The Sustainability of State and Local Government Pensions: A Public Finance Approach

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Disclaimers

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Introduction

- Topic: Fiscal sustainability of state and local gov. pensions

- Questions:
  - Are state and local pensions fiscally sustainable under current benefit and funding levels?
  - If not, what is required to make them sustainable?

Preview of Conclusions

- In aggregate, S&L pensions are not currently sustainable under low or moderate asset returns
- But can be stabilized with moderate fiscal adjustments
- Only modest returns to stabilizing immediately versus in the future (e.g. 10 years in future)
- Lots of heterogeneity and some plans are far from stable

Background: Concern over Sustainability

- Significant concern over of unfunded S&L pension liabilities
  - Unfunded liabilities ≈ $4 trillion (Rauh 2017 & FA)
  - 50% funding ratio
- Lack of full prefunding → widespread sustainability concerns
  - Academics, press, rating agencies, policymakers

Fiscal Sustainability

- Prefunding not required for fiscal sustainability
- Fully unfunded pay-as-you-go (paygo) pension systems can be sustainable
  - e.g. Samuleson (1958)
- PAYGO sustainable if internal rate of return does not exceed the growth rate of the wage base (labor force growth + productivity growth)

Pension Debt Sustainability

- Unfunded pension liabilities = form of (implicit) public debt
- Public debt may have no fiscal costs in low interest rate environment (e.g. Blanchard 2019)
  - Corollary: Failure to fully prefund pensions does not necessarily imply future fiscal costs

Caution Required!

- Pension debt can be sustainable in principle, but may not be in practice

- Our findings suggest pension debt not currently sustainable under low or moderate asset returns

Sustainability Approach Consistent with History

- Most analysis of S&L pensions focused on full prefunding benchmark
- Our focus on pension sustainability of partially prefunded plans is consistent with the historical record
  - S&L pensions have never been fully funded

