

How Do Retiree Health Benefit Promises Affect Municipal Financing?

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Promised Public Sector Retiree Health Benefits Are Substantial

- Estimated over \$1 trillion dollars in retiree health and other post retirement benefits (Lutz and Sheiner 2014, Joffee 2021).
 - On par with the \$1.2 in pension obligations reported in Census Bureau 2019 Annual Survey of Public Pensions
 - Evidence suggests pension promises affect municipal finance (Novy-Marx and Rauh (2012), Burson et al. (2014), Aubry et al. (2017), Lekniute et al. (2012), Agarwal et al. (2021)).
- How does retiree health insurance affect the ability of public sector to access financial markets?
 - The research on pensions ignores this important and substantial obligation.
 - Our paper fills important gap in the literature.

What Makes Promised Public Sector Retiree Health Benefits Unique?

- Contracting flexibility.
 - Terms vary significantly across states, much more than standard 2% of salary per year of service typically offered through pension plans (Clark and Morrill 2010).
 - Unlike pension plans, much more flexibility in changing terms of the health benefit (Shnitser 2018).
- Relatively opaque
 - Reporting only becomes more uniform beginning in 2007-2008 with new GASB statements
- Largely unfunded, until recently, with benefits just pay-as-you-go

So...(How) does it all affect financial markets?

⇒ Higher liabilities for public sector retiree health insurance benefits increase municipal bond yield spreads.

- State borrowing costs increase to compensate investors for risk to promised cash flows
- Higher *optional* benefit funding ratios mitigate the risk
 - Higher contributions to funding assets lowers yield spreads

What's Cool about What We Find?

- Greater increase in yields for states with high health costs
 - Retiree health benefits promise a service with uncertain future cost (unlike pension obligations that promise certain amount of money...like 2% of salary per year of service)
 - Contribute to the literature on health and asset prices
 - Opioids and munis (Cornaggia et al. 2022)
 - Ageing and munis (Butler and Yi 2021)
 - Obesity and firm value (Agrawal and Lim 2018)
 - ACA/Obamacare and hospital munis (Gao et al. 2019)
 - *but* states have flexibility in designing plans that might reduce health payouts
- Offering insurance plans with less generous premium contributions can mitigate this risk
 - Show how contracting environment/flexibility affects outcomes
 - *but* the contracting environment might impede states from designing plans that can mitigate future costs
- Higher yields in states with more public sector employees covered by collective bargaining agreements
- Contribute to health and policy literature describing the retiree health insurance liability (Clark and Morrill 2010, Munnell et al. 2016, Lutz and Sheiner 2014, Calabrese and St. Clair 2020)

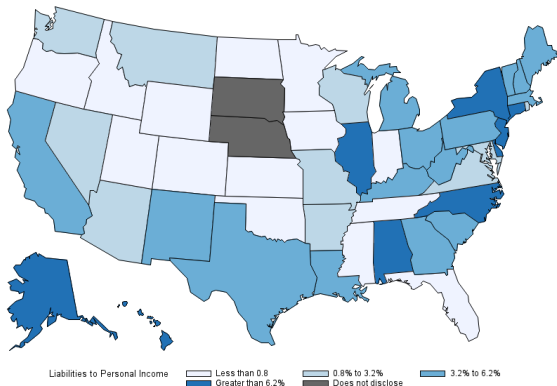
What We Do

- Retiree Health Benefit data
 - Opaque until 2004 → GASB Statements 43 and 45
 - Optional to report, but allows states to use more favorable discount rates in computing liabilities.
 - Pew Charitable Trusts project on Public Sector Retirement Systems for all states that disclose information on Other Post Employment Benefits from 2008 to 2016.
 - Total liabilities & assets, unfunded liabilities, annual required contribution, and payments from state comprehensive annual financial and actuarial reports.
- Bond offering yield spreads
 - Municipal bond data available from Mergent.
 - Offering yields, amount of issuance, years to maturity, insurance status, offering type, options.
 - Reflects risk that municipal market investors demand as compensation (Butler 2008 and Painter 2020).

