

Integration Without Decentralization:
The Financial Geography of U.S. Life Insurance, 1880–1940

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Outline

- Why life insurance?
- This paper: question, setting, and data
- The rise of a national intermediary
- Two geographies: business and control
- Households and the geography of demand
- Magnitudes: entry, mandates, decomposition, convergence
- Conclusion

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Why life insurance?

A systemically important intermediary that the economic history of American finance has mostly ignored:

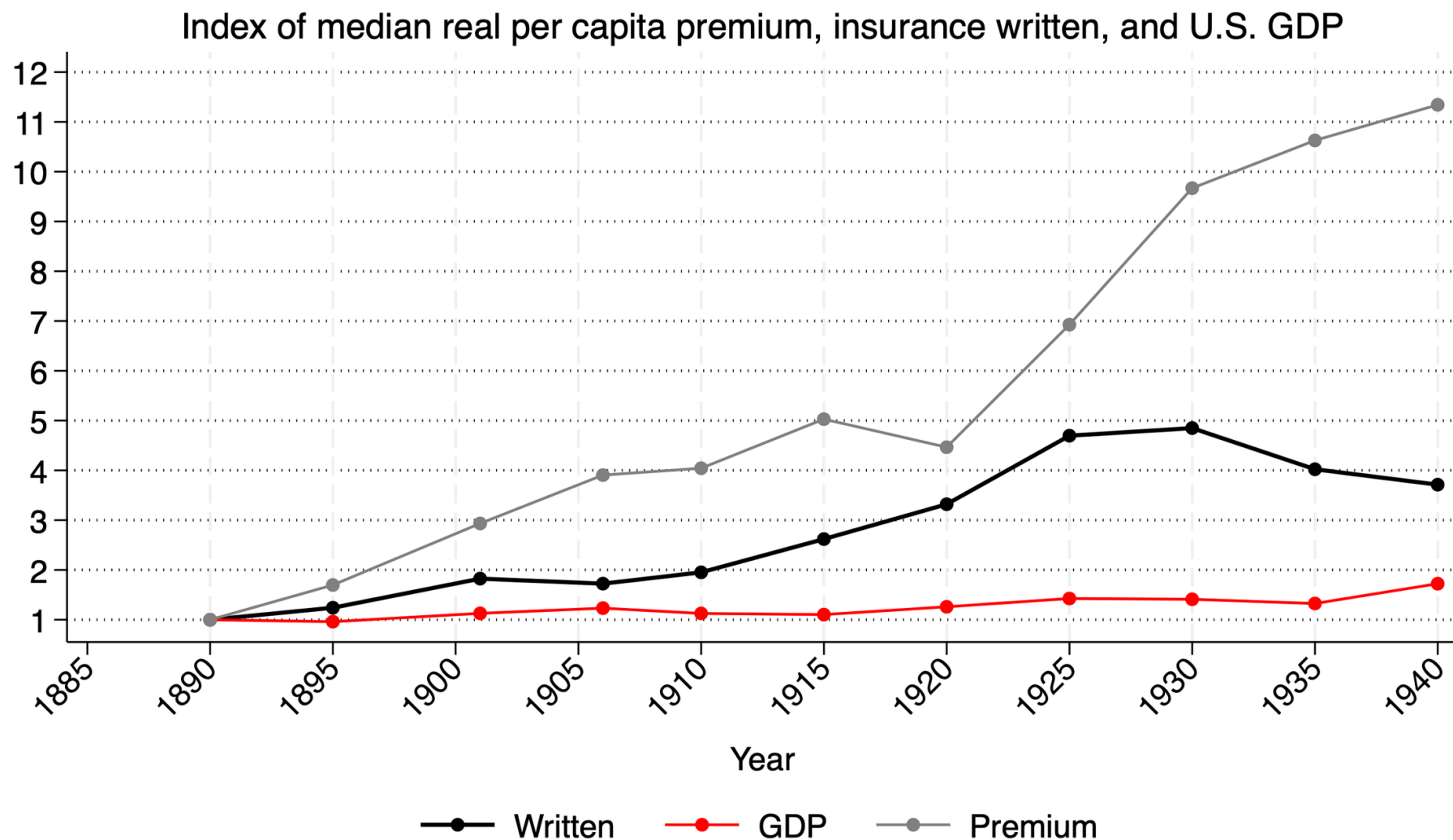
- **Incomplete view:** a stable oligopoly of a few New York and Connecticut firms - limited entry, weak competition, little variation (e.g., *Historical Statistics of the U.S*)
 - **Not so!** Some 847 firms operated between 1888 and 1940, most of them far from the traditional financial centers
 - By 1940 the Midwest and South each incorporate about 2x the Northeast's insurers, and the median within-state HHI falls 52%
- **Tractable:** heavily regulated at the state level since the 1840s, **rich** administrative data - annual statements, firm-by-state premiums and losses, investment schedules
 - 150,070 firm-state-line-years of premiums and losses; 2,406 firm-years of audited balance sheets; every bond and stock held, 1915-1935

Why life insurance?

A systemically important intermediary that the economic history of American finance has mostly ignored:

- **Households:** the largest institution for contractual saving before Social Security - protection, saving, collateral, and liquidity in one contract
 - 1940: \$117bn of life insurance in force (1.1x GDP), on 134m policies
- **Insurers:** about 2x the mortgage debt of state and national banks combined, municipal debt on par with the national banks, first and largest institutional investors in corporate bonds
 - 1940: \$30bn of assets against \$37bn at national banks and \$32bn at state banks
 - Unlike banks, could operate across state lines, relatively unconstrained
- **Scale:** premiums rose from 1.3% of national income in 1889 to 4.1% in 1929 and 7.1% in 1932
 - Real premium \$3.5bn (1890) → \$75.4bn (1940)

1890 - 1940



The median state's real premium per capita grew 11.3 times, insurance written 3.7 times, GDP 1.7 times

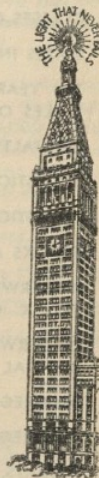
Life insurance 101

- Dual-purpose financial product: insurance protection + a savings component
- Fixed premiums, a promised benefit at death or at maturity
 - Policies accumulate cash value: borrow against it (policy loans), surrender it for cash, or convert to a paid-up contract
- Industrial insurance: small weekly-premium policies sold door to door to working-class households. (~20% of the market)
- Long promises require credibility: a household buying a 30-year promise had to judge whether the firm would still honor it decades later.
 - Reserves, conservative assets, and reputation important
- Sold by agents (state = market) while premium, investment and control of premium stayed at home (executive) office

Metropolitan Life Insurance Company's contracts afford a means to

- create estates and incomes for families
- pay off mortgages
- educate children
- provide income in the event of retirement
- establish business credits
- stabilize business organizations by indemnifying them against the loss of keymen
- provide a temporary income in the event of incapacity resulting from accident or sickness
- provide group protection for employees covering accident, sickness, retirement, and death.

The Metropolitan is a mutual organization. Its assets are held for the benefit of its policyholders, and any divisible surplus is returned to its policyholders in the form of dividends.



METROPOLITAN LIFE INSURANCE COMPANY

Frederick H. Ecker
Chairman of the Board

1 Madison Avenue
New York, New York

Leroy A. Lincoln
President

NOT HOW BIG? BUT HOW STRONG?

THE Home Life Insurance Co. OF NEW YORK

Has over \$126 of Assets to secure every
\$100 of Liabilities.

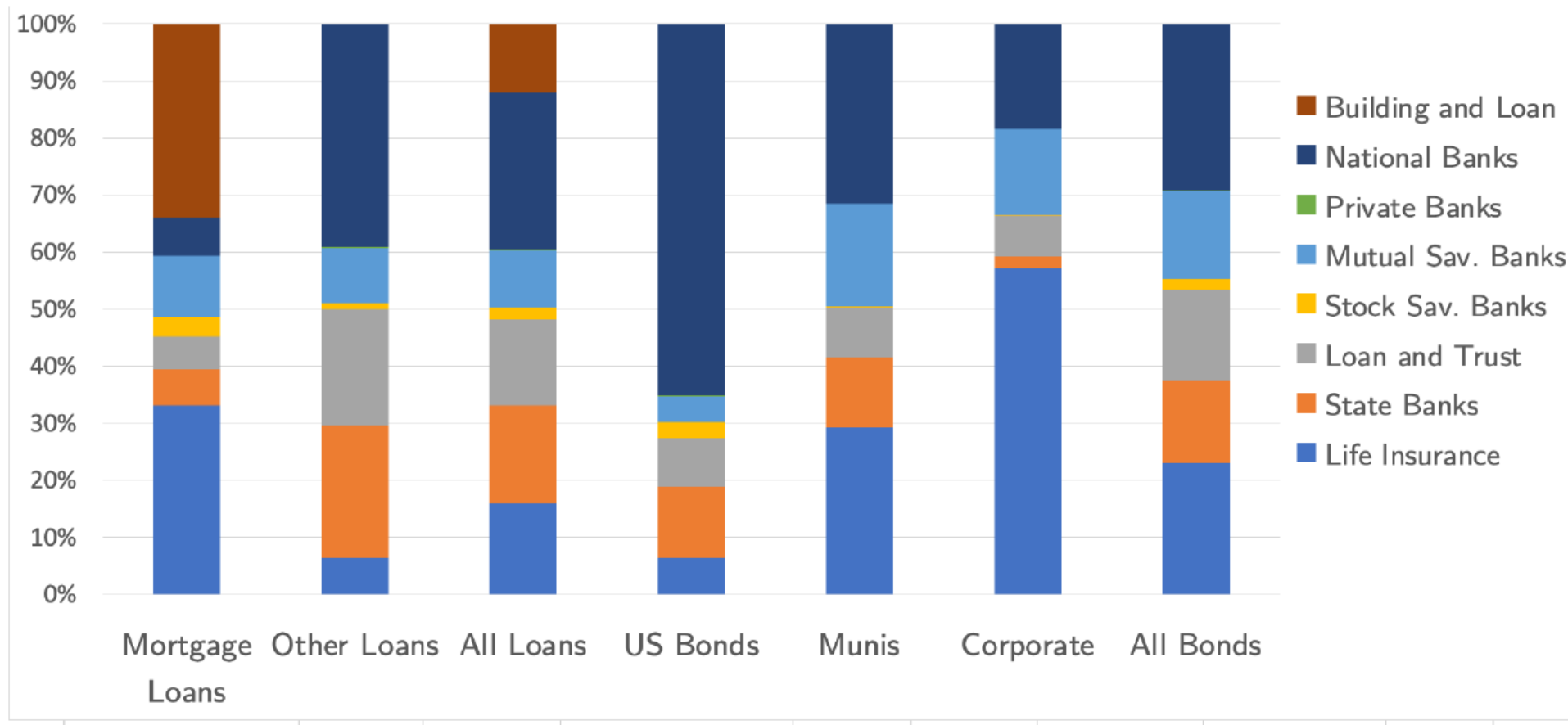
BONDS AND STOCKS OWNED BY THE COMPANY.

United States 4 per cent Bonds.
Brooklyn City, Public Parks, 7 per cent Bonds.
Erie R. R. 2d Mortgage, Cons. 6 per cent Bonds.
Erie R. R., funded, 5 per cent Bonds.
New York, Chicago and St. Louis R. R. 4 per cent Bonds.
New York, Lack. and Western R. R. Cons't 5 per cent Bonds.
Albany and Susquehanna R. R., 1st Cons. 6 per cent Bonds.
Morris and Essex R. R., 1st Cons. 7 per cent Bonds.
Chicago and North-Western R. R. Cons. 7 per cent Bonds.
Oswego and Syracuse R. R. Cons't 5 per cent Bonds.
Fidelity Loan and Trust Co. 6 per cent Bonds.
Jefferson R. R., 1st 5 per cent Bonds.
Delaware and Hudson R. R., Pa. div. 7 per cent Bonds.
Monmouth Co., N. J., 5 per cent School Bonds.
Central Trust Co. Stock.
American Exchange National Bank Stock.
National Bank of Commerce Stock.

CHARLES A. TOWNSEND, President.
GEORGE H. RIPLEY, Vice-President.
GEORGE E. IDE, Secretary.
WM. A. MARSHALL, Actuary.

