AR Teacher Retirement Plan: Risks, Redistribution & Remedies

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AR Legislature, Joint Committee on Retirement; September 11, 2018

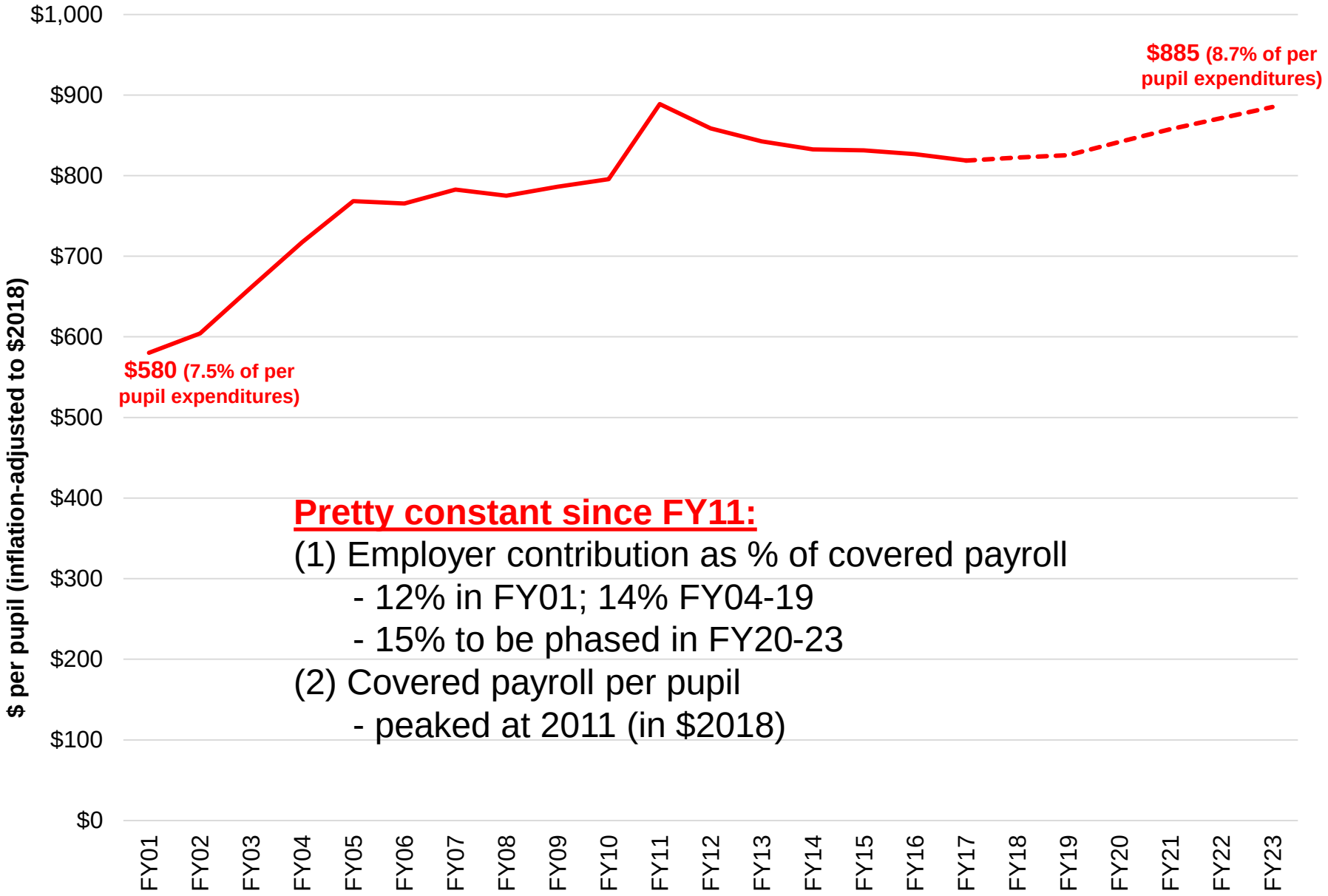
- Cost Trends: Employer Contributions **per Pupil**, AR & US
  - **AR has managed its costs much better than US**
  - Risks lie ahead, so AR is wise to get ahead of the game
- Example of Risks in Amortization Contribution Rates
  - back-loaded amortization schedule & payroll growth assumption
- Value of Risk-Free Benefits
- Distribution of Ind'l NC @ assumed return & risk-free rate
  - **Market value of pension guarantee is highly concentrated**
- Risk-Sharing measures: ATRS has adopted several
- Examples from other states, in & beyond traditional plans
  - 1st CB plan for teachers: KS
- Takeaways

Employer & Member Contribution Rates

Employer and member contribution rates will change in the future according to the following schedule.