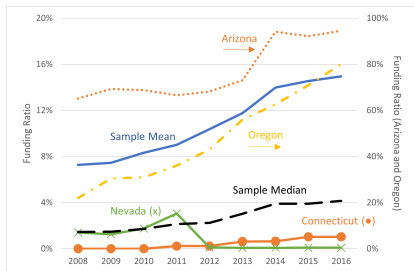
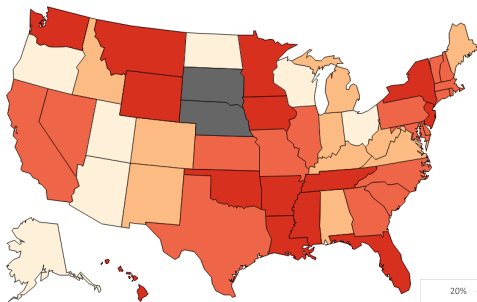
$$\text{YieldSpread}_{imst} = \beta \text{RetireeHealth}_{st} + \gamma_1 \text{Bond}_{imst} + \gamma_2 \text{State}_{st} + \theta_t + \mu_m + \delta_s + \epsilon_{imst}$$

Promised Retiree Health Benefit Liabilities Vary Across States

→ different benefit levels, plan design, eligibility criteria, health care cost inflation, discount rates, other actuarial assumptions



Funding Varies Across States and Time



The Effect of Retiree Health Benefits on Offering Yield Spreads

Larger promised retiree health benefits increase yield spreads to compensate investors for risk.

	(1)	(2)	(3)
Retiree Health Insurance Liability	0.001*		
	(0.001)		
Health Benefits Funding Ratio		-0.340***	
		(0.118)	
Health Benefits Funding Indicator			0.087**
			(0.032)
Number of Plans	0.011*	-0.065***	-0.085**
	(0.006)	(0.017)	(0.039)
Ln Bond Size	0.014***	0.014***	0.013***
	(0.004)	(0.004)	(0.004)
Ln Years to Maturity	0.197***	0.197***	0.197***
	(0.013)	(0.013)	(0.013)
Bond Insurance Indicator	0.184***	0.184***	0.185***
	(0.023)	(0.023)	(0.023)
Callable Indicator	0.135***	0.136***	0.135***
	(0.020)	(0.020)	(0.021)
Competitive Offering Indicator	-0.092***	-0.092***	-0.092***
	(0.019)	(0.019)	(0.019)
Rating	0.096***	0.096***	0.096***
	(0.014)	(0.014)	(0.014)
Pension Underfunding Ratio	0.184***	0.175***	0.204***
	(0.068)	(0.065)	(0.068)
Pension Protection	0.611***	-0.071***	-0.422**
	(0.227)	(0.016)	(0.177)
Ln Population	-1.131**	-0.990***	-0.712*
	(0.440)	(0.322)	(0.360)
State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes
Observations	409,636	409,636	409,636
R-squared	0.384	0.384	0.384

The Effect of Retiree Health Benefits on Offering Yield Spreads

States can mitigate the risk by increasing funding through more assets relative to promised liabilities.

	(1)	(2)	(3)
Retiree Health Insurance Liability	0.001*		
	(0.001)		
Health Benefits Funding Ratio		-0.340***	
		(0.118)	
Health Benefits Funding Indicator			0.087**
			(0.032)
Number of Plans	0.011*	-0.065***	-0.085**
	(0.006)	(0.017)	(0.039)
Ln Bond Size	0.014***	0.014***	0.013***
	(0.004)	(0.004)	(0.004)
Ln Years to Maturity	0.197***	0.197***	0.197***
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Callable Indicator	0.135***	0.136***	0.135***
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Competitive Offering Indicator	-0.092***	-0.092***	-0.092***
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State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes
Observations	409,636	409,636	409,636
R-squared	0.384	0.384	0.384

The Effect of Retiree Health Benefits on Offering Yield Spreads

But just having a fund increases yield spreads...