Metropolitan Life (1930) and Home Life (1891), *The Insurance Year Book*

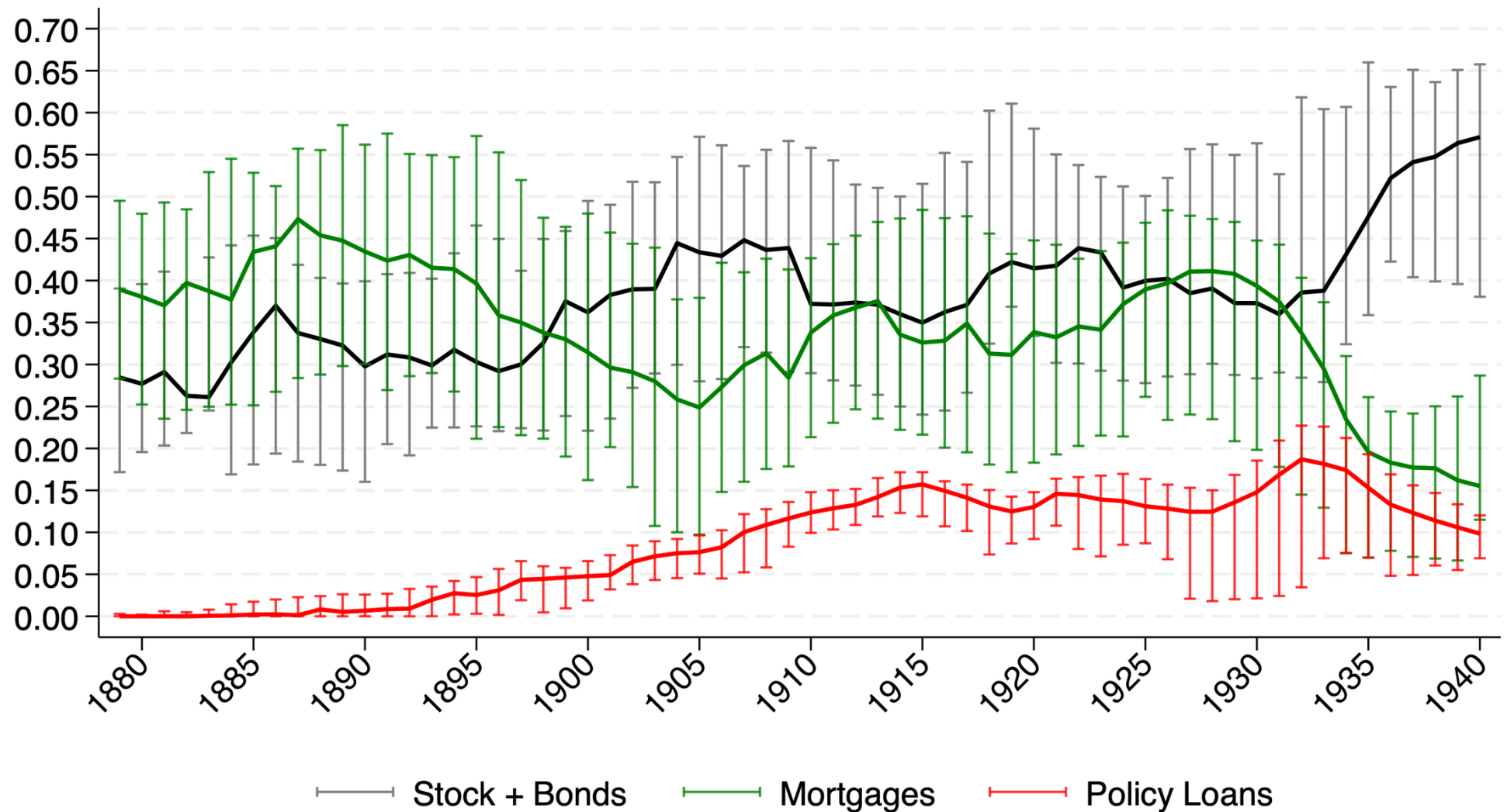
Holdings of Financial Intermediaries (1928)



Share of the combined holdings of life insurers, banks and building-and-loan associations held by each, by instrument

Individuals, non-life insurers and other holders are excluded. Sources: OCC annual report; Spectator Insurance Year Book; Association of Life Insurance Presidents

Investments



Share of admitted assets, insurers licensed in New York; bars show IQR across firms.

Patchwork of State regulation

- **Paul v. Virginia (1869):** issuing a policy was not “commerce,” so regulation stayed with the states until **South-Eastern Underwriters (1944)**. New Hampshire created the first insurance department in 1851.
- **Geographic specific investment rules:**
 - 1870: New Jersey, Ohio, California, Iowa, Kansas, Kentucky and New York barred domestic insurers from out-of-state mortgages, but Connecticut and Wisconsin granted broad powers,
 - 1886: NY lifts restrictions
 - 1905: only Georgia, Nebraska, Pennsylvania and Texas still prohibited out-of-state mortgages
- **Armstrong (New York, 1906):** limited acquisition costs and agents’ commissions, capped annual new business, prohibited common stocks, banned deferred-dividend “tontine” policies.
- **Appleton rule (~1900):** any insurer licensed in New York had to comply with New York law everywhere, so many smaller companies never sought a New York license

Politics of local finance

Legislation requiring these companies to invest annually a reasonable percentage of the premiums received from this state in property here is not only manifestly reasonable and just but dictated by sound public policy. The excess of premiums over losses sent out of the state since 1886 by all life and fire insurance companies which have done business here will probably reach \$25,000,000, and accounts, in part, for the distress here and the congestion of money and the aggregation of wealth in the metropolis. It is time that the resources of the state should be devoted to her own growth and progress, and the adoption of the policy indicated will strongly tend to keep capital here and build upon it. (The Austin Weekly, January 21, 1897)

Charles A. Culberson, Texas Governor

- **The grievance:** premiums paid to Eastern companies drained local savings.
- **The Robertson Law (Texas, 1907):** firms must invest 75% of Texas reserves in Texas securities. Twenty-eight out-of-state insurers withdrew

Research questions

- **Market integration and control (today):** as insurance became a national market, did control over the savings it collected disperse? What did local chartering and compulsion buy?
- **Firm formation and diversification (Janas 2026b):** how did individual insurers become large and geographically diversified? Pooling across lives versus pooling across geographies
-
- **Capital mobility:** did firm expansion raise capital availability in historically underserved regions? Where were the premiums invested?
- **Financial crises:** what are the macroprudential implications of stable, long-dated insurance liabilities? A buyer of last resort in asset fire sales?
- **Urban expansion and public finance:** how did investment regulation (home-bias laws, admissible-asset lists) shape municipal bond markets and downstream public investment?

Outline

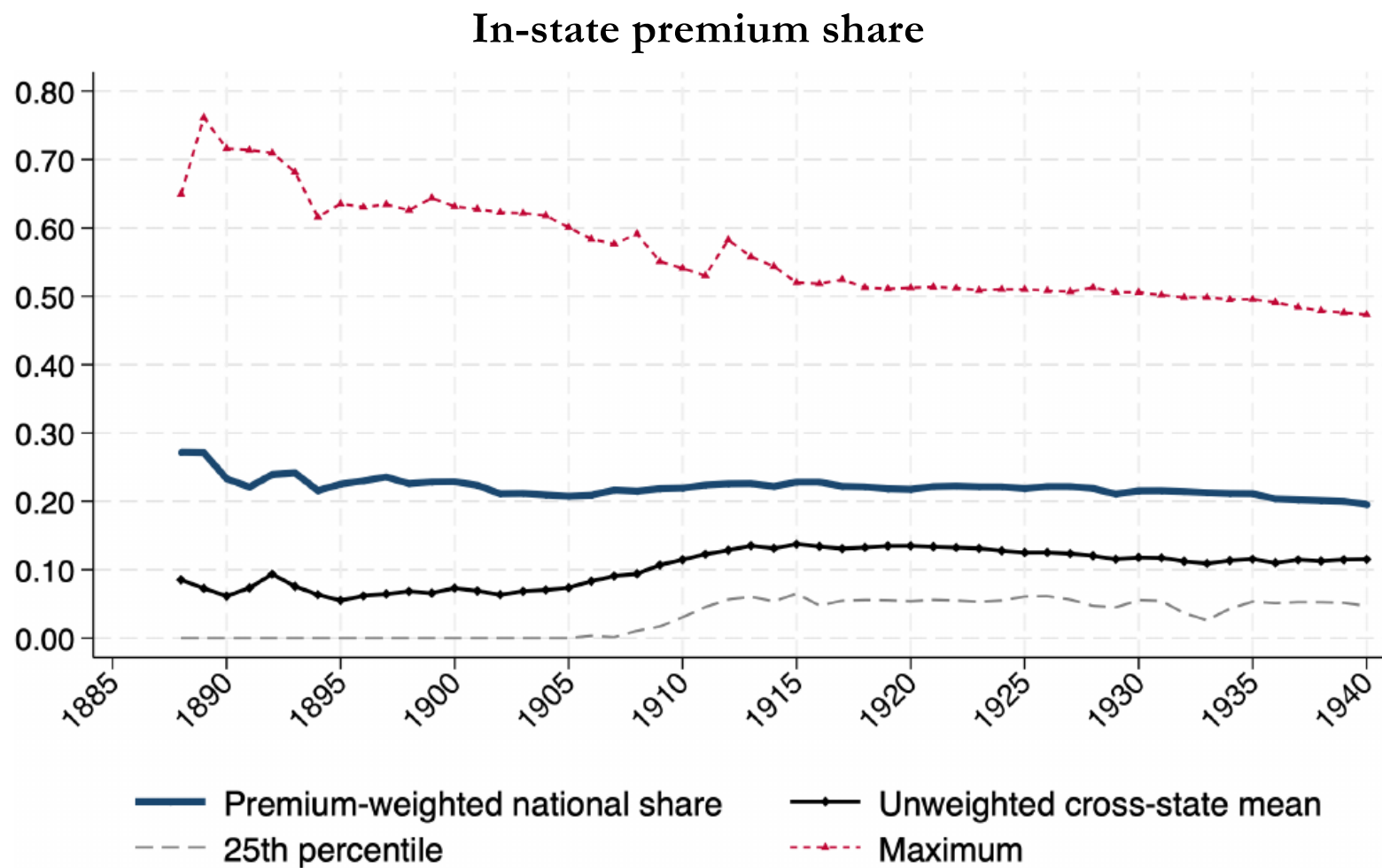
- Why life insurance? The research agenda
- **This paper: question, setting, and data**
- The rise of a national intermediary
- Two geographies: business and control
- Households and the geography of demand
- Magnitudes: entry, mandates, decomposition, convergence
- Conclusion and what comes next

This paper

As the market for insurance became national, did control over the savings it collected become geographically dispersed?

- **Integration:** the spread of firms across state lines, competitive state markets, and convergence of household participation across states
- **Decentralization:** a shift of "control" toward the states in which premium was collected, where "control" is measured by state of domicile
- **Answer:** integration without decentralization
 - Insurers 56 (1890) → 359 (1940); incorporation shifts to the Midwest and South; median within-state HHI falls 52%
 - Yet: five largest firms collected 54% of national premium in 1890 and 53% in 1940, and the share collected by firms domiciled where it was paid fell from 23.3% (1890s) to 20.8% (1930s)
 - Local control rose substantially only where the law compelled it: Texas after 1907

Decentralization?



New data infrastructure

- **Spectator Insurance Year Book, 1888–1940**
 - Firm $\times$ state $\times$ line premiums, losses, new insurance and insurance in force for every legal-reserve insurer; 847 insurers, 150,070 firm-state-line-years
 - Median firm observed 8 years, mean 13
 - OCR transcription checked against printed state totals and each series' own history (humans)
- **State insurance department reports (New York)**
 - Audited balance sheets and income statements: 171 firms, 2,406 firm-years in New York, 1880–1940
 - Validates Spectator data (log-log slope 1.04 and R^2 0.93)
- **Complements:**
 - U.S. Census covariates (population, urban share, manufacturing output)
 - Easterlin and BEA state income
 - Aetna rate books
 - Fraternal-society statistics (1912, 1927)

[Validation](#)

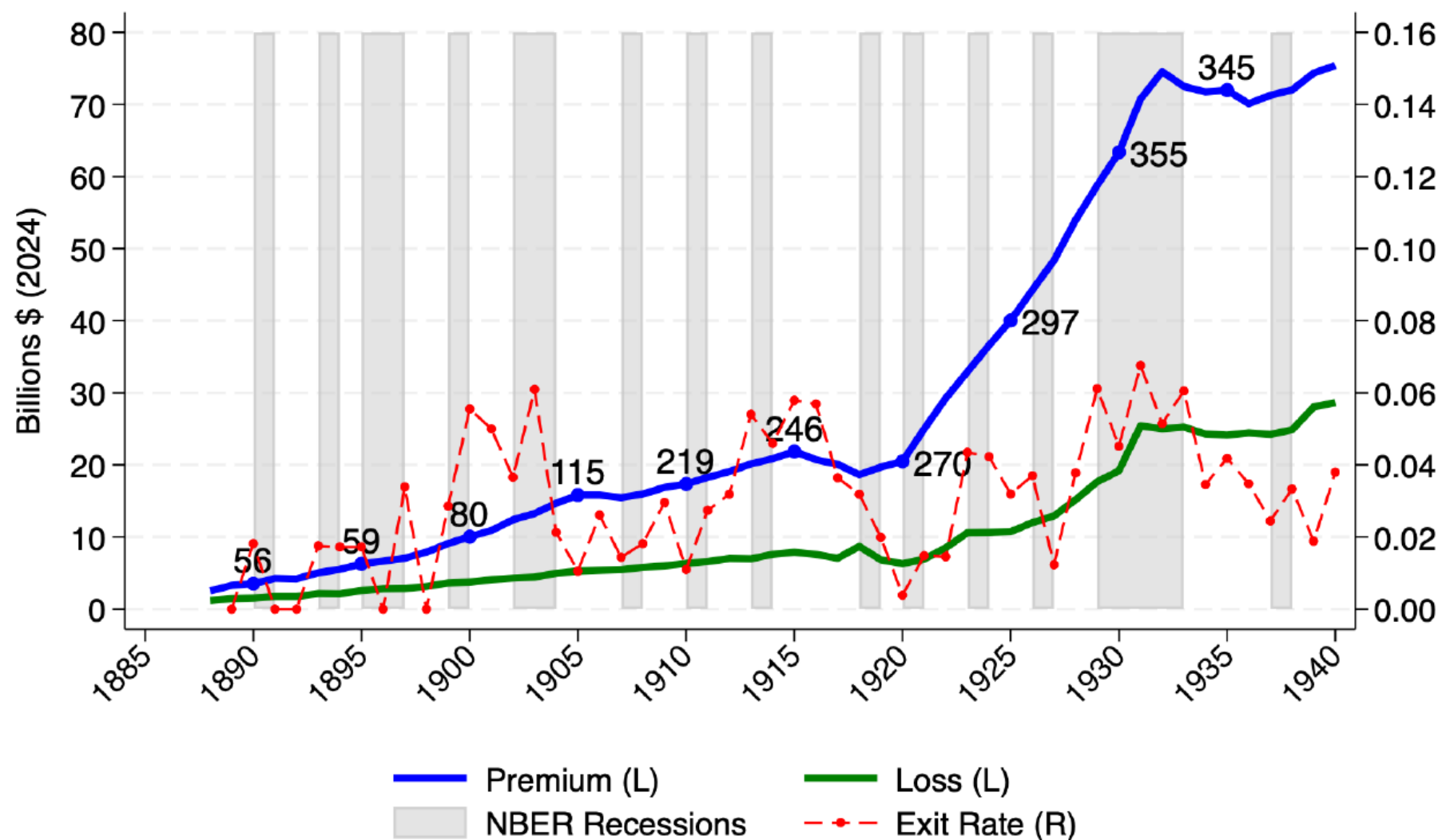
Related literature

- **Economic history of U.S. life insurance:** capital mobilization (Zartman 1906; Pritchett 1970); the Armstrong investigation, regulation and organizational form (North 1954; Ransom and Sutch 1987; Merkel 1991; Zanjani 2007); investment behavior (Huebner et al. 1932; Snowden 1995); crises (Rose 2017; Cortés and Verdickt 2025); household saving (Murphy 2010; Arthi et al. 2025); institutional histories (Stalson 1942; Buley 1953; Keller 1963)
- **Integration of national capital markets:** banks, securities and mortgage finance (Davis 1965; Sylla 1969; Snowden 1995), measured chiefly by the narrowing of regional interest-rate differentials (James 1976, 1978; Bodenhorn and Rockoff 1992; Landon-Lane and Rockoff 2007; Odell 1989)
- **Contribution:** a rich new data infrastructure that we can use to re-examine the questions of capital mobility of a systematically important financial intermediary.

