, In the building.

(a) School Directory 1910

(b) Teacher Directory 1910

Catholic School Expansion over Time

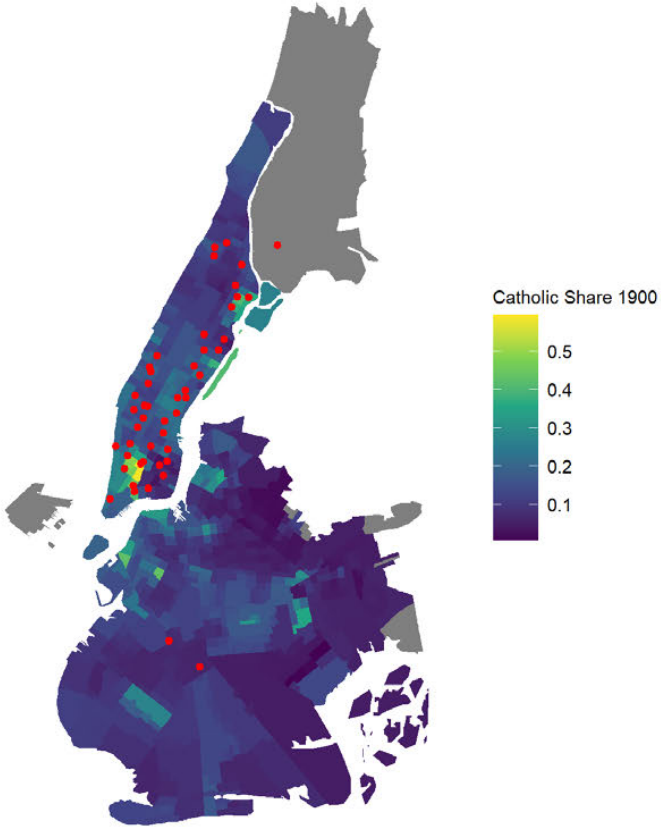


Figure: Catholic Schools Pre 1900

Catholic School Expansion over Time

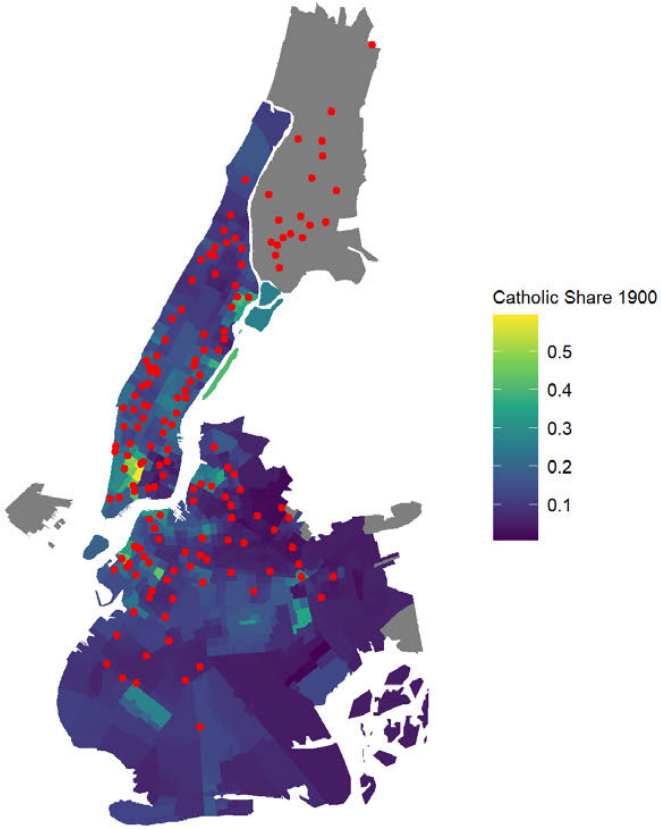