¿dedicated trusts protected from creditors *or* higher discount rates?

	(1)	(2)	(3)
Retiree Health Insurance Liability	0.001* (0.001)		
Health Benefits Funding Ratio		-0.340*** (0.118)	
Health Benefits Funding Indicator			0.087** (0.032)
Number of Plans	0.011* (0.006)	-0.065*** (0.017)	-0.085** (0.039)
Ln Bond Size	0.014*** (0.004)	0.014*** (0.004)	0.013*** (0.004)
Ln Years to Maturity	0.197*** (0.013)	0.197*** (0.013)	0.197*** (0.013)
Bond Insurance Indicator	0.184*** (0.023)	0.184*** (0.023)	0.185*** (0.023)
Callable Indicator	0.135*** (0.020)	0.136*** (0.020)	0.135*** (0.021)
Competitive Offering Indicator	-0.092*** (0.019)	-0.092*** (0.019)	-0.092*** (0.019)
Rating	0.096*** (0.014)	0.096*** (0.014)	0.096*** (0.014)
Pension Underfunding Ratio	0.184*** (0.068)	0.175*** (0.065)	0.204*** (0.068)
Pension Protection	0.611*** (0.227)	-0.071*** (0.016)	-0.422** (0.177)
Ln Population	-1.131** (0.440)	-0.990*** (0.322)	-0.712* (0.360)
State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes
Observations	409,636	409,636	409,636
R-squared	0.384	0.384	0.384

Health Care Costs and the Effect of Retiree Health Benefits on Offering Yields

- Retiree health benefits promise service with uncertain future cost.
- Health care utilization and prices vary geographically (Skinner 2011).
- Distinguish high and low health cost states using Medicare reimbursements data (Dartmouth Atlas project)

	(1) Above Median Health Costs	(2) Below Median Health Costs	(3) Above Median Health Costs	(4) Below Median Health Costs
Retiree Health Insurance Liability	0.001*** (0.001)	-0.000 (0.002)		
Health Benefits Funding Ratio			-0.349** (0.163)	-0.330* (0.161)
Number of Plans	-0.006** (0.003)	-0.036 (0.066)	-0.008* (0.004)	0.156 (0.164)
Ln Bond Size	0.013** (0.005)	0.013** (0.005)	0.013** (0.005)	0.013** (0.005)
Ln Years to Maturity	0.202*** (0.015)	0.189** (0.020)	0.202*** (0.015)	0.189** (0.020)
Bond Insurance Indicator	0.186*** (0.022)	0.147*** (0.040)	0.186*** (0.022)	0.146*** (0.040)
Callable Indicator	0.125*** (0.025)	0.156*** (0.030)	0.126*** (0.025)	0.157*** (0.030)
Competitive Offering Indicator	-0.099*** (0.024)	-0.090*** (0.012)	-0.099*** (0.024)	-0.090*** (0.011)
Rating	0.105*** (0.015)	0.068*** (0.011)	0.105*** (0.015)	0.069*** (0.011)
Pension Underfunding Ratio	0.198** (0.076)	-0.070 (0.134)	0.211** (0.083)	-0.114 (0.120)
Pension Protection	0.446*** (0.105)	0.383 (0.367)	0.362** (0.098)	0.055 (0.296)
Ln Population	-1.094*** (0.309)	-0.794 (0.740)	-0.889*** (0.292)	-0.345 (0.824)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Observations	291,063	118,573	291,063	118,573
Adjusted R ²	0.395	0.338	0.395	0.339

Health Care Costs and the Effect of Retiree Health Benefits on Offering Yields

- Retiree health insurance liabilities increase municipal financing costs *only* in high health cost states
- Greater funding of retiree health benefit payouts reduces bond spreads in high *and* low health cost states