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The industry at national scale



Premium and losses in 2024 dollars (left axis); exit rate (right axis); firm counts labeled every five years. (Figure III)

Growth and the business cycle

Insurers licensed in New York, % per year	1881- 1940	No recession	Recession	1929–33	1932–33
Assets, real	6.74	5.84	6.91	12.65	11.26
Liabilities, real	7.00	5.91	7.43	12.78	11.28
Revenue, real	6.80	6.71	6.57	9.00	5.50
Assets, nominal	7.21	7.49	7.22	5.02	2.57
Revenue, nominal	7.33	8.44	6.87	1.64	−2.74

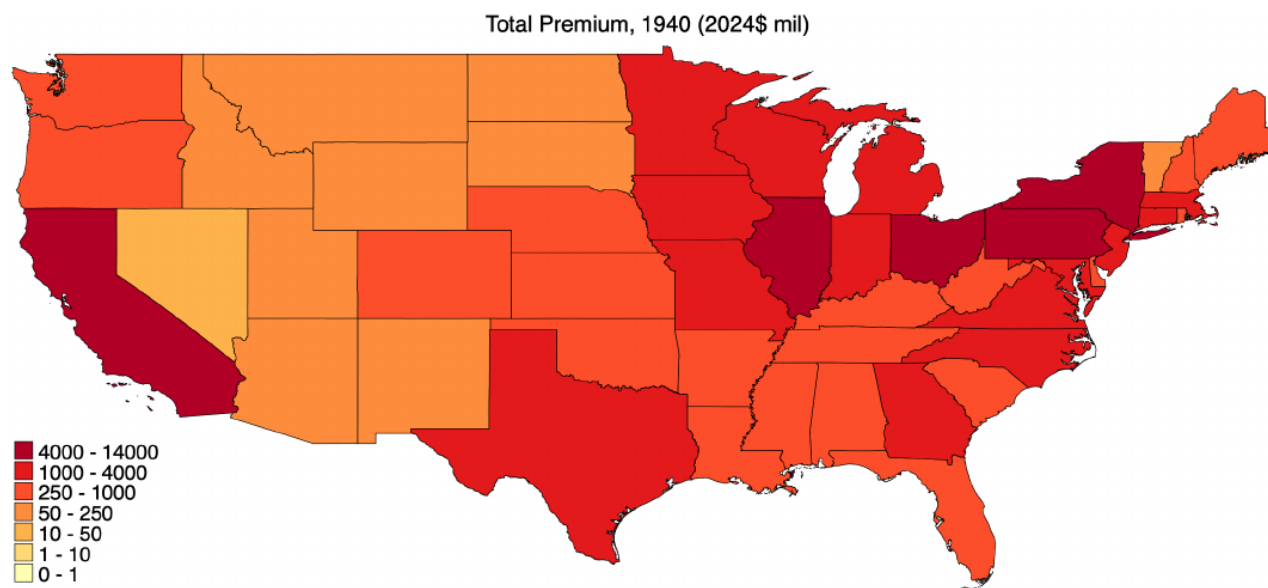
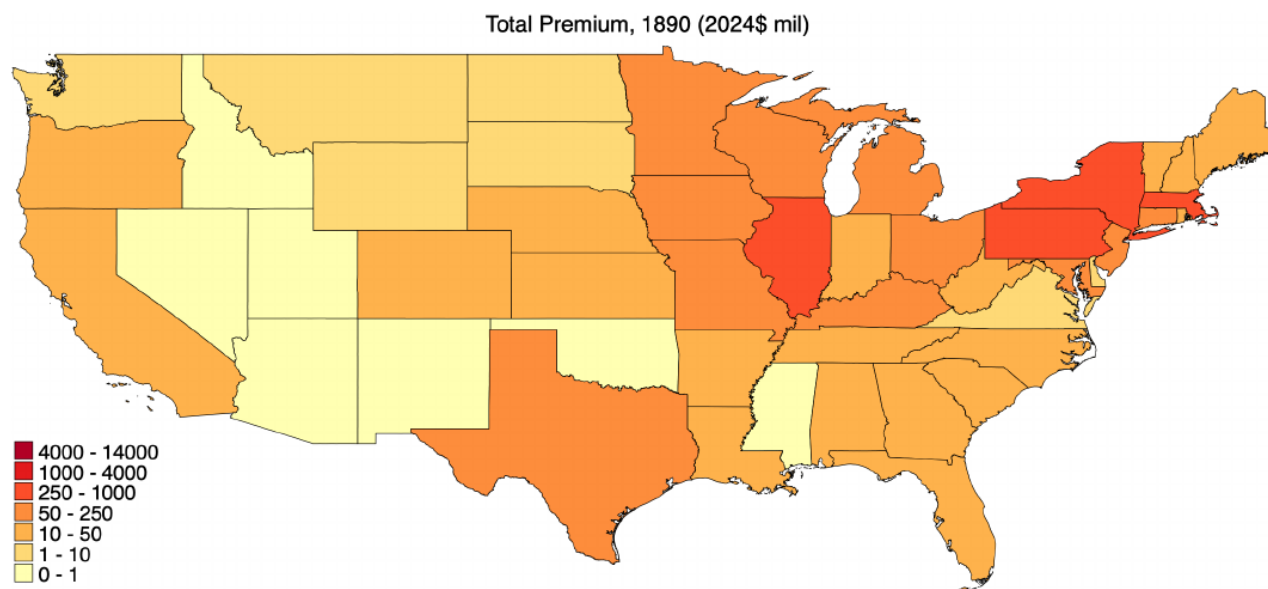
Recession years from NBER, at least six months of contraction;

- Exit rate: 3.2% in the median year, never above 6.8% (1931)
- 378 exits:
 - 332 (87.8%) reinsurance, merger or acquisition
 - 37 (9.8%) failures
 - The rest were voluntary retirements

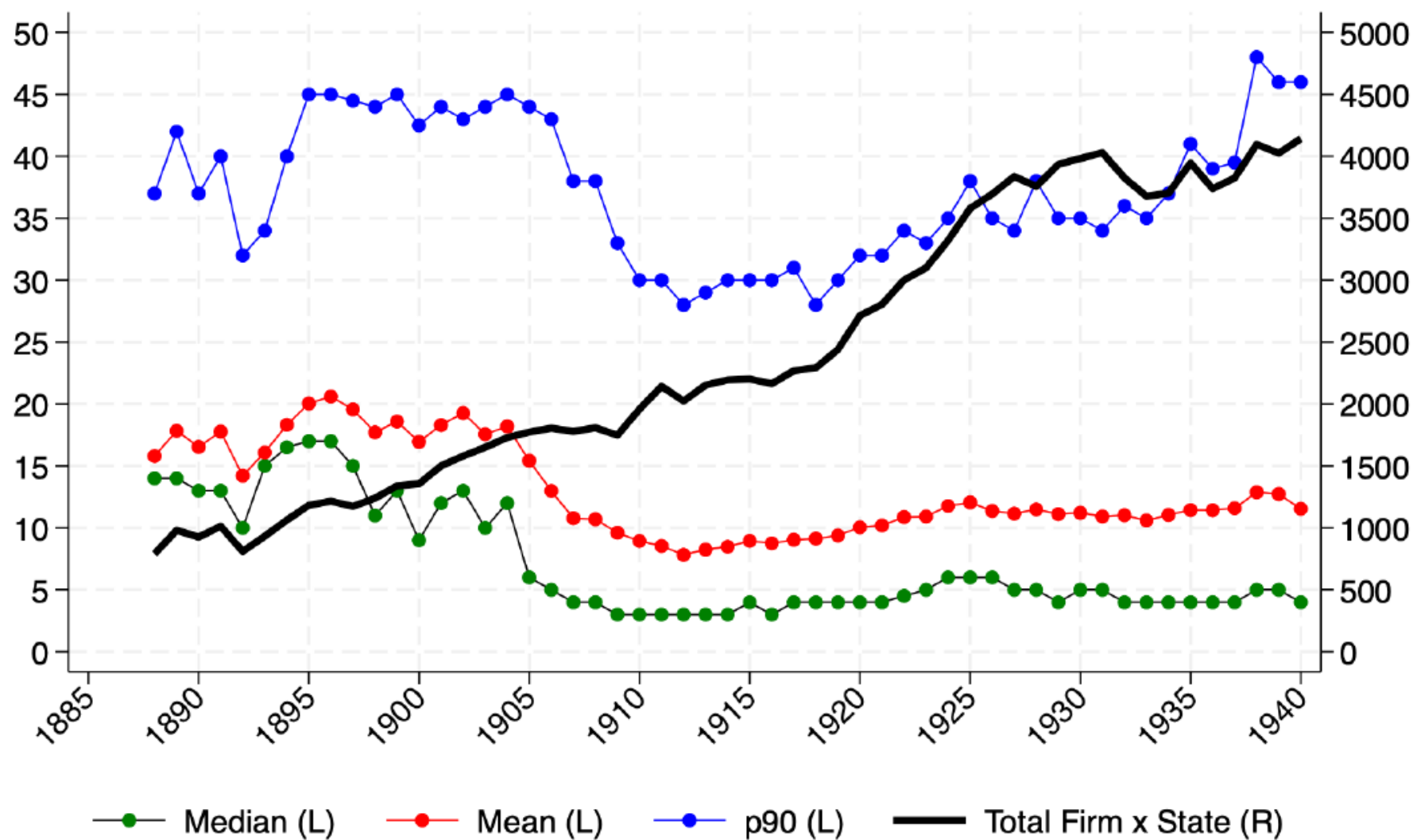
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Geography of business