	Contribution Rate	
Fiscal Year	**Member**	**Employer**
2018-2019	6.00%	14.00%
2019-2020	6.25%	14.25%
2020-2021	6.50%	14.50%
2021-2022	6.75%	14.75%
2023 and Later	7.00%	15.00%

Employer Contributions per Pupil, FY01-23 ($2018)



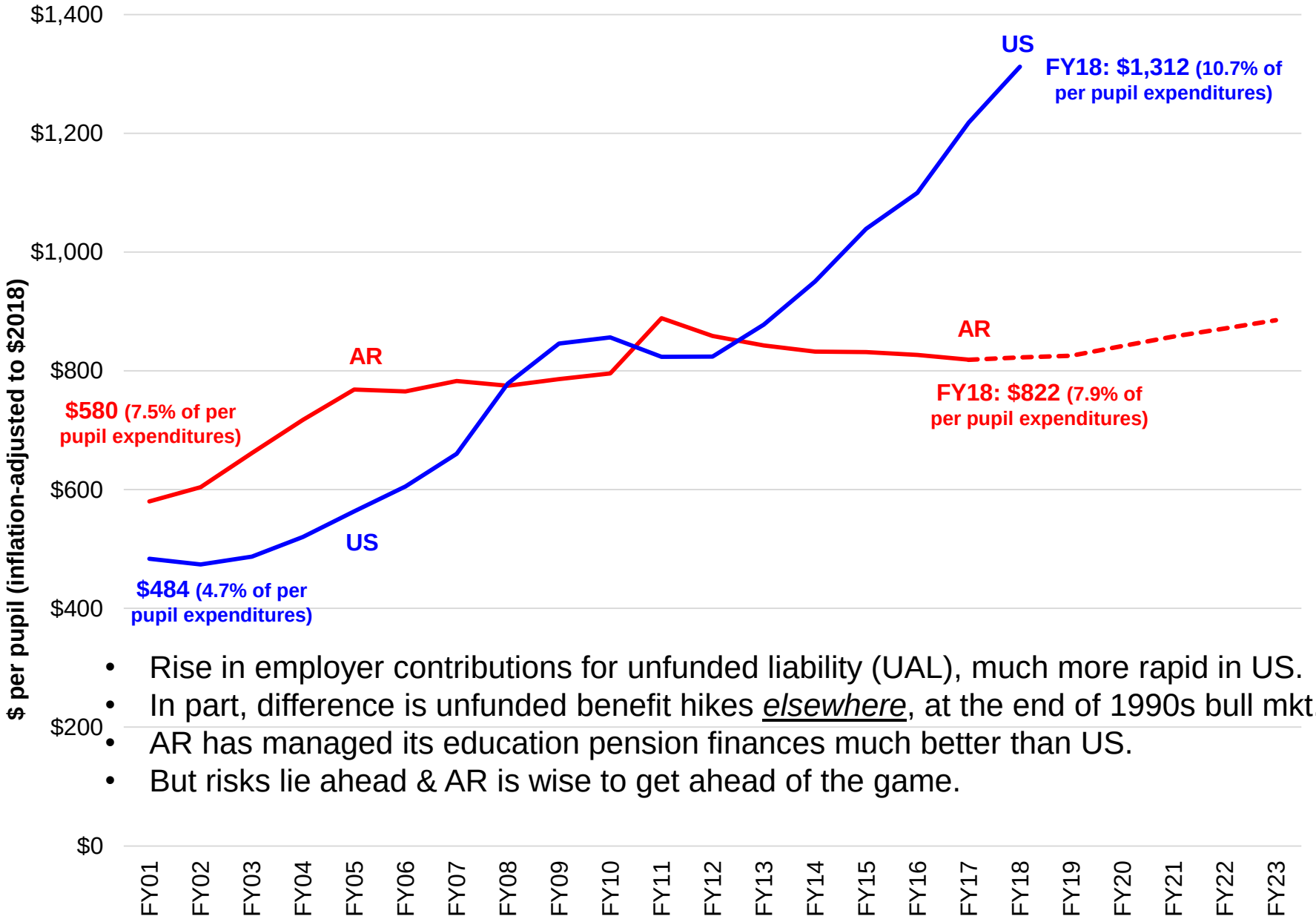
Pretty constant since FY11:

(1) Employer contribution as % of covered payroll
- 12% in FY01; 14% FY04-19
- 15% to be phased in FY20-23

(2) Covered payroll per pupil
- peaked at 2011 (in $2018)

Sources: ATRS valuation reports, National Center for Education Statistics (US DOE), author calculations
Note: from FY11 on, covered payroll includes T-DROP members

Employer Contributions per Pupil: US vs. AR ($2018)



- Rise in employer contributions for unfunded liability (UAL), much more rapid in US.
- In part, difference is unfunded benefit hikes *elsewhere*, at the end of 1990s bull mkt.
- AR has managed its education pension finances much better than US.
- But risks lie ahead & AR is wise to get ahead of the game.