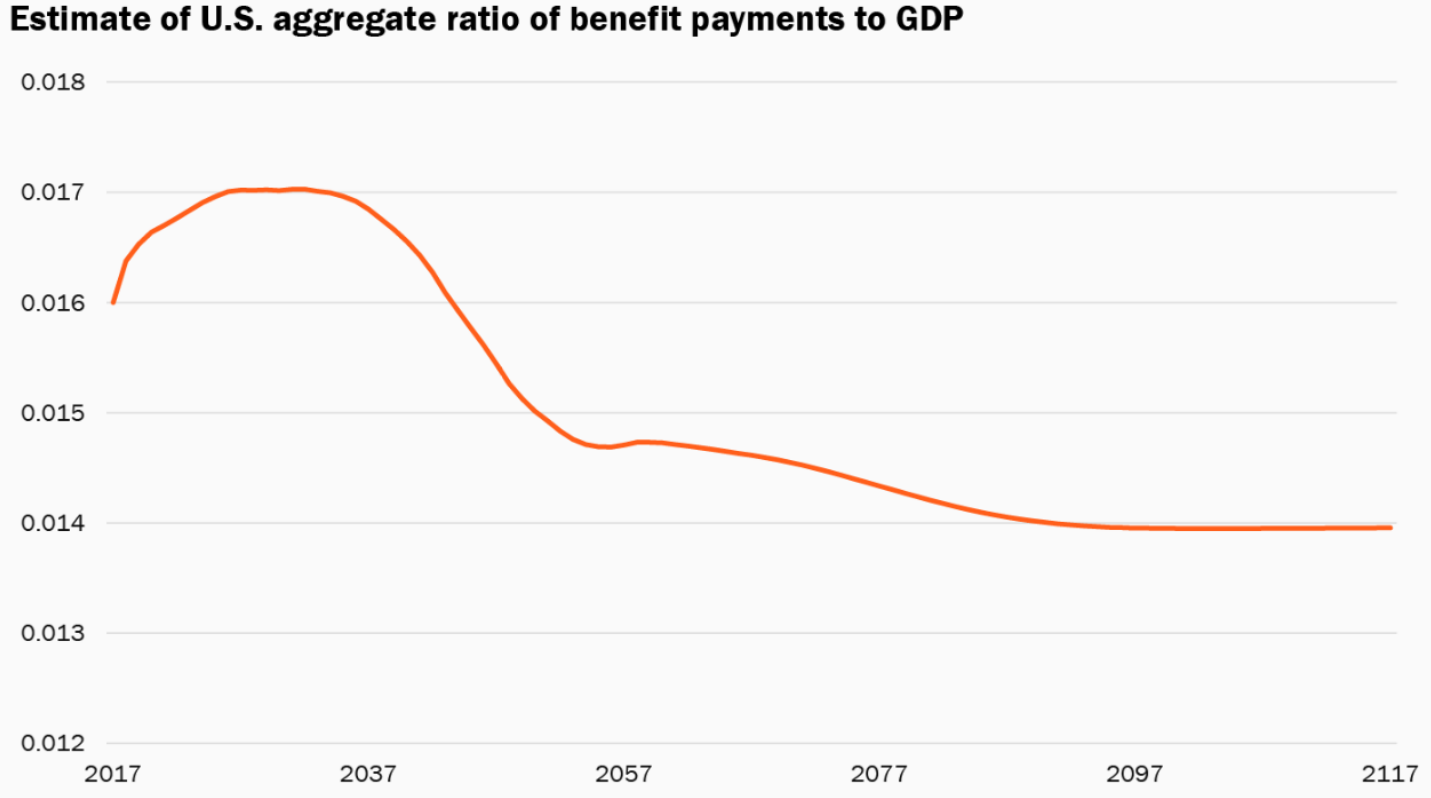
Methodology

- Analyzing sustainability requires benefit cash flows, but these are typically not available

- Reverse engineer cash flows
  - Method pioneered by Novy-Marx and Rauh (2011, 2014)
  - Collect data from actuarial reports: plan membership, actuarial assumptions (e.g. mortality), and plan parameters (e.g. benefit levels and COLAS)
  - Construct statistical machinery to ”age” workers and retirees and calculate benefits
  - Add in new workers based on demographic assumptions

- Sample of 40 plans
  - Small sample reflects extremely labor intensive nature of methodology
  - Sample observationally similar to universe of S&L pensions