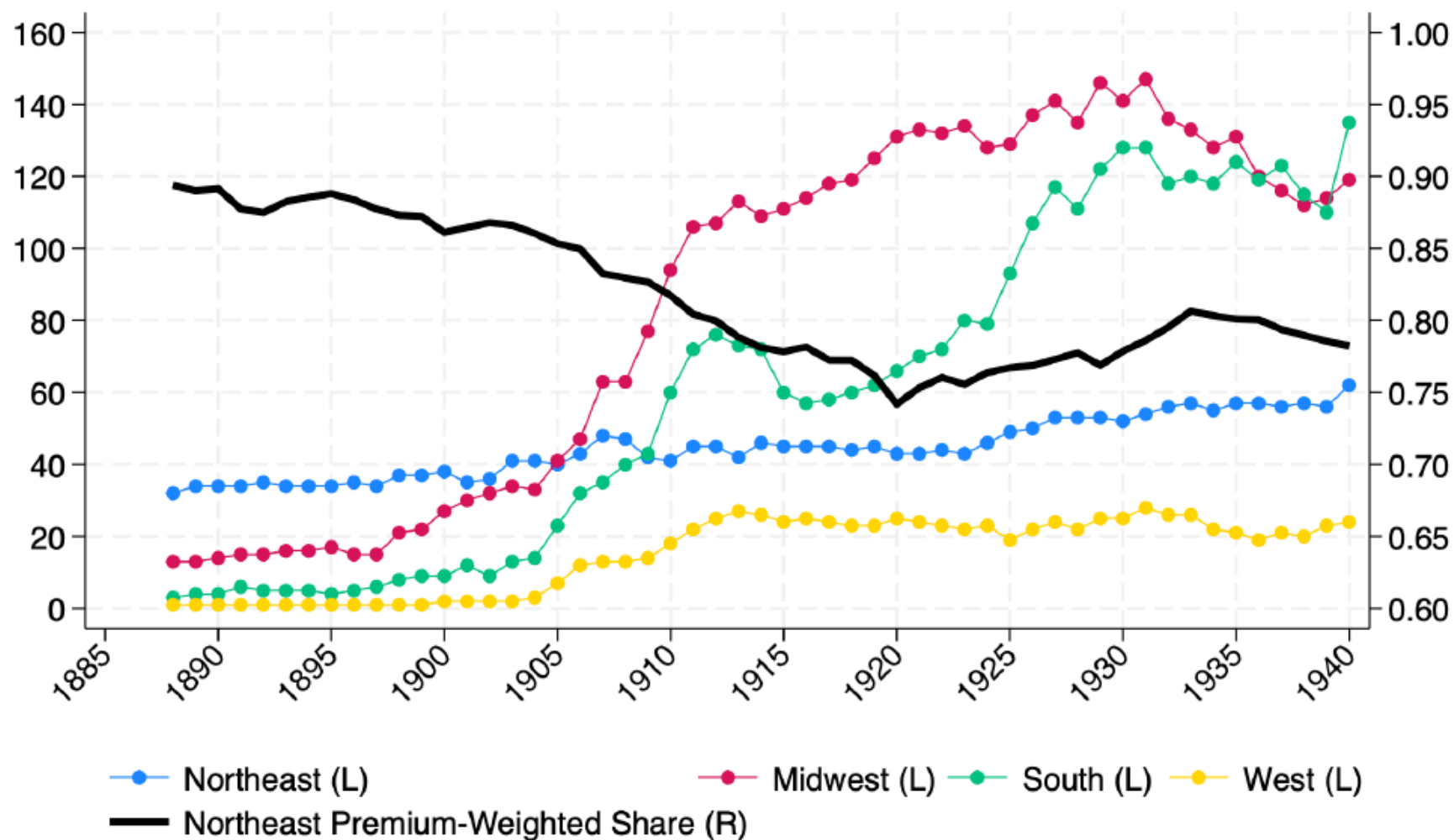


Firm Reach



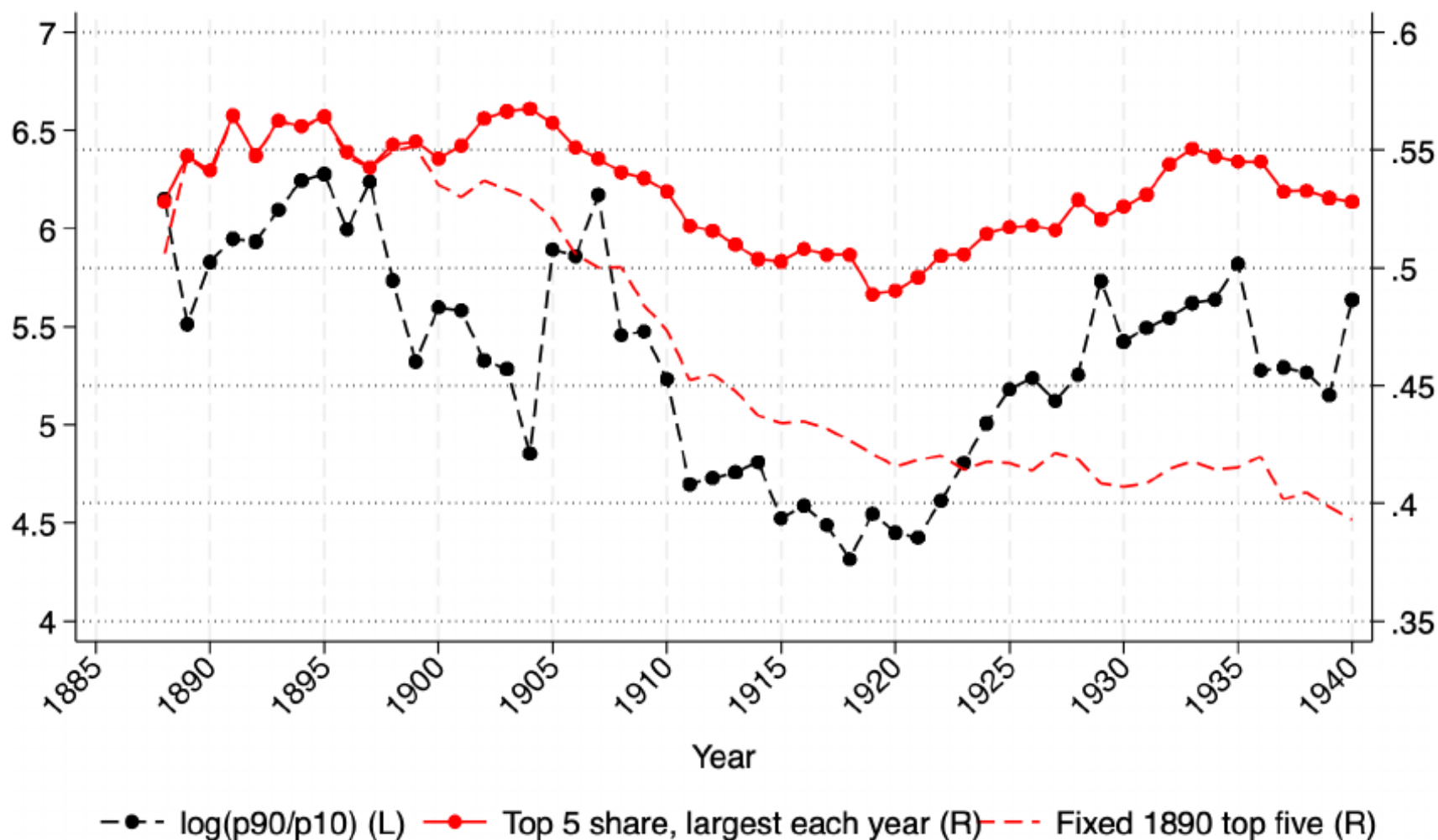
Number of states of operation per firm: median, mean, 90th percentile (left axis); total firm-by-state observations (right axis)

Geography of control



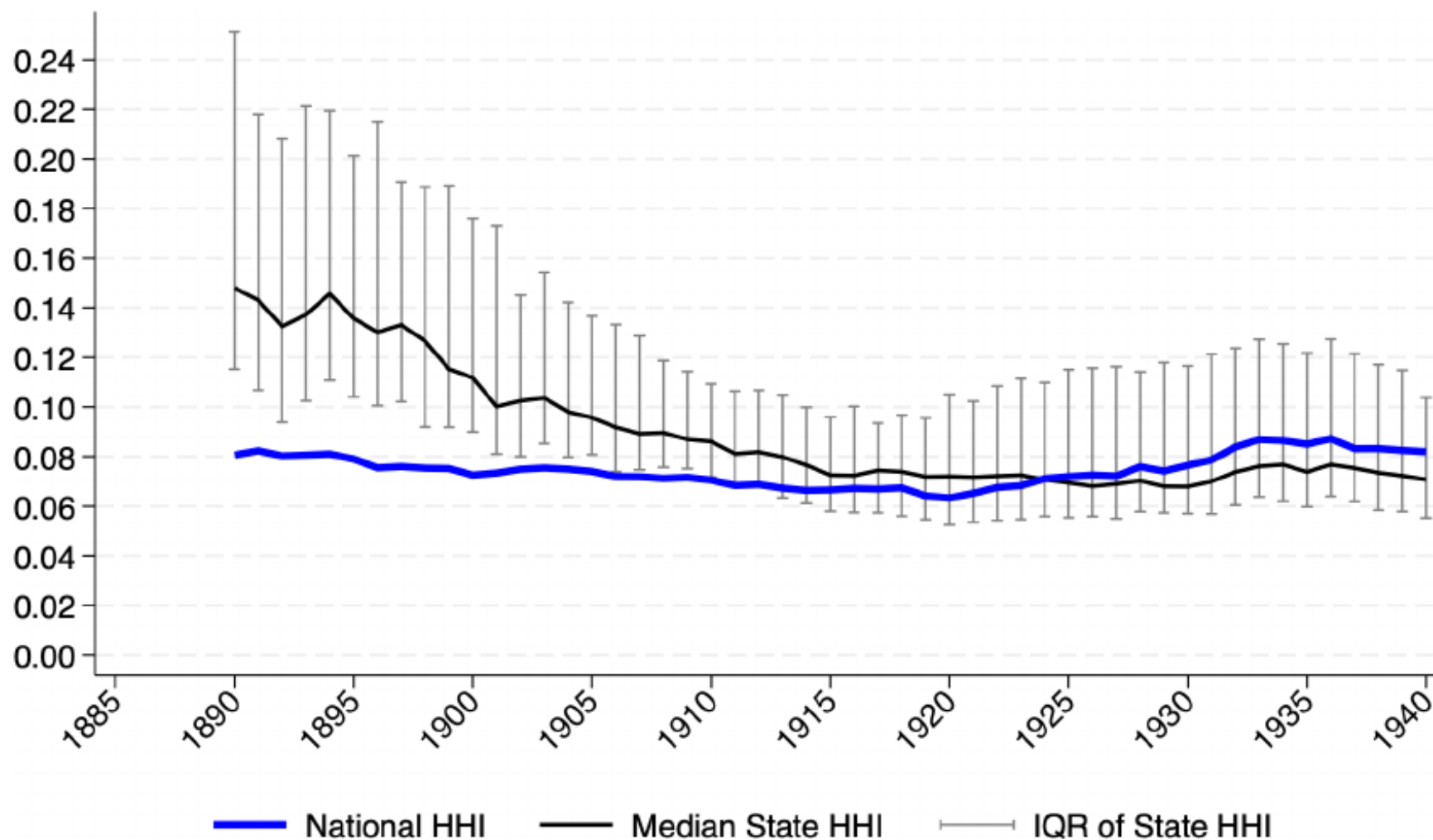
Firms incorporated by region (left axis); premium-weighted share collected by Northeastern firms (right axis).

Top share



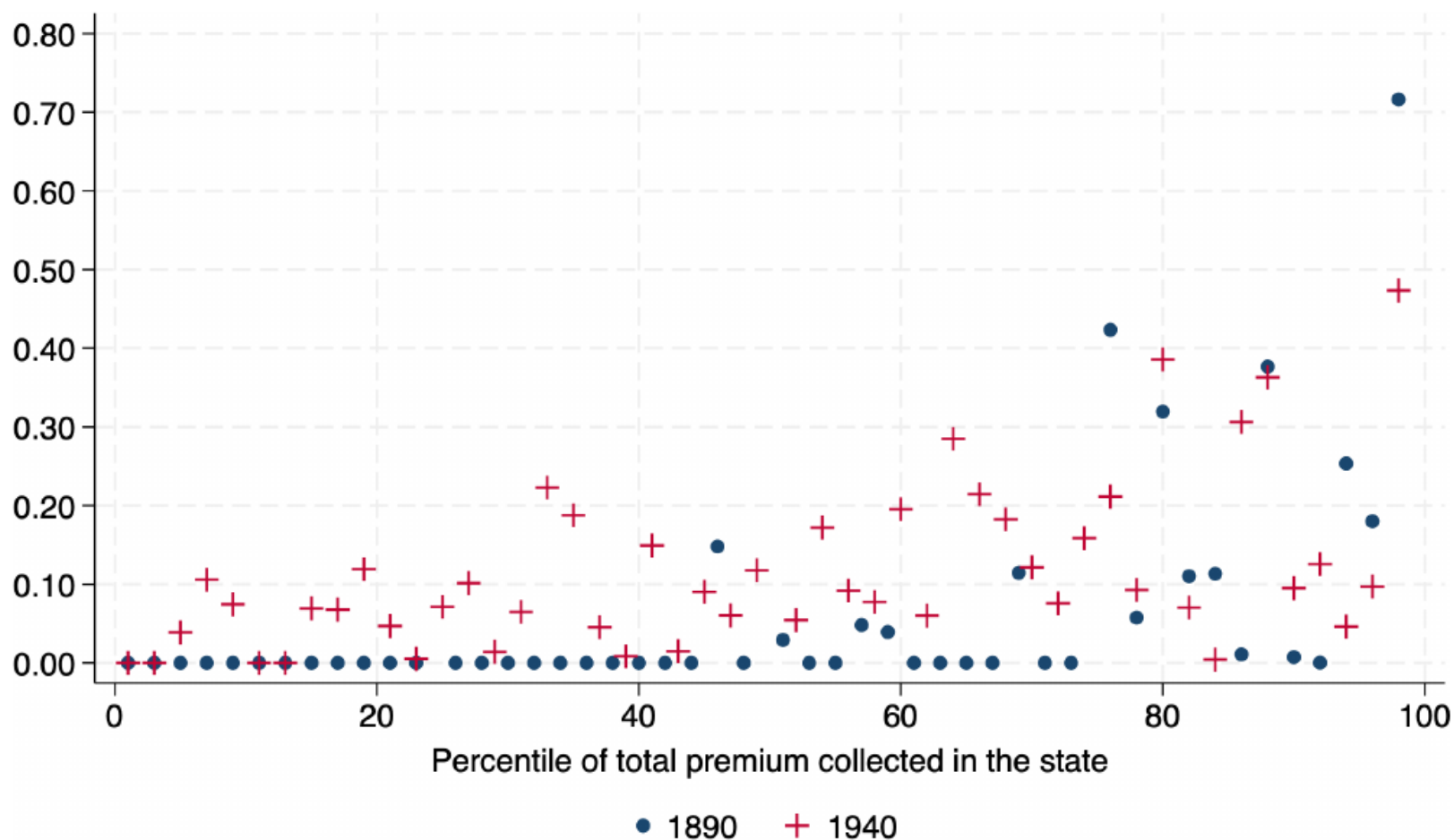
log(p90/p10) of firm-level premium (left axis); top-five share, largest each year and the fixed 1890 five (right axis)

Market concentration



Median, 25th and 75th percentiles of the state-level HHI of premium collection, and the national HHI. (Figure VI, Panel B)