Sources: ATRS valuation reports, National Center for Education Statistics (US DOE), BLS, author calculations

U.S.: Rise in "Benefit" Costs Squeezes Salaries

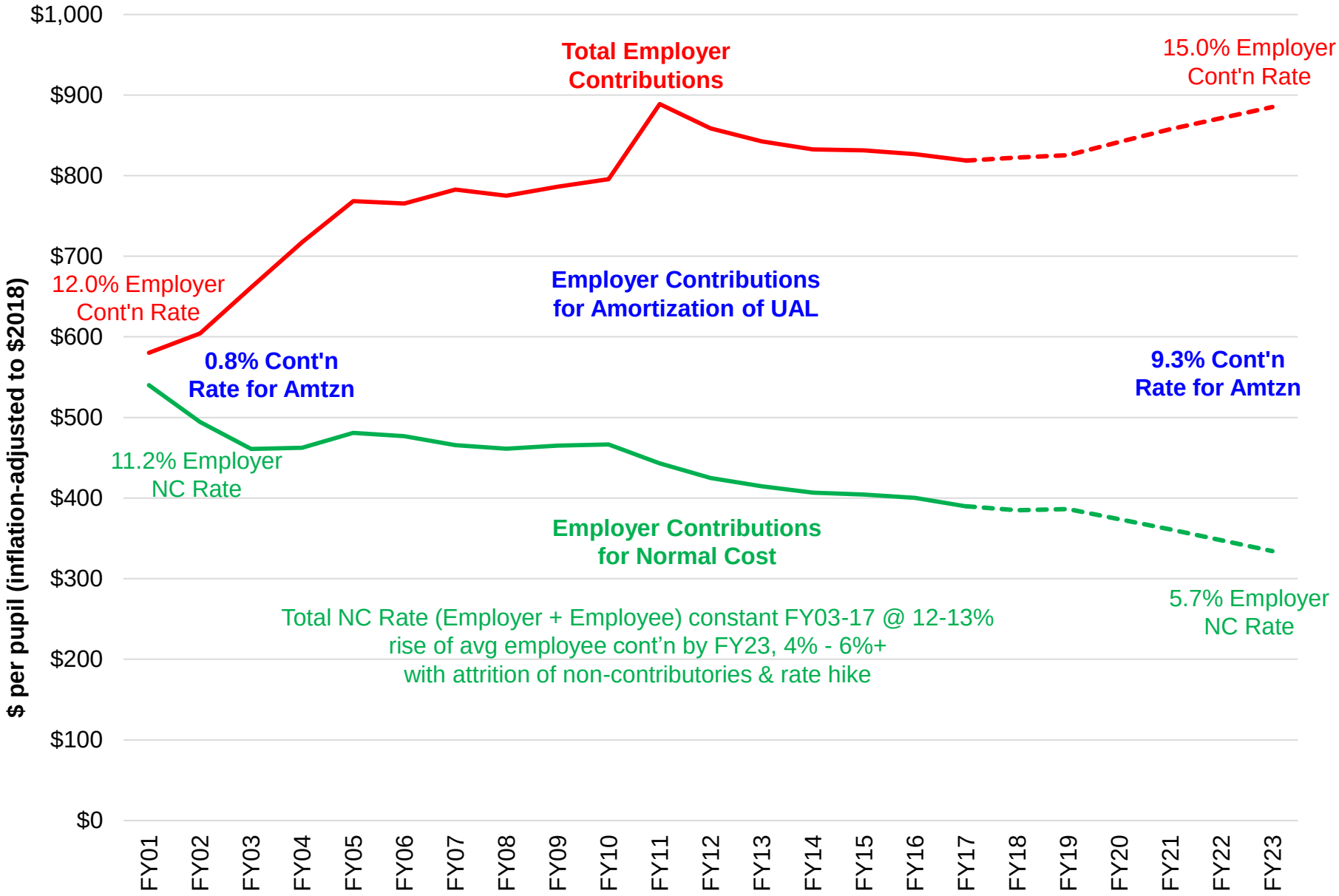
	1990-2015	2000-2015
U.S. compensation/pupil ($2016-17)	1.0%	0.9%
US salaries/pupil	0.6%	0.1%
US benefits/pupil	2.4%	3.2%
US compensation/staff ($2016-17)	0.4%	0.6%
all salaries/staff	0.0%	-0.2%
all benefits/staff	1.8%	2.9%