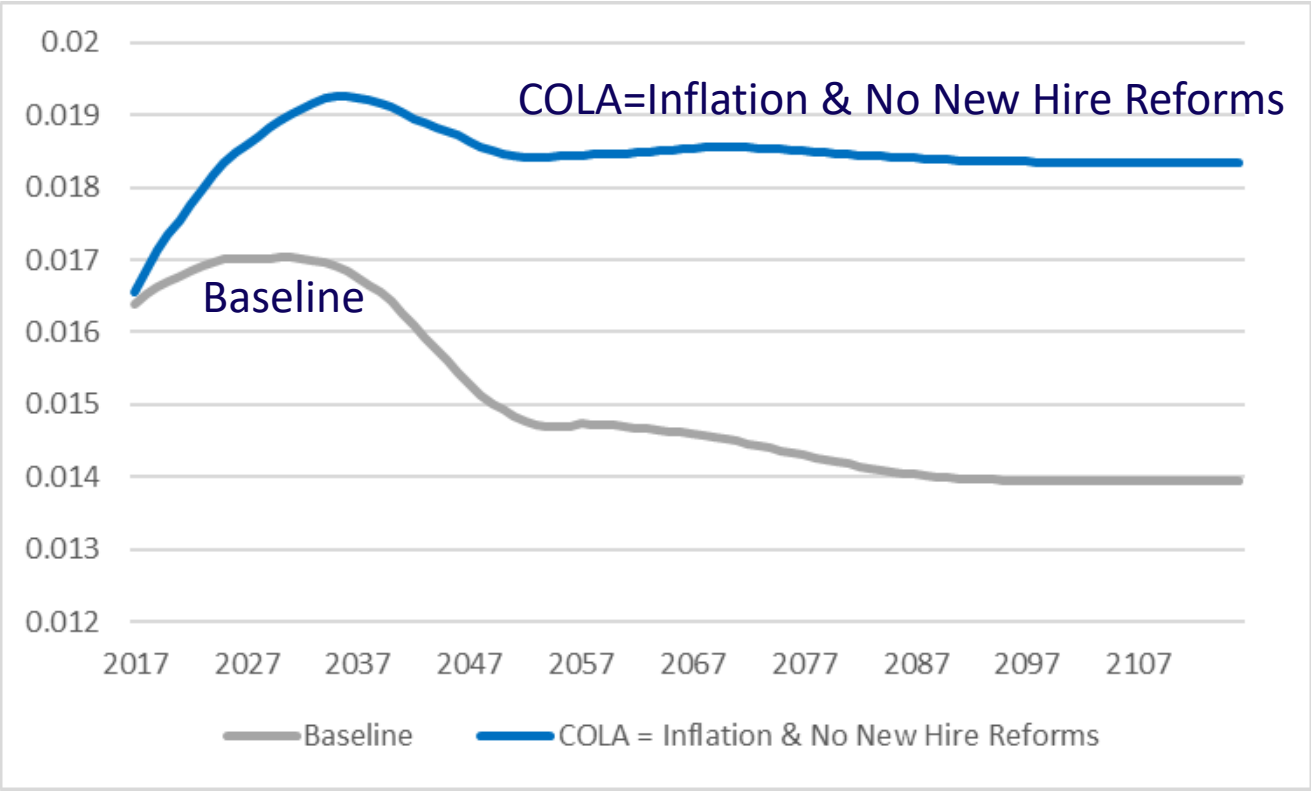
US Ratio of Benefit Payments to GDP



- Benefits rise only about 5% over next two decades and then decline
- Plans get eventual fiscal relief
- Surprising because we project ratio of beneficiaries to workers rise sharply over next two decades due to population aging

Why Don’t Benefits Rise More?

US Aggregate Ratio of Benefit Payments to GDP



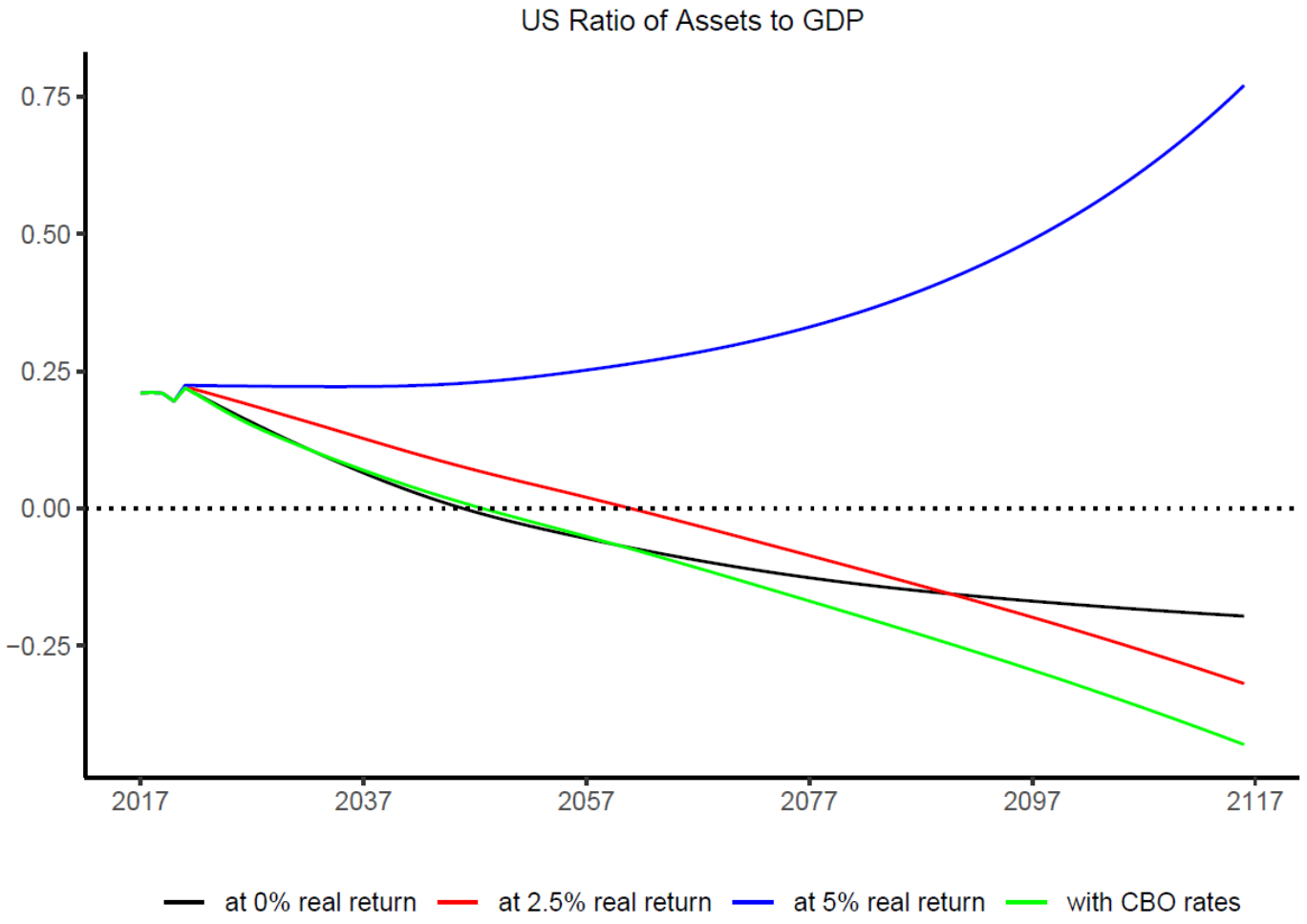
- COLAs: 17 out of 40 plans have lowered COLAs since 2007
- New Worker Benefit Reforms: Plans now less generous for new hires (adjusting retirement ages, benefit factors, vesting, etc.)
- Low COLAs and new hire reforms cause benefits:
  - ~ 15 percent lower than counterfactual (blue line) in two decades
  - ~ 30 percent lower in long run