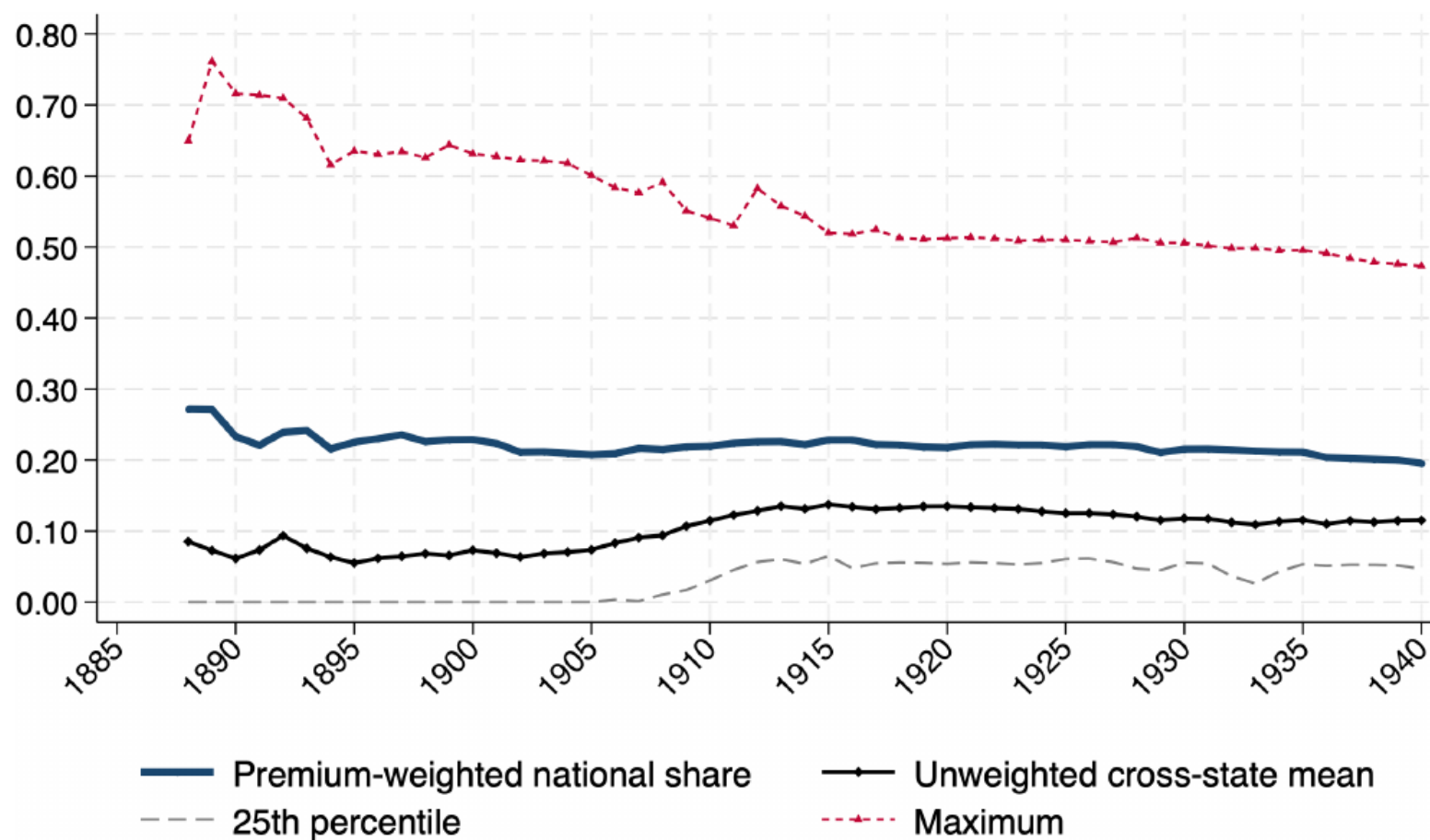
Local retention vs. market size



State-level in-state share against the state's percentile in total premium collected, 1890 and 1940

In 1890 most states retained essentially none of their premium; only the largest markets held a meaningful domestic share, led by New York at ~0.72. By 1940 the mass at zero had disappeared, but the most self-supplied large market retained only ~0.47

The limits of decentralization?



The flat national share: New York falling and everyone else rising

	Weight 1888– 99	Weight 1930– 40	Own share 1888–99	Own share 1930–40	Contribution
New York	0.204	0.196	0.657	0.491	−0.038
Pennsylvania	0.135	0.097	0.167	0.098	−0.013
Massachusetts	0.083	0.049	0.261	0.292	−0.007
Connecticut	0.023	0.021	0.248	0.186	−0.002
New Jersey	0.050	0.048	0.390	0.378	−0.001
All other states	0.504	0.589	0.058	0.111	+0.036
National	1.000	1.000	0.233	0.208	−0.026

The unchanged aggregate is the sum of a large decline in the old headquarters states, above all New York, and a broad rise everywhere else

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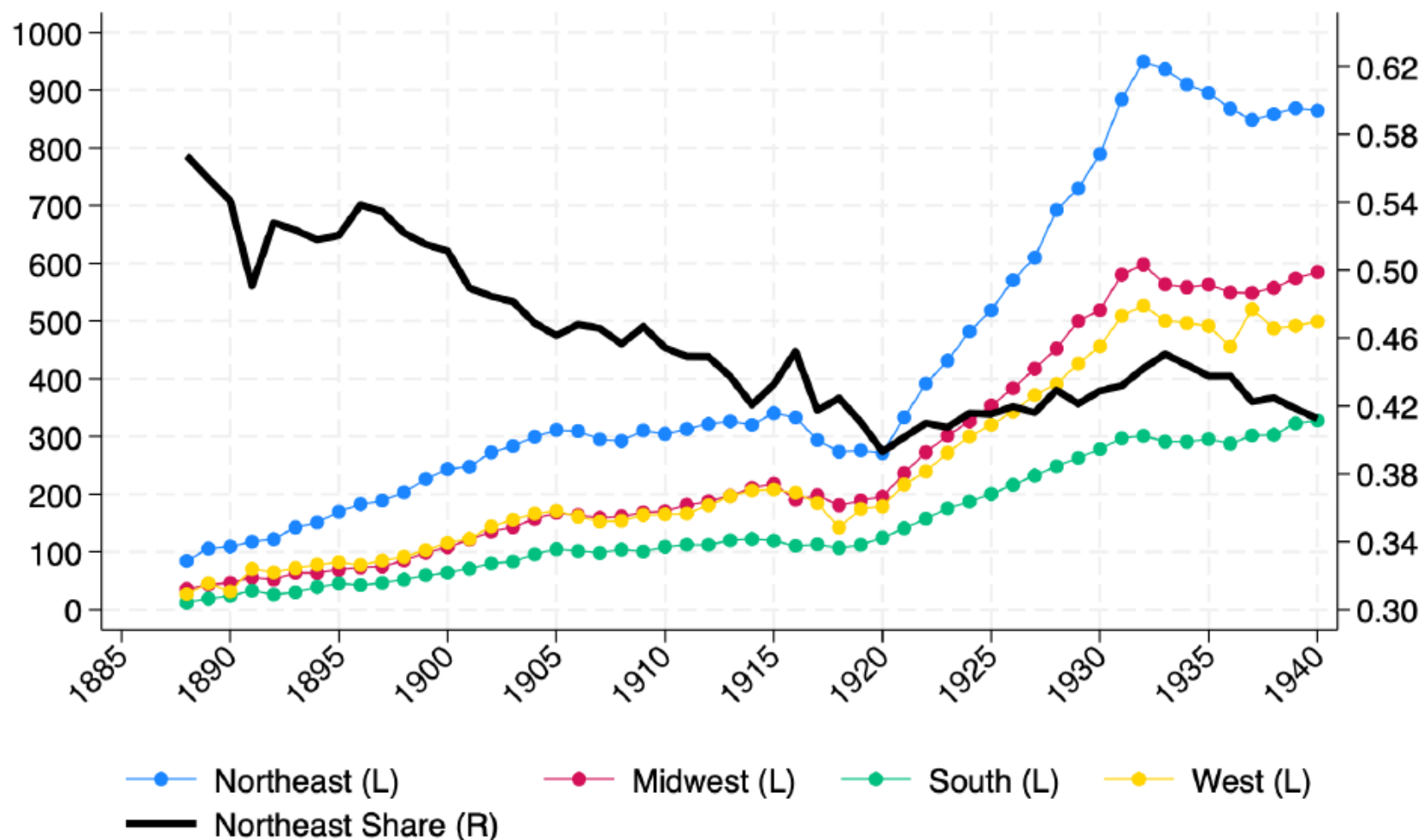
Cost

Aetna, age 50	1893	1929
Face amount giving equal real coverage	\$1,000	\$1,964
Continuous whole life, annual premium per \$1,000	44.70	43.73
Twenty-payment whole life	49.37	52.05
Endowment, twenty years	56.15	57.88
Cash surrender value after ten years, per \$1,000	328.00	359.00
Average hourly wage in manufacturing	\$0.15	\$0.56
Hours of work per \$1,000 of 1893 coverage	296	153

Rates and surrender values from the Insurance Year Book; CPI from MeasuringWorth; wages from the NBER microhistory database.

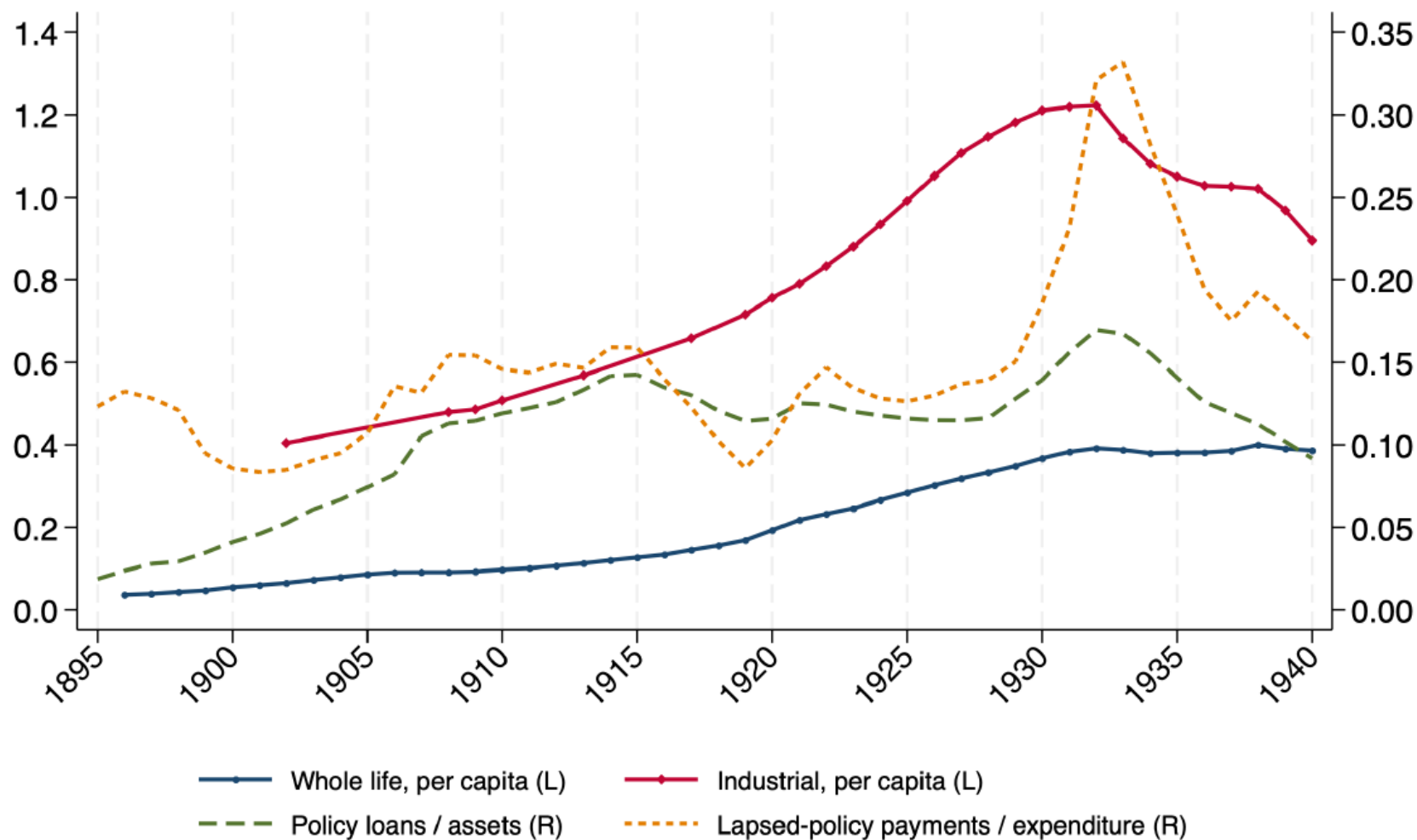
- Prices rose 96.4% between the two years: real coverage needed in 1929 was \$1,964 and cost \$85.89 a year
- Wages rose almost 4x, so the labor time needed to buy fixed real coverage fell by nearly half

Demand spread across space



Average per-capita premium by region, 2024 dollars (left axis); share of all premium collected in Northeastern states (right axis)

Policies outstanding and drawdown: the dual character of the contract



New York policy counts per capita (left axis); policy loans/assets and lapsed-policy payments/expenditure (right axis), aggregates for firms operating in New York.

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Entry: does chartering your own insurers buy local control?