	(1) Above Median Health Costs	(2) Below Median Health Costs	(3) Above Median Health Costs	(4) Below Median Health Costs
Retiree Health Insurance Liability	0.001*** (0.001)	-0.000 (0.002)		
Health Benefits Funding Ratio			-0.349** (0.163)	-0.330* (0.161)
Number of Plans	-0.006** (0.003)	-0.036 (0.066)	-0.008* (0.004)	0.156 (0.164)
Ln Bond Size	0.013** (0.005)	0.013** (0.005)	0.013** (0.005)	0.013** (0.005)
Ln Years to Maturity	0.202*** (0.015)	0.189** (0.020)	0.202*** (0.015)	0.189** (0.020)
Bond Insurance Indicator	0.186*** (0.022)	0.147*** (0.040)	0.186*** (0.022)	0.146*** (0.040)
Callable Indicator	0.125*** (0.025)	0.156*** (0.030)	0.126*** (0.025)	0.157*** (0.030)
Competitive Offering Indicator	-0.099*** (0.024)	-0.090*** (0.012)	-0.099*** (0.024)	-0.090*** (0.011)
Rating	0.105*** (0.015)	0.068*** (0.011)	0.105*** (0.015)	0.069*** (0.011)
Pension Underfunding Ratio	0.198*** (0.076)	-0.070 (0.134)	0.211** (0.083)	-0.114 (0.120)
Pension Protection	0.446*** (0.105)	0.383 (0.367)	0.362** (0.098)	0.055 (0.296)
Ln Population	-1.094*** (0.309)	-0.794 (0.740)	-0.889*** (0.292)	-0.345 (0.824)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Observations	291,063	118,573	291,063	118,573
Adjusted R ²	0.395	0.338	0.395	0.339

Plan Design and the Effect of Retiree Health Benefits on Offering Yields

- Health plan design can minimize risk associated with promised retiree health insurance.
- Some states pay a portion of insurance premium.
- Some states pay a fixed component of premium.
- Some states pay no premium (but retiree gets better risk pool).

	(1) Contribute Portion	(2) Contribute Fixed	(3) Do Not Contribute	(4) Contribute Portion	(5) Contribute Fixed	(6) Do Not Contribute
Retiree Health Insurance Liability	0.001** (0.001)	0.003 (0.004)	0.010 (0.009)			
Health Benefits Funding Ratio				-0.493** (0.183)	-0.146 (0.187)	-0.099 (0.153)
Number of Plans	-0.211** (0.087)	-0.130 (0.075)	-0.146 (0.652)	0.500*** (0.148)	-0.125 (0.070)	-0.047 (0.631)
Ln Bond Size	0.010** (0.004)	0.021* (0.011)	0.022*** (0.006)	0.010** (0.004)	0.021* (0.011)	0.022*** (0.006)
Ln Years to Maturity	0.205*** (0.016)	0.208*** (0.025)	0.157*** (0.012)	0.204*** (0.016)	0.208*** (0.025)	0.157*** (0.012)
Bond Insurance Indicator	0.190*** (0.022)	0.075 (0.057)	0.061*** (0.015)	0.190*** (0.022)	0.075 (0.057)	0.062*** (0.014)
Callable Indicator	0.146*** (0.027)	0.133** (0.044)	0.099*** (0.022)	0.146*** (0.027)	0.133* (0.043)	0.099*** (0.021)
Competitive Offering Indicator	-0.096*** (0.023)	-0.117*** (0.020)	-0.100*** (0.019)	-0.095*** (0.022)	-0.118*** (0.020)	-0.099*** (0.020)
Rating	0.110*** (0.013)	0.086*** (0.015)	0.040*** (0.007)	0.110*** (0.013)	0.087*** (0.015)	0.040*** (0.007)
Pension Underfunding Ratio	0.149* (0.081)	-0.087 (0.145)	-0.058 (0.112)	0.150 (0.091)	-0.066 (0.167)	-0.044 (0.093)
Pension Protection	0.254*** (0.083)	-0.181* (0.084)	0.125 (0.986)	0.059** (0.025)	-0.194* (0.090)	0.041 (0.950)
Ln Population	-1.207*** (0.368)	-2.935 (1.808)	-0.054 (1.059)	-1.131*** (0.363)	-2.775 (1.713)	0.053 (1.012)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	296,751	46,682	64,722	296,751	46,682	64,722
Adjusted R ²	0.413	0.337	0.247	0.413	0.337	0.247