Sustainability Analysis

- Assume plans maintain current contributions and benefits
- Discount the stream of future benefit payments at a risk-free rate
- Consider 4 deterministic real rates of return on pension assets

1. 0% real return = risk-free rate based on Treasury TIPS yields
   - We view as conservative:
   - Market-based risk free return may overstate cost of risk to government (e.g. Falkenheim 2021)
2. 5% real return = expected rate & roughly what they have received since 2000
3. 2.5% real return = middle ground
4. CBO (current law) risk free real rate projection

Exhaustion Dates: One way of assessing sustainability



In aggregate

- plans exhaust (hit zero assets) in 30 years under a 0% rate of return
- Around 45 years under 2.5%
- Not currently sustainable under 0%, CBO risk-free, and 2.5% returns
- More than sustainable at expected 5% return

Making Pensions Sustainable

2 Stabilization Exercises

Choose one-time permanent change in contributions to:

1. **Long-run**: Debt as share of GDP is constant in long run (without regard to the level)
2. **30-year Medium-run**: Return to today's debt-to-GDP ratio by the end of 30 years

All stabilization exercises involve stabilizing unfunded liabilities while making benefit payments

Contribution to Stabilize Implicit Debt in Long-Run

	Increase in contribution rate required if changes are made (percent of payroll):			
Real rate of return	Start Today	Start In 10 years	Start In 20 years	Start In 30 years
0%	14.91%			
2.5%	8.32%			
5%	-2.62%			
CBO	9.54%			

- At 2.5% return, required contribution increase = 8% of payroll if act now
  - Pension contributions increased by 10 percent of payroll between 2009 and 2019

Contribution to Stabilize Implicit Debt in Long-Run

	Increase in contribution rate required if changes are made (percent of payroll):			
Real rate of return	Start Today	Start In 10 years	Start In 20 years	Start In 30 years
0%	14.91%	12.71%	10.71%	8.82%
2.5%	8.32%	9.16%	9.88%	10.38%
5%	-2.62%	-3.48%	-4.76%	-6.68%
CBO	9.54%	10.33%	11.09%	11.66%

- At 2.5% return, required contribution increase = 8% of payroll if act now
  - Pension contributions increased by 10 percent of payroll between 2009 and 2019
- If wait 30 years, contribution increase goes up to 10% of payroll

Contribution to Stabilize Implicit Debt in Long-Run

	Increase in contribution rate required if changes are made (percent of payroll):			
Real rate of return	Start Today	Start In 10 years	Start In 20 years	Start In 30 years
0%	14.91%	12.71%	10.71%	8.82%
2.5%	8.32%	9.16%	9.88%	10.38%
5%	-2.62%	-3.48%	-4.76%	-6.68%
CBO	9.54%	10.33%	11.09%	11.66%

- At 0% rate of return, required contribution = 15% of payroll if start today
- But required contribution decreases as you delay
  - Assets are costly when asset returns are below GDP growth
  - Waiting draws down assets, which are then less costly

Implicit Debt to GDP Returns to Today's Level in Year 30

Real rate of return	Implicit Debt Gets Back to Today's Level in 30 Years			
	Today	In 10 years	In 20 years	In 30 years
0%	17.90%	21.80%	24.79%	26.79%
2.5%	7.22%	10.41%	13.78%	17.09%
5%	-4.32%	-6.04%	-8.29%	-11.34%
CBO	13.18%	15.97%	19.41%	23.07%

- At 2.5% return, contribution increase about 7% of payroll today. Rises to 17% if delay 30 years.
- Delay causes contribution to increase, because have to not just stabilize but pay down debt