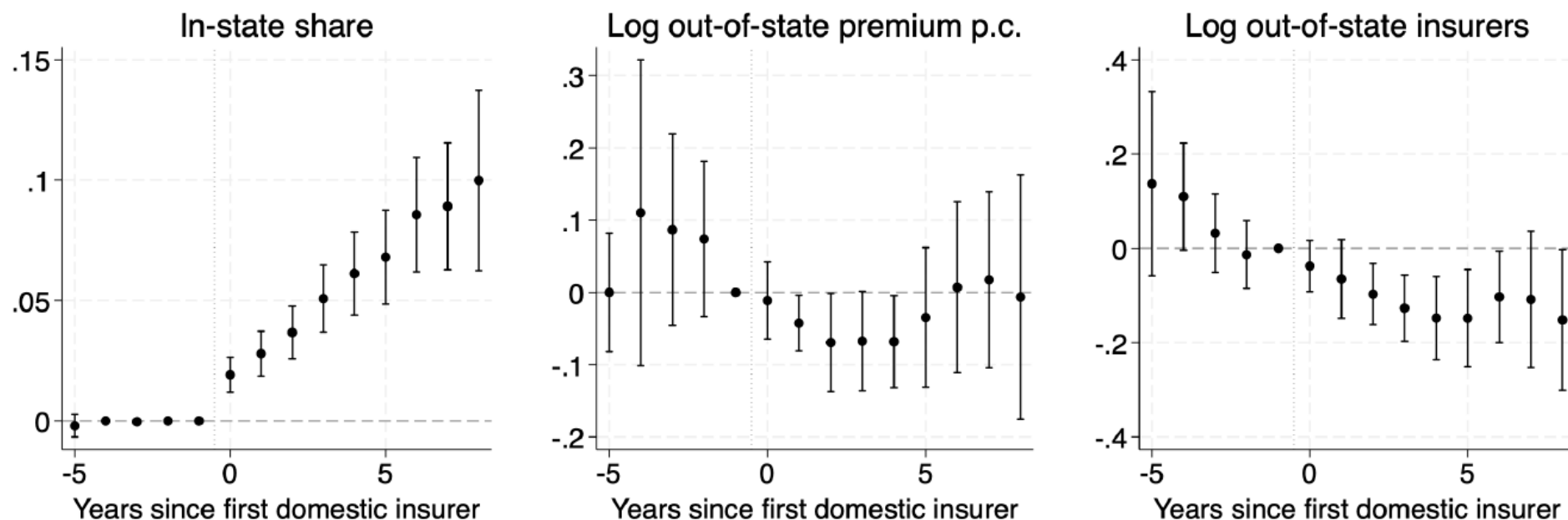
$$\text{InStateShare}_{st} = \beta_1 \ln(N^{\text{dom}}_{st} + 1) + \beta_2 \ln \text{PremiumPC}_{st} + \gamma'X_{st} + \alpha_s + \alpha_t + \varepsilon_{st}$$

	(4) Log count	(5) Region × year	(6) Dummies
Log(domestic insurers + 1)	0.081 (0.012)	0.078 (0.015)	
One domestic insurer			0.067 (0.011)
Two			0.086 (0.010)
Three to five			0.123 (0.014)
Six to ten			0.156 (0.019)
More than ten			0.221 (0.034)
Log(premium per capita)	−0.002 (0.009)	−0.002 (0.011)	−0.002 (0.009)
Log(manufacturing output p.c.)	0.039 (0.016)	0.031 (0.016)	0.038 (0.017)
Adjusted R ²	0.894	0.897	0.891

State-year panel 1888–1940, 2,561 obs, state and year FE (region × year in col. 5); SE clustered by state.

- The first domestic insurer is associated with +0.067 on a mean of 0.103
- No evidence that local demand accounts for retention
- Retention is a persistent state attribute: state effects raise adjusted R² from 0.460 to 0.888

Entry: Dynamics

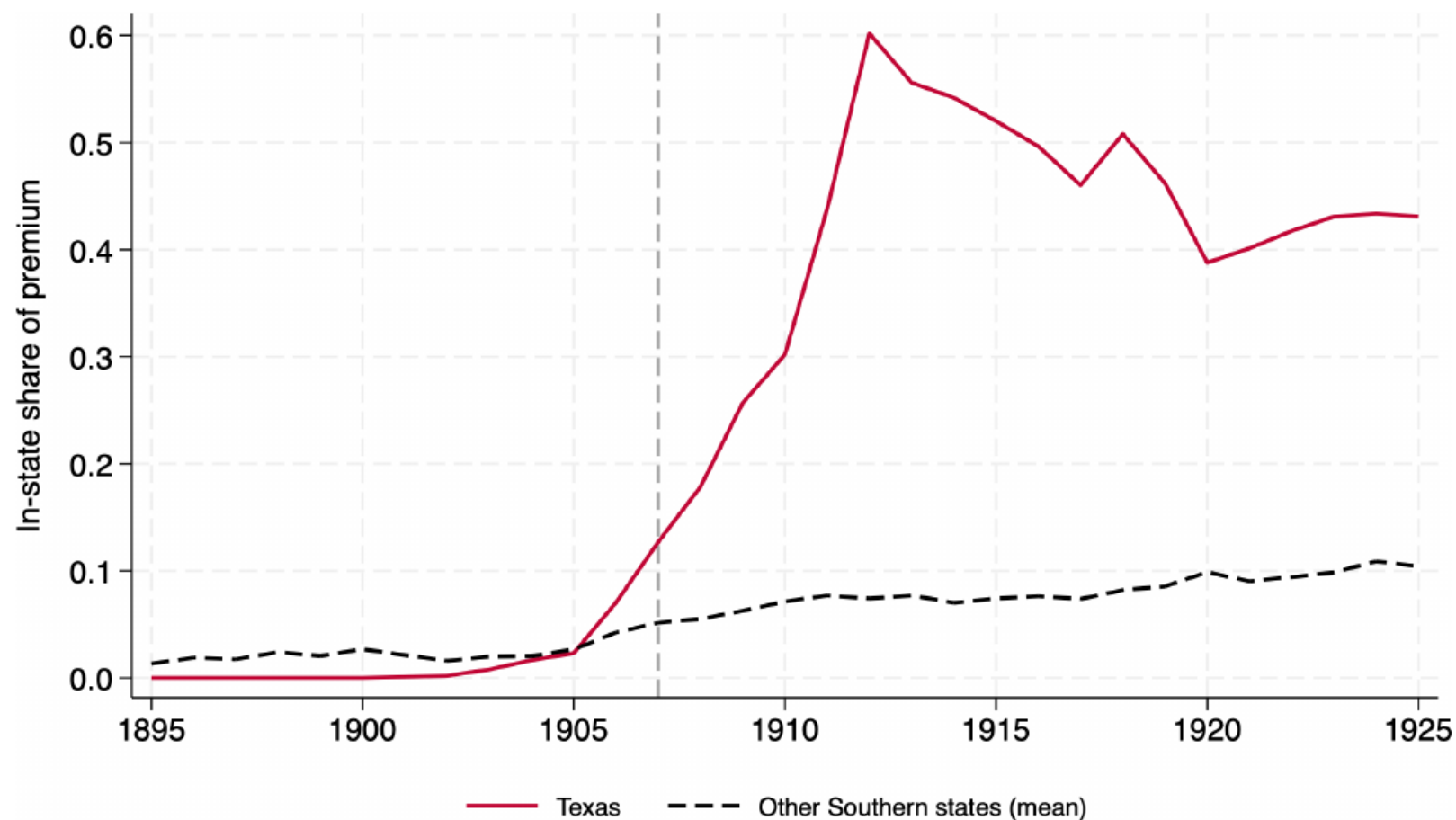


Stacked event study, 29 states whose first domestic insurer appears after at least four years of observation, each compared with states that did not acquire one until at least nine years later; state-by-stack and year-by-stack effects; year -1 omitted; 95% intervals clustered by state.

Mandated local control: how much control can a statute buy?

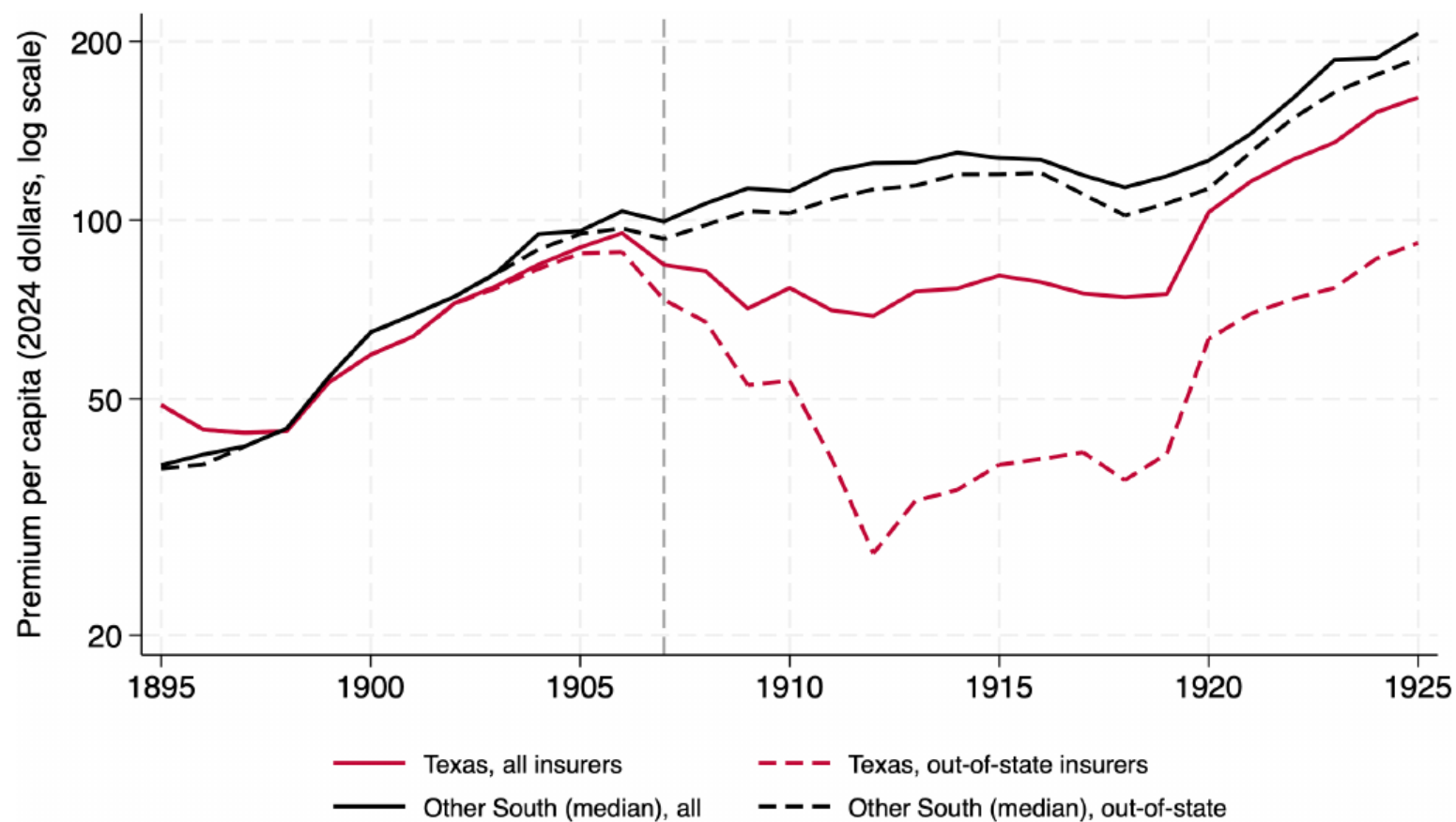
- Texas and the Robertson Law of 1907: companies operating in Texas had to invest 75% of the reserves on their Texas policies in Texas securities
- Rather than comply, 28 out-of-state life insurers withdrew, 7 eventually returned within a decade
- Before 1906 Texas looked like the rest of the South: no domestic insurer before 1901; in-state share 0.023 in 1905 against a Southern mean of 0.027
- Domestic insurers writing in Texas rose from 5 in 1906 to 24 in 1912.
- **Design:** Texas against the other Southern jurisdictions (fifteen states and D.C.), 1895–1925; difference-in-differences with state and year effects; placebo assigning the treatment to each of the sixteen others in turn

Mandated local control: Texas and the Robertson Law of 1907



Share of premium collected in Texas by insurers domiciled in Texas, and the unweighted mean across the other fifteen Southern states and D.C. Dashed line: 1907.

Mandated local control: Texas and the Robertson Law of 1907



Real premium per capita, 2024 dollars, log scale: all insurers and out-of-state insurers, Texas and the median of the other Southern jurisdictions. Out-of-state premium recovered only after 1919.

Mandated local control: Texas and the Robertson Law of 1907

	In-state share	Log out-of-state insurers	Log out-of-state premium p.c.	Log total premium p.c.
Texas × 1907 and after	0.350	−0.017	−0.858	−0.368
Placebo estimates, minimum	−0.033	−0.385	−0.401	−0.415
Placebo estimates, maximum	0.139	0.673	1.064	1.035
Share of placebos at least as large	0.00	0.94	0.06	0.19

State-year panel of the seventeen Southern jurisdictions, 1895–19256; coefficient on an indicator for the treated state in 1907 and after, with state and year effects. Placebo rows treat each of the other sixteen in turn with Texas excluded.