Plan Design and the Effect of Retiree Health Benefits on Offering Yields

- States that pay a portion of premium face most risk because premium will increase as health care costs increase
→ *only* subsample with higher muni bond spreads
- Greater funding *only* reduces spreads in subsample of states that tie coverage to premium

	(1) Contribute Portion	(2) Contribute Fixed	(3) Do Not Contribute	(4) Contribute Portion	(5) Contribute Fixed	(6) Do Not Contribute
Retiree Health Insurance Liability	0.001** (0.001)	0.003 (0.004)	0.010 (0.009)			
Health Benefits Funding Ratio				-0.493** (0.183)	-0.146 (0.187)	-0.099 (0.153)
Number of Plans	-0.211** (0.087)	-0.130 (0.075)	-0.146 (0.652)	0.500*** (0.148)	-0.125 (0.070)	-0.047 (0.631)
Ln Bond Size	0.010** (0.004)	0.021* (0.011)	0.022*** (0.006)	0.010** (0.004)	0.021* (0.011)	0.022*** (0.006)
Ln Years to Maturity	0.205*** (0.016)	0.208*** (0.025)	0.157*** (0.012)	0.204*** (0.016)	0.208*** (0.025)	0.157*** (0.012)
Bond Insurance Indicator	0.190*** (0.022)	0.075 (0.057)	0.061*** (0.015)	0.190*** (0.022)	0.075 (0.057)	0.062*** (0.014)
Callable Indicator	0.146*** (0.027)	0.133** (0.044)	0.099*** (0.022)	0.146*** (0.027)	0.133* (0.043)	0.099*** (0.021)
Competitive Offering Indicator	-0.096*** (0.023)	-0.117*** (0.020)	-0.100*** (0.019)	-0.095*** (0.022)	-0.118*** (0.020)	-0.099*** (0.020)
Rating	0.110*** (0.013)	0.086*** (0.015)	0.040*** (0.007)	0.110*** (0.013)	0.087*** (0.015)	0.040*** (0.007)
Pension Underfunding Ratio	0.149* (0.081)	-0.087 (0.145)	-0.058 (0.112)	0.150 (0.091)	-0.066 (0.167)	-0.044 (0.093)
Pension Protection	0.254*** (0.083)	-0.181** (0.084)	0.125 (0.986)	0.059** (0.025)	-0.194* (0.090)	0.041 (0.950)
Ln Population	-1.207*** (0.368)	-2.935 (1.808)	-0.054 (1.059)	-1.131*** (0.363)	-2.775 (1.713)	-0.053 (1.012)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	296,751	46,682	64,722	296,751	46,682	64,722
Adjusted R ²	0.413	0.337	0.247	0.413	0.337	0.247

Collective Bargaining and Effect of Health Benefit Funding on Offering Yields

- Public sector employers can renegotiate or outright alter provision and characteristics of retiree health benefits. \rightsquigarrow unlike pensions
- Measure union coverage for each state and year using percentage of public sector workers who are union members (Hirsch and Macpherson 2003)