Full Funding Requires Much Larger Adjustments

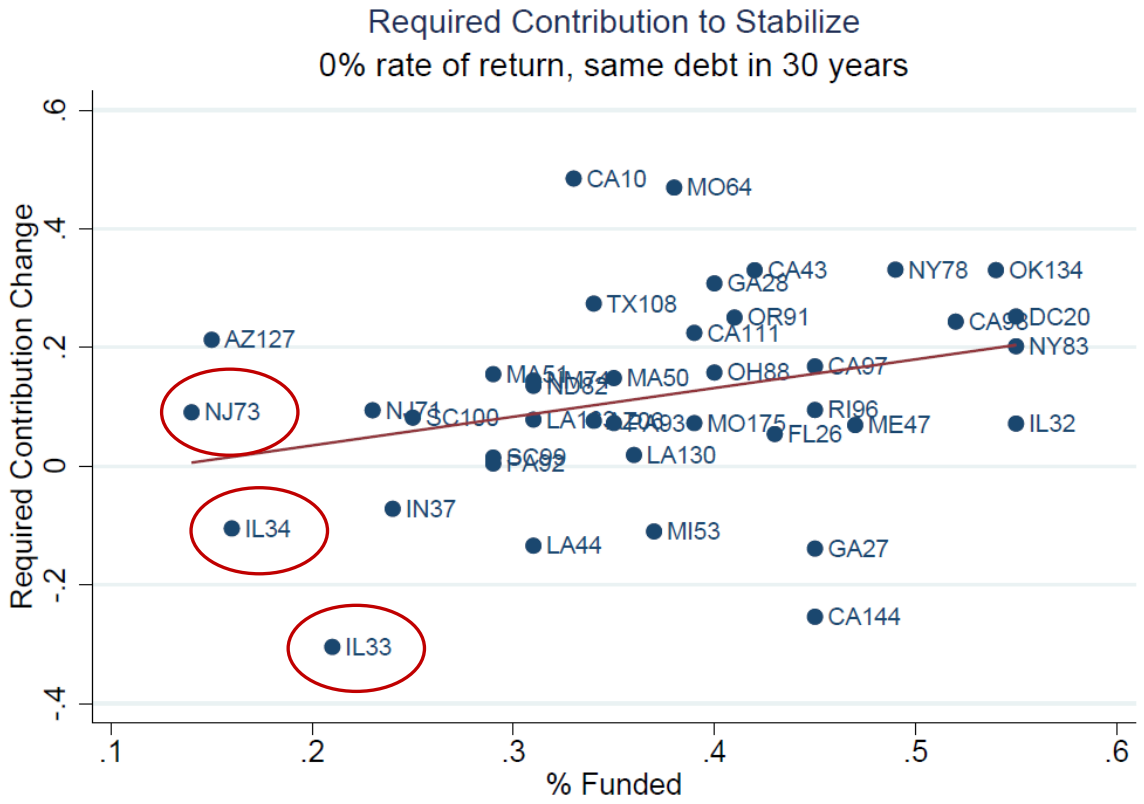
	Implicit Debt Gets Back to Today's Level in 30 Years				Fully Funded in 30 Years			
Real rate of return	Today	In 10 years	In 20 years	In 30 years	Today	In 10 years	In 20 years	in 30 years
0%					59.11%	63.57%	66.74%	68.47%
2.5%					35.91%	39.53%	43.06%	46.18%
5%					14.94%	13.53%	11.42%	8.24%
CBO					45.18%	46.09%	48.95%	52.35%

Full Funding Requires Much Larger Adjustments

	Implicit Debt Gets Back to Today's Level in 30 Years				Fully Funded in 30 Years			
Real rate of return	Today	In 10 years	In 20 years	In 30 years	Today	In 10 years	In 20 years	in 30 years
0%	17.90%	21.80%	24.79%	26.79%	59.11%	63.57%	66.74%	68.47%
2.5%	7.22%	10.41%	13.78%	17.09%	35.91%	39.53%	43.06%	46.18%
5%	-4.32%	-6.04%	-8.29%	-11.34%	14.94%	13.53%	11.42%	8.24%
CBO	13.18%	15.97%	19.41%	23.07%	45.18%	46.09%	48.95%	52.35%

Plan Specific Results

- Lot of heterogeneity in contribution increase required to stabilize
- Poorly funded plans don't need largest increases to stabilize pension debt



Conclusions

- Limitations:
  - Deterministic framework ignores risk, particularly around asset returns
  - Isolation from broader state and local gov. budgets and objectives

- In aggregate, plans can become sustainable under low and moderate asset returns with moderate changes in funding

- Limited return to stabilizing now versus 10 years in future

- Significant heterogeneity

Thank you!

Comments welcome:

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