- In-state share: 0.35 for Texas, larger than every placebo
- Out-of-state premium per capita fell 0.86 log points relative to the other Southern jurisdictions
- Total premium per capita fell 0.37 log points: relative to the rest of the South, Texas households bought less legal-reserve insurance after the law than before it
- The number of out-of-state insurers reporting Texas premium changed little: withdrawing companies continued to collect renewals on policies already in force, and the withdrawal appears in the premium series as those books ran off

Decomposition: More firms or bigger firms?

$$S = \Sigma \text{ domestic premium} / \Sigma \text{ total premium} = (\Sigma N^{\text{dom}} / \Sigma N) \times (\bar{q}^{\text{dom}} / \bar{q}) = \text{count margin } C \times \text{size margin } R$$

Region, 1888–1940	In-state share S	Domestic share C	Relative size R	Domestic insurers per state-year	State-years with a domestic, %
Northeast	0.338	0.119	2.85	4.8	91.2
Midwest	0.113	0.107	1.05	6.9	90.3
South	0.144	0.069	2.09	3.4	73.3
West	0.092	0.033	2.76	1.3	51.9

- The Midwest had the most domestic insurers of any region, but of ordinary size ($R = 1.05$); the South had fewer and larger ones (2.09); the West the fewest, present in only 52% of state-years, but the second largest relative to their competition

Decomposition: in-state share by region by count and size margins

In-state share by decade	Northeast	Midwest	South	West	All	Southern state-years with a domestic firm, %
1888–1899	0.390	0.072	0.036	0.047	0.233	18.8
1900–1909	0.367	0.096	0.051	0.066	0.214	57.7
1910–1919	0.344	0.137	0.121	0.129	0.223	97.0
1920–1929	0.339	0.133	0.148	0.107	0.219	97.6
1930–1940	0.330	0.099	0.162	0.080	0.208	99.5

- Southern retention $0.036 \rightarrow 0.162$, a factor of more than four
- Northeastern $0.390 \rightarrow 0.330$, down fifteen percent.
- Of the 1.670 log points by which the gap closed: Southern rise accounts for ~ 1.50 and the Northeastern decline for ~ 0.17
- The national column barely moves: 0.233, 0.214, 0.223, 0.219, 0.208. A redistribution of local control among regions, not an increase in it

Decomposition: regional gap of in-state share

Northeast minus South	Log Gap	Count margin	Size margin	% count	% size
1888–1899	2.381	2.111	0.270	88.7	11.3
1900–1909	1.981	1.152	0.829	58.2	41.8
1910–1919	1.048	0.487	0.561	46.5	53.5
1920–1929	0.828	0.445	0.383	53.8	46.2
1930–1940	0.711	0.230	0.482	32.3	67.7

- Count margin 2.111 → 0.230, a reduction of nearly 90%: by the interwar decades the South had very nearly closed its deficit in the share of local insurers that were its own
- Size margin 0.270 → 0.482: what began as a gap in number ended as a gap in scale. In the 1890s 89% of the Southern deficit was a count deficit; by the 1930s 68% of a much smaller deficit was a size deficit
- New York, where domestic insurers were exceptionally large, carries much of the Northeast's weight

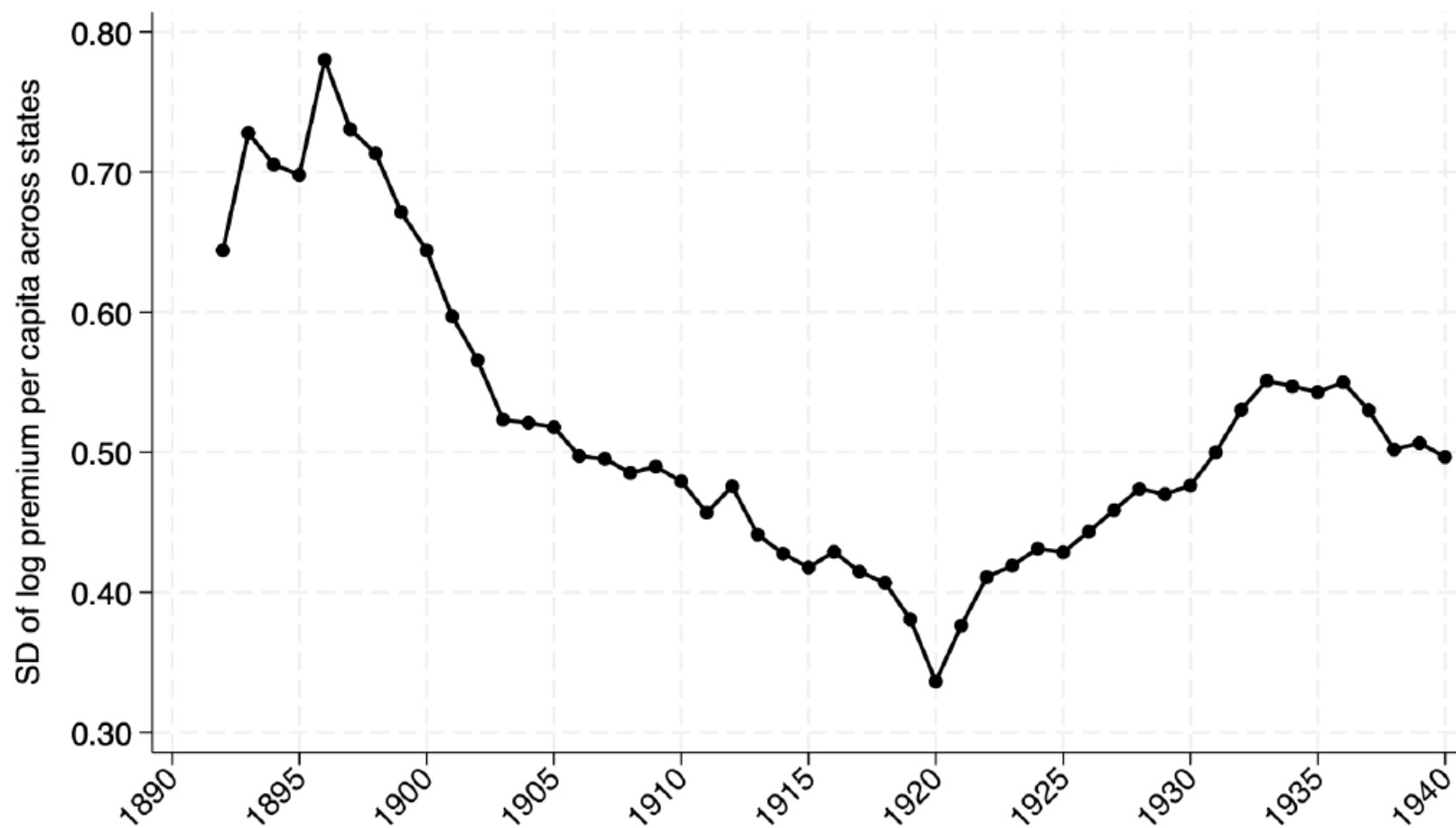
Decomposition: regional gap due to New York, Texas, and border South

Regional retention	NE 1890s	South 1890s	Ratio	NE 1930s	South 1930s	Ratio	South's share of closing
Baseline	0.390	0.036	10.8	0.330	0.162	2.0	0.90
Ordinary premium only	0.400	0.032	12.7	0.347	0.127	2.7	0.91
Excluding Texas	0.390	0.041	9.4	0.330	0.121	2.7	0.87
NY+NJ, MD+DC as one	0.476	0.036	13.1	0.477	0.167	2.9	1.00
Excluding border South	0.390	0.012	32.4	0.330	0.201	1.6	0.94

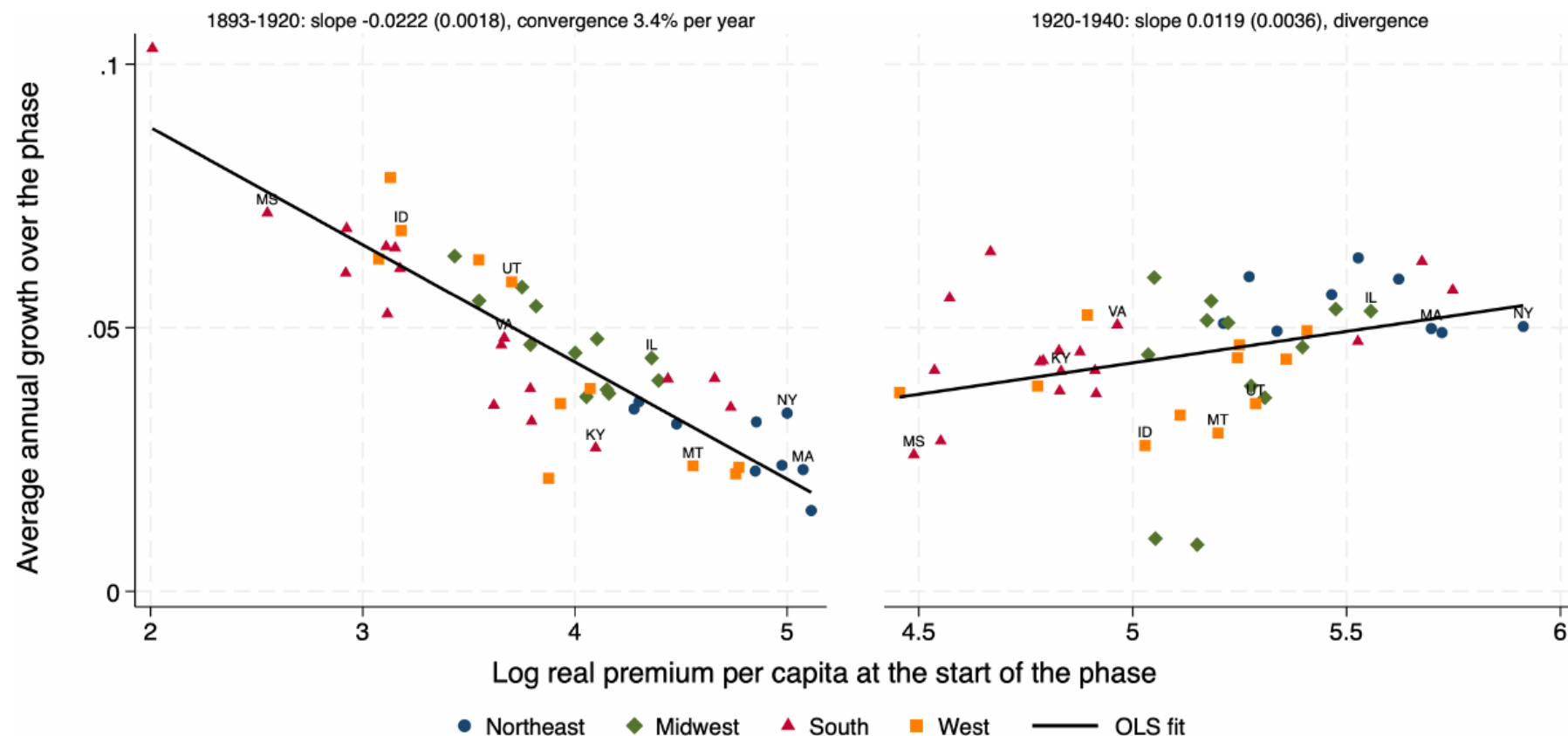
Border South: Delaware, Maryland, D.C., Kentucky, West Virginia, Oklahoma.

- Excluding Texas, the South's rise still accounts for 87% of the closing
- Excluding the border South makes the pattern starker (Southern retention 0.012 → 0.201; 94%)
- Ordinary premium only lowers Southern retention (Southern domestic companies collected 29% of the region's industrial premium but 13% of its ordinary premium) without changing the pattern

Convergence: did household participation converge too?



Convergence: catch-up to 1920, reversal after



- 1893–1920: $b = -0.022$ (0.0018) $\rightarrow \lambda = 3.4\%$ a year; half of a state's initial gap closes in 20 years
- 1920–1940: $b = +0.012$ (0.0036) $\rightarrow \lambda = -1.1\%$; no half-life, gaps widen, doubling in about 65 years
- Pooled: $\lambda = 1.2\%$, half-life 57 years

Convergence: conditioning strengthens the catch-up

Y: $(1/T) \ln(p_{1940}/p_{1893})$	(1)	(3) Region FE	(4) + urban	(5) Region, urban	(6) Income
Log premium p.c., 1893	−0.0093 (0.0016)	−0.0103 (0.0028)	−0.0154 (0.0021)	−0.0160 (0.0026)	−0.0175 (0.0015)
Growth of mfg. output p.c.		0.0002 (0.14)	0.098 (0.083)	0.108 (0.083)	
Urban share, 1893			0.030 (0.007)	0.031 (0.007)	
Growth of income p.c., 1900–40					1.035 (0.136)
Log income p.c., 1900					0.018 (0.003)
Implied λ (% per year)	1.2	1.4	2.7	3.0	3.7
Implied half-life (years)	57	49	25	23	19
R ²	0.510	0.541	0.708	0.736	0.811

- Unconditional: $\lambda = 1.2\%$ a year, half-life 57 years
- More urban states grew faster, so the low-participation states converged despite, not because of, their initial composition ($\lambda = 2.7\text{--}3.0\%$)
- Conditional on income growth and level, $\lambda = 3.7\%$.
- Robust to: ordinary premium only (−0.025 / +0.013 by phase), insurance in force (−0.021 / +0.009), an 1896–98 initial level, dropping territories (0.9–1.0%)

Outline

- Why life insurance?
- This paper: question, setting, and data
- The rise of a national intermediary
- Two geographies: business and control
- Households and the geography of demand
- Magnitudes: entry, compulsion, decomposition, convergence
- **Conclusion**

Conclusion

Between 1880 and 1940 U.S. life insurance developed into a national system of household saving without a matching dispersal of control

- **Integration:** hundreds of firms entered, incorporation shifted toward the Midwest and South, state markets became more competitive, participation converged before 1920
- **Not decentralization:** the five largest firms collected the same share of national premium in 1940 as in 1890; the share collected by firms domiciled where it was paid fell slightly (23.3% → 20.8%)
- **Where retention rose:** chiefly where states acquired a first domestic insurer; the Northeast–South gap narrowed because the South acquired domestic insurers where it had none
- **Mandates:** Texas after 1907: the in-state share rose to 60% as out-of-state premium collapsed, and Texas households appear to have bought less insurance on net
- **Participation:** followed a different path from control: converged across states before 1920, and diverged over the next two decades

I am around during the remainder of the semester: happy to chat!