	(1) Above Median Union Coverage	(2) Below Median Union Coverage	(3) Above Median Union Coverage	(4) Below Median Union Coverage
Retiree Health Insurance Liability	0.002** (0.001)	-0.003 (0.002)		
Health Benefits Funding Ratio			-0.434** (0.185)	-0.313 (0.202)
Number of Plans	0.989** (0.474)	-0.005 (0.015)	0.962** (0.435)	0.007 (0.012)
Ln Bond Size	0.018*** (0.003)	0.010* (0.006)	0.018*** (0.003)	0.010* (0.006)
Ln Years to Maturity	0.214*** (0.015)	0.171*** (0.013)	0.214*** (0.015)	0.171*** (0.013)
Bond Insurance Indicator	0.168*** (0.029)	0.190*** (0.013)	0.168*** (0.029)	0.191*** (0.013)
Callable Indicator	0.124*** (0.030)	0.153*** (0.018)	0.124*** (0.030)	0.153*** (0.018)
Competitive Offering Indicator	-0.117*** (0.013)	-0.051** (0.022)	-0.116*** (0.013)	-0.053** (0.023)
Rating	0.080*** (0.008)	0.115*** (0.017)	0.080*** (0.008)	0.115*** (0.017)
Pension Underfunding Ratio	0.226** (0.097)	-0.061 (0.101)	0.216** (0.090)	-0.065 (0.104)
Pension Protection	1.340** (0.604)	0.009 (0.402)	1.094** (0.515)	0.408 (0.301)
Ln Population	-2.681** (1.301)	0.063 (0.683)	-2.444** (1.171)	-0.579 (0.511)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Observations	253,692	155,944	253,692	155,944
Adjusted R ²	0.388	0.395	0.388	0.395

Collective Bargaining and Effect of Health Benefit Funding on Offering Yields

- Retiree health insurance liabilities increase municipal financing costs *only* in states with greater union coverage of public sector workers
- Greater funding of retiree health benefit payouts reduces bond spreads *only* in states with greater union coverage of public sector workers

	(1) Above Median Union Coverage	(2) Below Median Union Coverage	(3) Above Median Union Coverage	(4) Below Median Union Coverage
Retiree Health Insurance Liability	0.002** (0.001)	-0.003 (0.002)		
Health Benefits Funding Ratio			-0.434** (0.185)	-0.313 (0.202)
Number of Plans	0.989** (0.474)	-0.005 (0.015)	0.962** (0.435)	0.007 (0.012)
Ln Bond Size	0.018*** (0.003)	0.010*** (0.006)	0.018*** (0.003)	0.010*** (0.006)
Ln Years to Maturity	0.214*** (0.015)	0.171*** (0.013)	0.214*** (0.015)	0.171*** (0.013)
Bond Insurance Indicator	0.168*** (0.029)	0.190*** (0.013)	0.168*** (0.029)	0.191*** (0.013)
Callable Indicator	0.124*** (0.030)	0.153*** (0.038)	0.124*** (0.030)	0.153*** (0.038)
Competitive Offering Indicator	-0.113*** (0.013)	-0.051** (0.022)	-0.116*** (0.013)	-0.053** (0.023)
Rating	0.080*** (0.008)	0.115*** (0.017)	0.080*** (0.008)	0.115*** (0.017)
Pension Underfunding Ratio	0.226** (0.097)	-0.061 (0.101)	0.216** (0.090)	-0.065 (0.104)
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Ln Population	-2.681** (1.301)	0.063 (0.683)	-2.444** (1.171)	-0.579 (0.511)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Observations	253,692	155,944	253,692	155,944
Adjusted R ²	0.388	0.395	0.388	0.395

Additional Results from Rich and Variable Contracting Environment

- States differ in the amount plans contribute to the premium
→ Retiree Health Insurance obligations increase bond spreads only for the subsample of states that contribute more than 50% of the premium.
- Plans vary in how they cover additional services not included in Medicare
Wraparound vs Medicare Advantage
→ Retiree Health Insurance obligations increase bond spreads only for the subsample of states that with Wraparound Coverage, not Medicare Advantage...shifts risk to insurer.
- Pension Underfunding does not drive the results
 - Similar affect on yield spreads for states with poorly-funded *AND* well-funded public pension plans.
 - Funding retiree health insurance, however, *only* reduces yields in states with well-funded public pension plans.