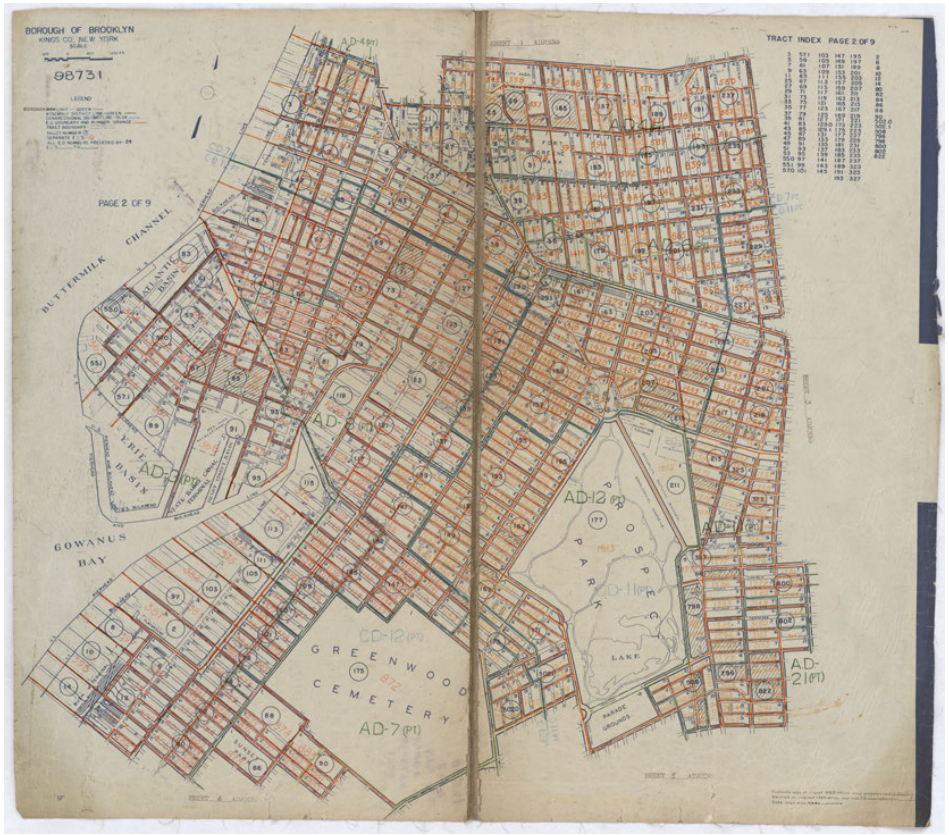


Figure: Catholic Schools in 1920

Enumeration District Linking

ED maps are unique by census year – link over time by aggregating populations to the 1960 tract map, weighting all characteristics by share of ED in a given tract.