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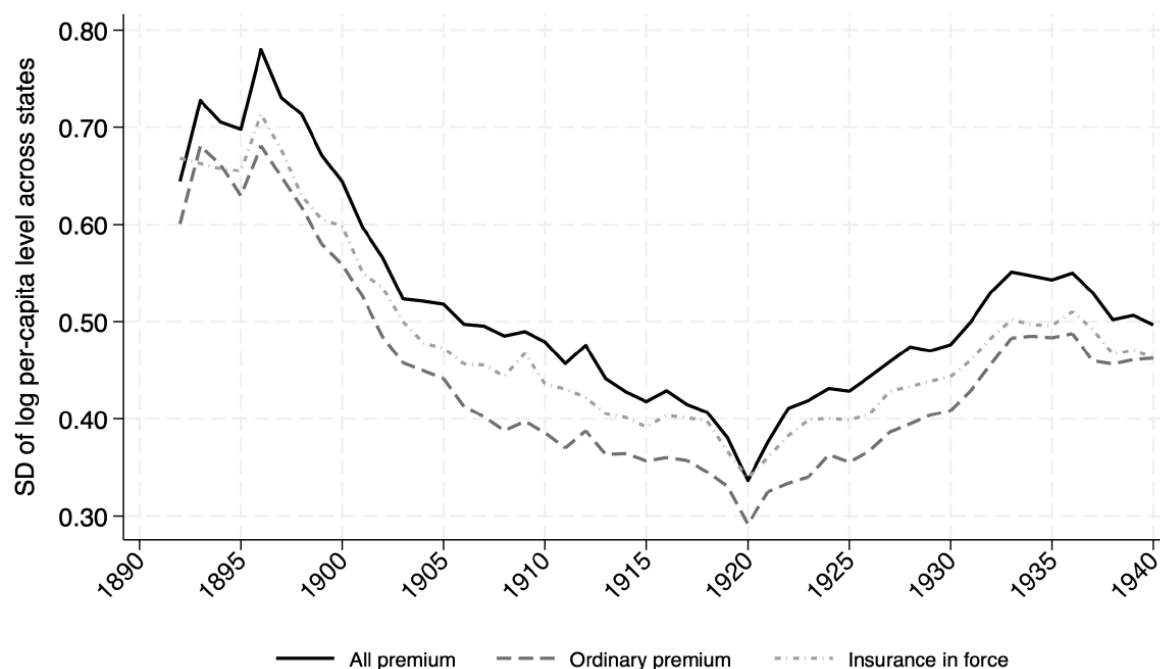
Backup: share of premium collected by mutual companies

	National	Out-of-state insurers	Domiciled: Northeast	Midwest	South	West
1888–1899	0.568	0.588	0.549	0.765	0.402	0.000
1900–1909	0.506	0.523	0.501	0.616	0.264	0.006
1910–1919	0.557	0.577	0.605	0.508	0.107	0.025
1920–1929	0.622	0.624	0.718	0.431	0.145	0.032
1930–1940	0.611	0.607	0.696	0.463	0.134	0.042

Table A6. Organizational form compiled for 902 insurers; Prudential coded as stock (mutualization completed 1943) — counting it as mutual from 1915 raises the national share to 76–77% in the 1920s–30s.

- Mutual form changes the destination of the surplus (dividends to policyholders in every state after 1906), not the location of control
- Seventy percent of the premium collected by Northeastern firms in the 1930s went to mutuals, against 13% for Southern firms, whose entrants were almost all stock companies

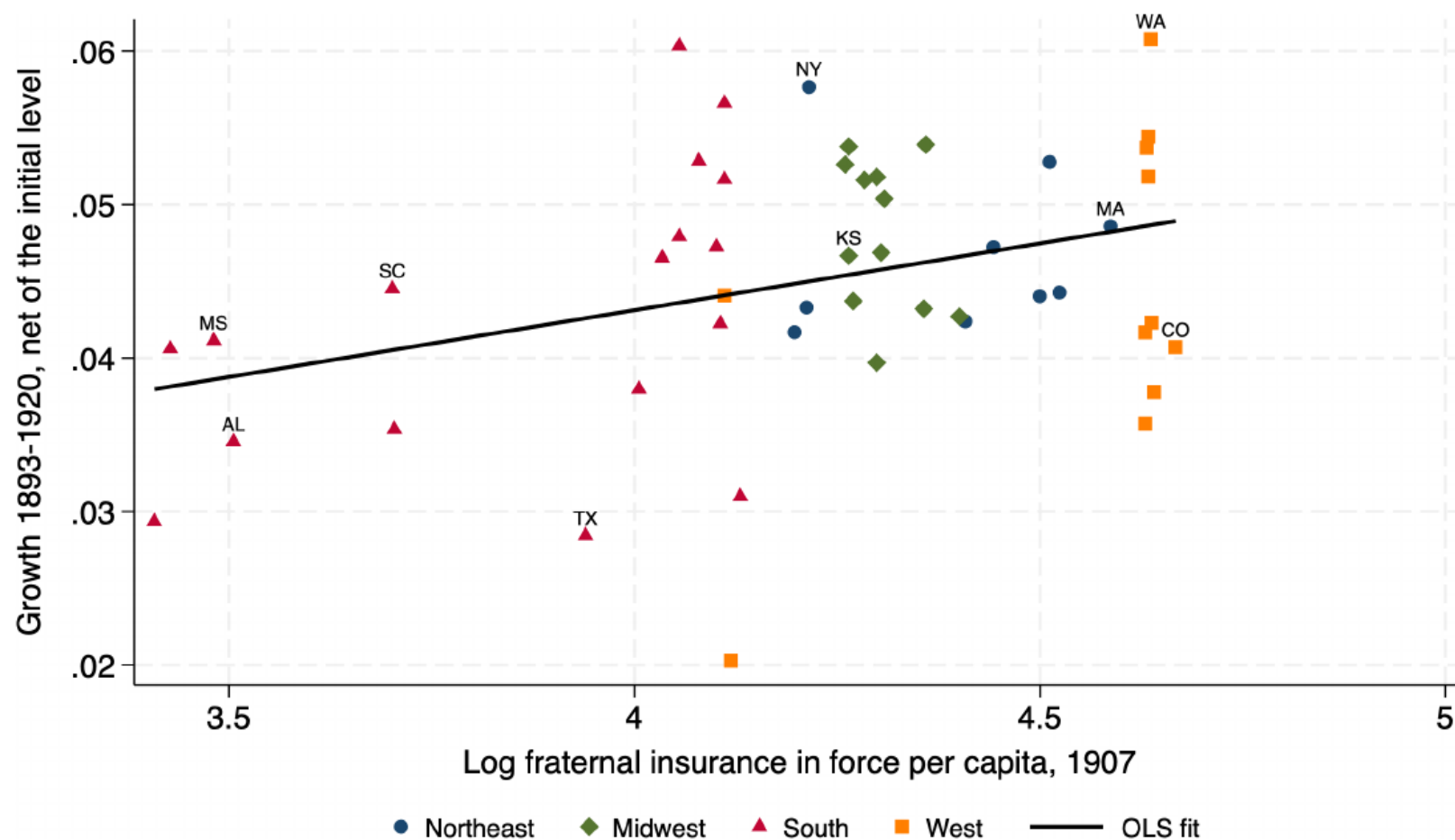
Backup: dispersion under alternative measures of participation



Slope	All premium	Ordinary premium	Insurance in force
1893–1940	−0.0093 (0.0016)	−0.0100 (0.0018)	−0.0096 (0.0016)
1893–1920	−0.0222 (0.0018)	−0.0248 (0.0019)	−0.0206 (0.0018)
1920–1940	0.0119 (0.0036)	0.0131 (0.0039)	0.0086 (0.0034)
SD of log level, 1896 / 1920 / 1940	0.780 / 0.336 / 0.497	0.681 / 0.292 / 0.462	0.714 / 0.339 / 0.463

Figure A4 and Table A8.

Backup: fraternal coverage in 1907 and legal-reserve growth, 1893–1920



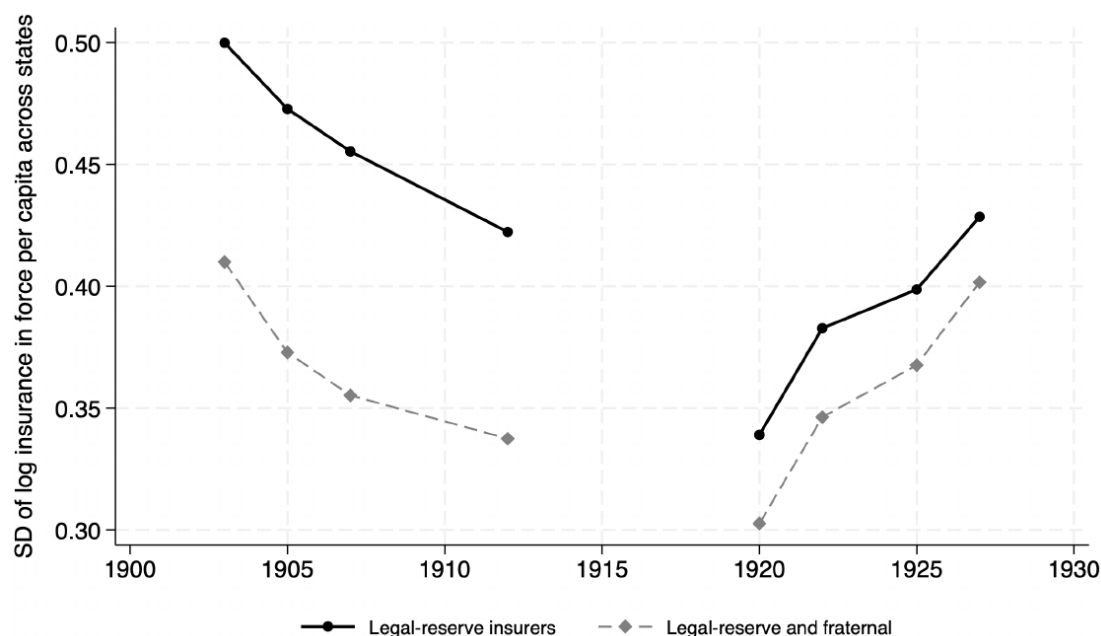
Average annual growth of real legal-reserve premium per capita 1893–1920, net of its log 1893 level, against log fraternal insurance in force per capita in 1907; OLS slope 0.0087 (robust s.e. 0.0029). States covered by the same societies, notably in the West, take nearly identical values because the proxy spreads each society evenly over its jurisdiction. (Appendix Figure A3, Panel B)

Backup: premium less losses paid, out-of-state insurers

2024 \$bn, by decade	Northeast	share	Midwest	share	South	share	West	share
1890s	11.6	0.34	10.8	0.59	5.4	0.57	1.6	0.54
1900s	26.0	0.39	25.9	0.62	14.9	0.62	5.4	0.65
1910s	33.0	0.39	34.7	0.57	19.6	0.55	8.0	0.55
1920s	74.5	0.46	78.9	0.63	40.4	0.58	21.4	0.65
1930s	145.7	0.43	147.7	0.61	67.0	0.51	44.0	0.62

Table A4. Premium collected minus losses paid in each region by insurers domiciled outside the state of collection, summed over the decade; “share” divides by all premium collected in the region. A gross flow before reserves, expenses and investment in the region — not a measure of net capital export. The same calculation for all insurers in Texas gives \$16.8 million (current dollars) for 1888–97, against the \$25 million Governor Culberson cited for 1886–97.

A competing explanation for the first phase: the collapse of fraternal insurance



Fraternal and assessment insurance in force exceeded the legal-reserve industry in 1895 and was 23% of it by 1920.

Proxy: each society's national insurance in force (1912 and 1927 statistics) spread over its stated jurisdiction in proportion to population.

SD of log insurance in force per capita across states, legal-reserve alone and combined with fraternal. (Appendix Figure A3, Panel A)

- States with more fraternal insurance per capita in 1907 grew faster in legal-reserve premium 1893–1920 (0.011, s.e. 0.003), as did states where fraternal coverage fell more 1907 to 1920–22 (–0.012, s.e. 0.005) — but controlling for either leaves β at –0.023 to –0.024, because fraternal coverage was highest where legal-reserve premium already was (Table A7)
- **The substitution shows in dispersion: SD of legal-reserve in force fell 0.46 (1907) → 0.34 (1920); legal-reserve plus fraternal fell only 0.36 → 0.30**
- Part of the narrowing before 1920 was a shift between forms of coverage; the estimates measure convergence in legal-reserve participation, not in life insurance coverage as a whole

Data: sample, screens, and validation

	Firm-state-line-years	Firm-years	Insurers	Premium share
Transcribed panel, 1888–1940, all lines	161,125	13,019	905	1.000
Positive premium	157,118	12,910	903	1.000
States and the District of Columbia	151,438	11,313	848	0.937
Passing the validity screen	148,472	11,190	847	0.930

- Validity screen: premium above \$200 or below \$5 per \$1,000 in force, claims above \$200 per \$1,000, or loss ratio above 10 → 2,966 of 151,438 cells (2.0%), carrying 0.8% of premium; results unchanged without it
- Dropped: Canada, the Philippines, Puerto Rico, Cuba, Mexico and the Canal Zone (6.2% of premium, almost all Canada); undivided territories, Alaska, Hawaii (0.1%)
- Validation: for 75 insurers in both sources, the sum of state premiums vs. New York statement premium across 2,015 firm-years has log-log slope 1.04 and R^2 0.93; median ratio 0.93

[Back](#)