IV Regressions and How Health Benefit Funding Affects Offering Yields

- Identification - retiree health insurance provision and funding driven by financing ability?
- Target instruments that affect health costs
- Exploit that regulatory environment varies across states/time
 - State tort reforms for medical malpractice
 - Based on Avraham, Database of State Tort Law Reforms
 - Reduces health costs because reduces malpractice insurance
 - Nurse Practitioner practice and prescription authority
 - Traczynski and Udalova (Journal of Health Econ 2018)
 - Reduces health costs because cheaper to see nurse

	(1) Retiree Health Insurance	(3) Health Benefits Funding Ratio
Caps Noneconomic Damages	-9.277*** (0.104)	0.003*** (0.000)
Caps Punitive Damages	-1.746*** (0.090)	0.013*** (0.000)
Joint and Several Liability Reform	11.963*** (0.154)	-0.015*** (0.000)
NP Practice and Rx authority	-14.594*** (0.573)	-0.000 (0.001)
Observations	400,018	400,018
R-squared	0.947	0.953
F-statistic	2973.51	828.83

IV Regressions and How Health Benefit Funding Affects Offering Yields

- Retiree health insurance liabilities increase municipal financing costs
- Greater funding of retiree health benefits reduces bond spreads
- Good to go!

	(1) Retiree Health Insurance	(2) Offering Yield Spread	(3) Health Benefits Funding Ratio	(4) Offering Yield Spread
Caps Noneconomic Damages	-9.277*** (0.104)		0.003*** (0.000)	
Caps Punitive Damages	-1.746*** (0.090)		0.013*** (0.000)	
Joint and Several Liability Reform	11.963*** (0.154)		-0.015*** (0.000)	
NP Practice and Rx authority	-14.594*** (0.573)		-0.000 (0.001)	
Retiree Health Insurance Liability		0.004*** (0.000)		
Health Benefits Funding Ratio				-3.349*** (0.322)
Number of Plans	19.740*** (0.100)	2.096*** (0.168)	-0.054*** (0.000)	3.605*** (0.265)
Ln Bond Size	-0.058*** (0.012)	0.013*** (0.001)	0.000*** (0.000)	0.014*** (0.001)
Ln Years to Maturity	-0.100*** (0.037)	0.196*** (0.002)	-0.001*** (0.000)	0.193*** (0.002)
Bond Insurance Indicator	0.395*** (0.041)	0.181*** (0.002)	-0.001*** (0.000)	0.177*** (0.002)
Callable Indicator	-0.091** (0.047)	0.137*** (0.002)	0.002*** (0.000)	0.142*** (0.002)
Competitive Offering Indicator	-0.101** (0.044)	-0.093*** (0.002)	-0.000 (0.000)	-0.094*** (0.002)
Rating	-0.010 (0.011)	0.095*** (0.001)	0.001*** (0.000)	0.097*** (0.001)
Pension Underfunding Ratio	8.009*** (0.359)	0.129*** (0.013)	-0.080*** (0.001)	-0.104*** (0.030)
Pension Protection	32.100*** (0.242)	-0.191*** (0.011)	-0.085*** (0.001)	0.443*** (0.055)
Ln Population	316.117*** (1.541)	-1.658*** (0.137)	-0.695*** (0.007)	-2.873*** (0.215)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Observations	400,018	400,018	400,018	400,018
Adjusted R ²	0.947	0.380	0.953	0.328
F-statistics	2973.51		828.83	

Promised Public Sector Retiree Health Benefits Affect Muni Finance

- Limitations → several...
- Improvements → many...

Thank you!!!