Persistence of Catholic Schooling

Table: 1960 Share of Public School Enrollment

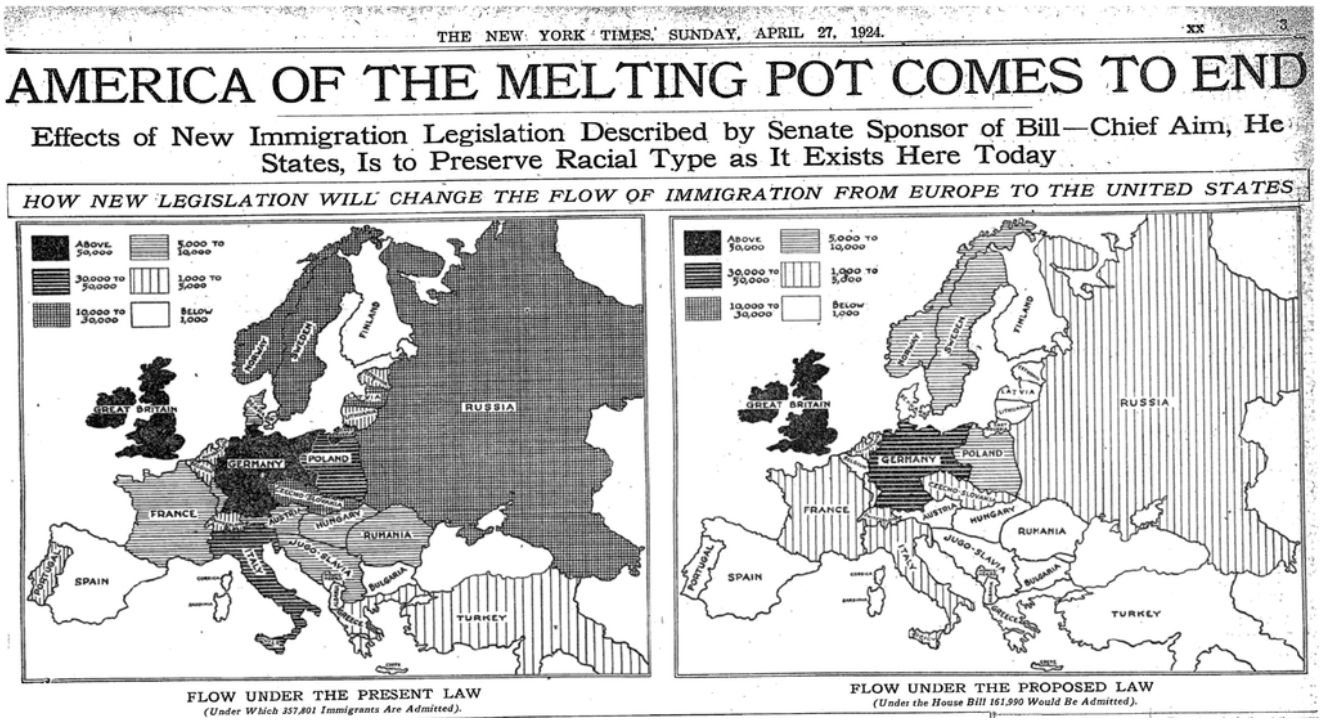
	Public Share	Public Share	Public Share
Catholic Share 1900	-0.480		-0.323
	[0.056]***		[0.068]***
Catholic Share 1930		-0.319	
		[0.045]***	
1920 Catholic Quota Exposure			-0.002
			[0.001]***
Mean Dep.	0.697	0.695	0.697
Observations	2,537	3,062	2,533

Notes: All regressions have fixed effects for city. Outcomes are measured at the 1960 tract level.

1920s Border Closure

Restricts migration by country to 2% of 1890 census, some countries hurt worse than others (Italy flow drops 90%, English 19%)

Figure: NYTimes Drawing on 1924 Quota



THE NEW YORK TIMES, SUNDAY, APRIL 27, 1924. xx 3

AMERICA OF THE MELTING POT COMES TO END

Effects of New Immigration Legislation Described by Senate Sponsor of Bill—Chief Aim, He States, Is to Preserve Racial Type as It Exists Here Today

HOW NEW LEGISLATION WILL CHANGE THE FLOW OF IMMIGRATION FROM EUROPE TO THE UNITED STATES

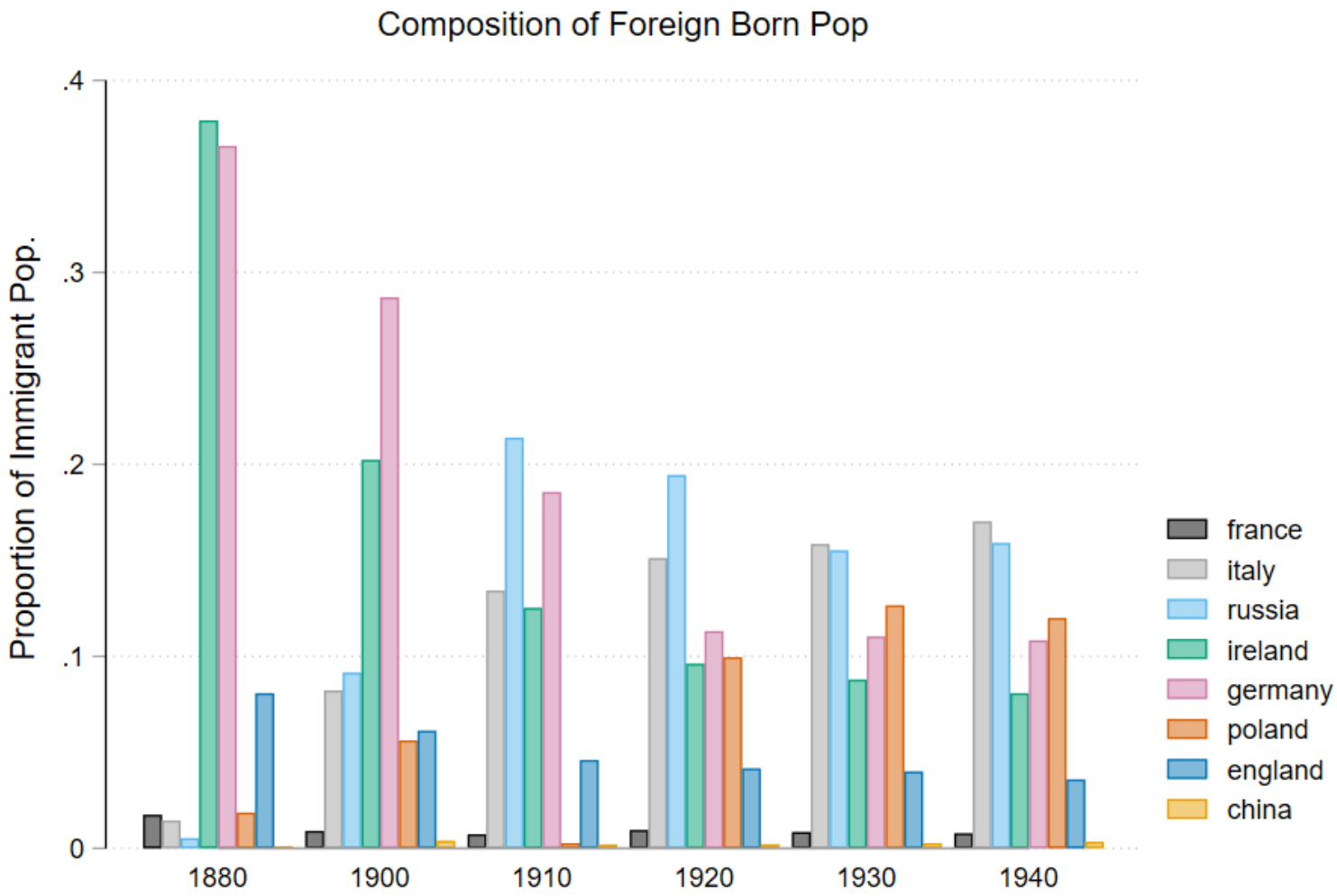
FLOW UNDER THE PRESENT LAW
(Under Which 357,801 Immigrants Are Admitted).

FLOW UNDER THE PROPOSED LAW
(Under the House Bill 161,990 Would Be Admitted).

1920 Border Closure

- each origin country hit differently based on past migration pattern.
- Italy hit hard (growing pop, but low share in 1890) $\rightarrow$ missing Italian migrants in 1921
- each origin country now has missingness: (migrants that would have come - quota allowed)
- neighborhoods experience absolute drop in migrants, but in relatively different proportions based on composition
- neighborhood exposure defined by pre-quota composition

Immigrants by Country in Northeast Cities



1920 Border Closure

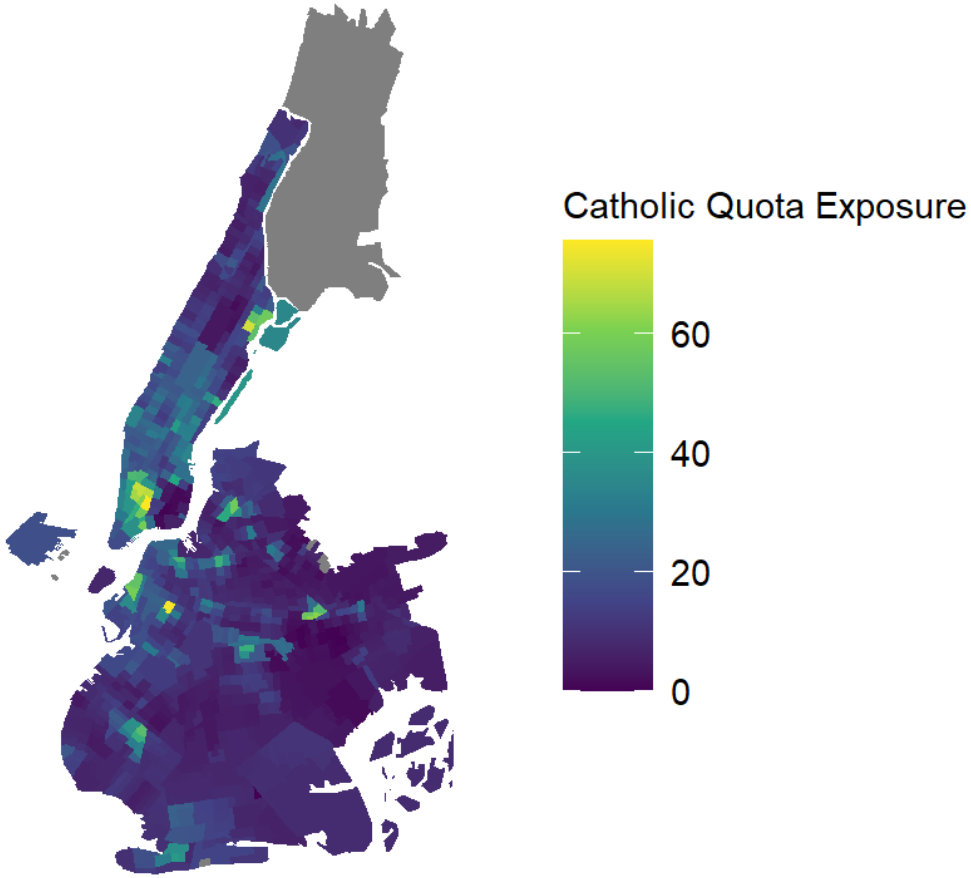
Following Ager et al. (2023), quota exposure at the tract level d

$$\text{Quota Exposure}_d = \frac{100}{P_{d,1910}} \sum_{n=1}^{N} max(\hat{M}_{n,1922-1930} - Q_{n,1922-1930}, 0) \frac{FB_{nd,1910}}{FB_{n,1910}} \quad (1)$$

- $\hat{M}_{n,1922-1930}$ is a prediction of the inflow of migrants from each Catholic country without the quota.
- $Q_{n,1922-1930}$ is the total quota for a given Catholic country of origin n.
- $\frac{FB_{nd,\mathbf{1910}}}{FB_{n,\mathbf{1910}}}$ captures the fraction of immigrants from Catholic country n that are located in tract d.

Catholic Quota Exposure

Figure: Catholic Exposure by 1960 Tract



Catholic Quota Exposure

For a given tract level outcome y_{dt}, we can estimate:

$$y_{dt} = \alpha_d + \gamma_t + \beta(\text{QE Change}_d * \text{post}_t) + \epsilon_{dt} \tag{2}$$

Outcomes

- **Catholic Schools**
  - size in pupils
  - teacher/pupil ratio
  - concentration
- **Baltimore Public Schools**
  - size in pupils
  - teacher/pupil ratio
  - concentration
- **Teachers**
  - census characteristics based on residence
  - Baltimore directories – teacher residence and work location

Effects of Catholic Migrants on Tracts, Schools and Teachers

Relative Change in Catholics on Tract Characteristics

Table: 1920 Quota Impacts on Tract Characteristics

	Catholic Share	Non-Catholic Imm Share	US Native Share
Quota Exposure * Post	-0.193 [0.013]***	0.117 [0.017]***	0.076 [0.016]***
Mean Dep.	9.572	17.376	73.051
Observations	11,990	11,990	11,990

Notes: All regressions have fixed effects for tract. Outcomes are measured at the 1960 tract level. Post is marked as 1 for years past 1920 (ie. 1930), and 0 for years prior (ie. 1900,1910,1920).

Relative Change in Catholics on School Characteristics

Table: 1920 Quota Impacts on Schools

	Catholic Pupils	Cath Teach/Pupil	Public Pupils	Public Teach/Pupil
Quota Exposure * Post	-10.058 [6.467]	0.002 [0.008]	-5.146 [10.644]	-0.042 [0.012]***
Mean Dep.	801.780	-3.788	795.268	-3.698
Observations	132	104	209	167

Notes: All regressions have fixed effects for tract. Outcomes are measured at the 1960 tract level. Post is marked as 1 for years past 1920 (ie. 1930), and 0 for years prior (ie. 1900,1910,1920).

Quota Exposure on Teacher Characteristics

Table: 1920 Quota Impacts on Teacher Characteristics

	Teacher Age	Teacher Spouse Lit	Teacher Father Occ	Teacher Catholic Share
Quota Exposure * Post	-0.027	-0.000	-0.034	-0.098
	[0.022]	[0.001]	[0.025]	[0.023]***
Mean Dep.	27.685	0.511	16.497	4.018
Observations	12,001	12,001	12,001	11,676

Notes: All regressions have fixed effects for city. Outcomes are measured at the 1960 tract level. Post is marked as 1 for years past 1920 (ie. 1930), and 0 for years prior (ie. 1900,1910,1920).

Relative Catholic Exposure

The quota hit catholic and non-catholic countries differentially. If the quota causes tract to lose more noncatholic than catholic immigrants, catholic share of goes up.

$$\text{QE Catholic Change}_d = QE_{\text{noncatholic}} - QE_{\text{catholic}} \tag{3}$$

Relative Change in Catholics on Tract Characteristics

Table: 1920 Quota Impacts on Tract Characteristics

	Catholic Share	Non-Catholic Imm Share	US Native Share
Catholic Change * Post	0.104 [0.005]***	-0.185 [0.006]***	0.081 [0.006]***
Mean Dep.	9.572	17.376	73.051
Observations	11,990	11,990	11,990

Notes: All regressions have fixed effects for tract. Outcomes are measured at the 1960 tract level. Post is marked as 1 for years past 1920 (ie. 1930), and 0 for years prior (ie. 1900,1910,1920).

Relative Change in Catholics on Teacher Characteristics

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Effects of Catholic Migrants on Educational Attainment

Relative Catholic Exposure across Cohorts

- using linked census, we can capture a sample of children living in migrant neighborhoods at time of quota
- exposed cohort 0-10 at time of 1920 closure, compared to 11-20 at time of quota
- measure educational attainment in 1940 (ages 20-40)

For a given child in a tract y_{id}, we can estimate:

$$y_{id} = \alpha_d + \gamma_i age + \beta(\text{QE Change}_d * \text{Treat}_1920) + \Gamma(FB_{d,1910}) + \text{Treat}_1920 + \epsilon_{id} \quad (4)$$

Relative Change in Catholics on Child Education

Table: 1920 Quota Impacts on Child Attainment

	Ed Attainment	Ed Attainment	Ed Attainment
Treat * Non-Catholic Quota Exposure	0.006		
	[0.000]***		
Treat * Catholic Quota Exposure		-0.005	
		[0.001]***	
Treat * Relative Catholic Change			0.005
			[0.000]***
Mean Dep.	13.631	13.631	13.631
Observations	1,359,701	1,359,701	1,359,701

Notes: All regressions have fixed effects for city.

Relative Change in Catholics on Child Education

Table: 1920 Quota Impacts on Child Attainment

	Ed Attainment	Ed Attainment	Ed Attainment
1920 Non-Catholic Quota Exposure		0.022	
		[0.000]***	
1920 Catholic Quota Exposure	-0.031		
	[0.000]***		
Relative Catholic Change			0.013
			[0.000]***
Mean Dep.	13.588	13.588	13.588
Observations	1,398,814	1,398,814	1,398,814

Notes: All regressions have fixed effects for city.

Next Steps

- Diff-in-Diff strategy via school openings
- baseline public/private school shares across cities

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Immigrant Characteristics in Northeast Cities

Table: Immigrant Characteristics in 1880 (Northeast Cities)

	Literacy	Occscore	School	Age
Catholic	-0.144	0.176	-0.100	19.440
	[0.000]***	[0.022]***	[0.001]***	[0.023]***
Non-Catholic Imm	-0.009	1.303	-0.061	19.023
	[0.000]***	[0.020]***	[0.001]***	[0.021]***
Mean Dep.	0.934	14.784	0.227	25.254
Observations	2,836,016	2,836,016	2,374,399	3,797,192

Notes: All regressions have fixed effects for city and gender. Literacy and Occscore regressions keep only the sample aged 10+. School keeps only sample aged 0-25. Age is controlled for everywhere except the final column.