Source: National Center for Education Statistics (US DOE), author calculations

- **Much/all "benefits" growth = payments on unfunded liabilities (UAL)**
  - **Payments for *past* accruals, not currently earned benefits**

  - Side note: difference between $/pupil and $/staff is growth in staff/pupil
  - Growth in staff/pupil has slowed almost to a halt nationally

ATRS Employer Cont'ns: Normal Cost vs. Amortization

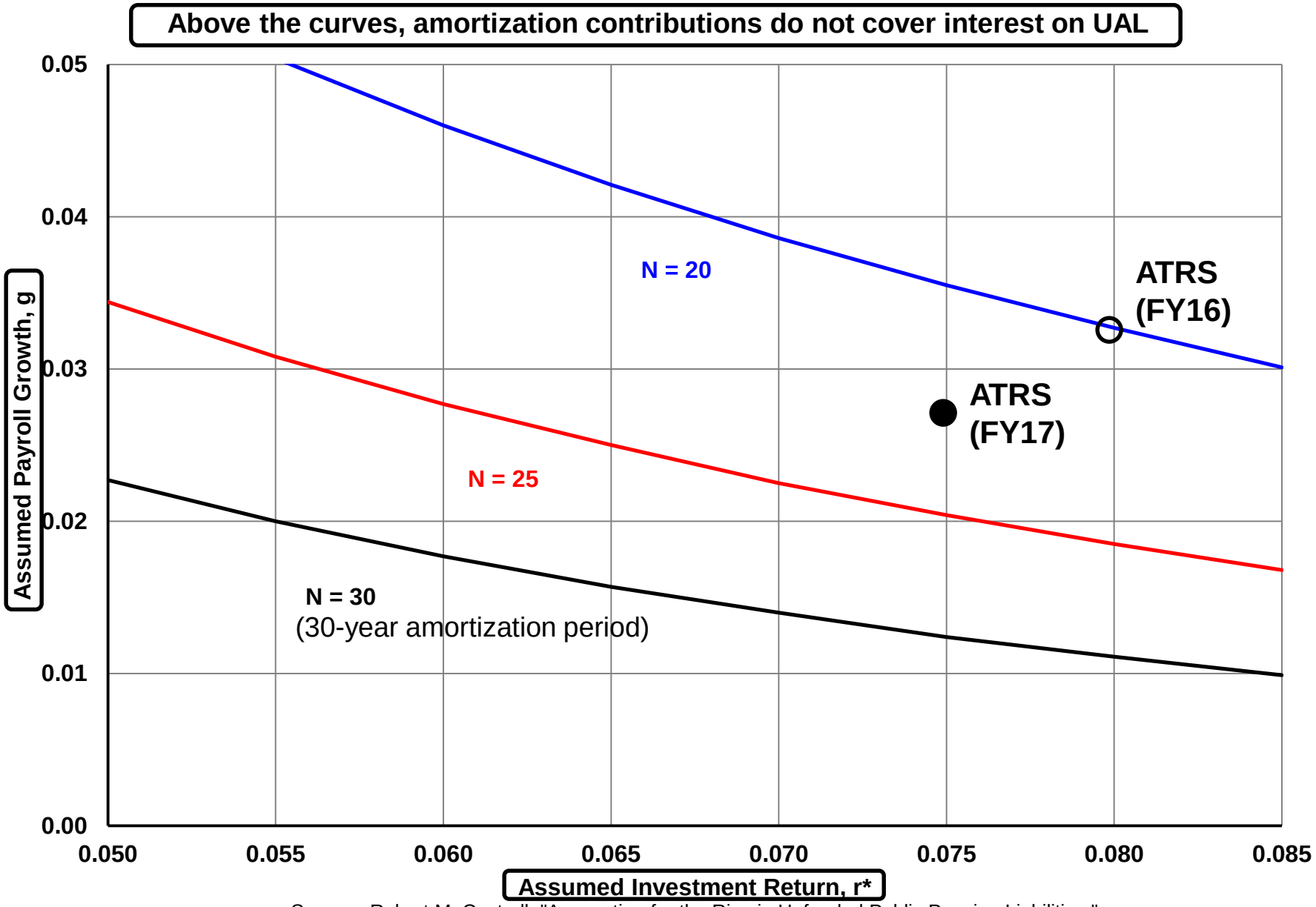


Sources: ATRS valuation reports, National Center for Education Statistics (US DOE), author calculations
Note: from FY11 on, covered payroll includes T-DROP members

What Will Happen to ATRS Contributions?

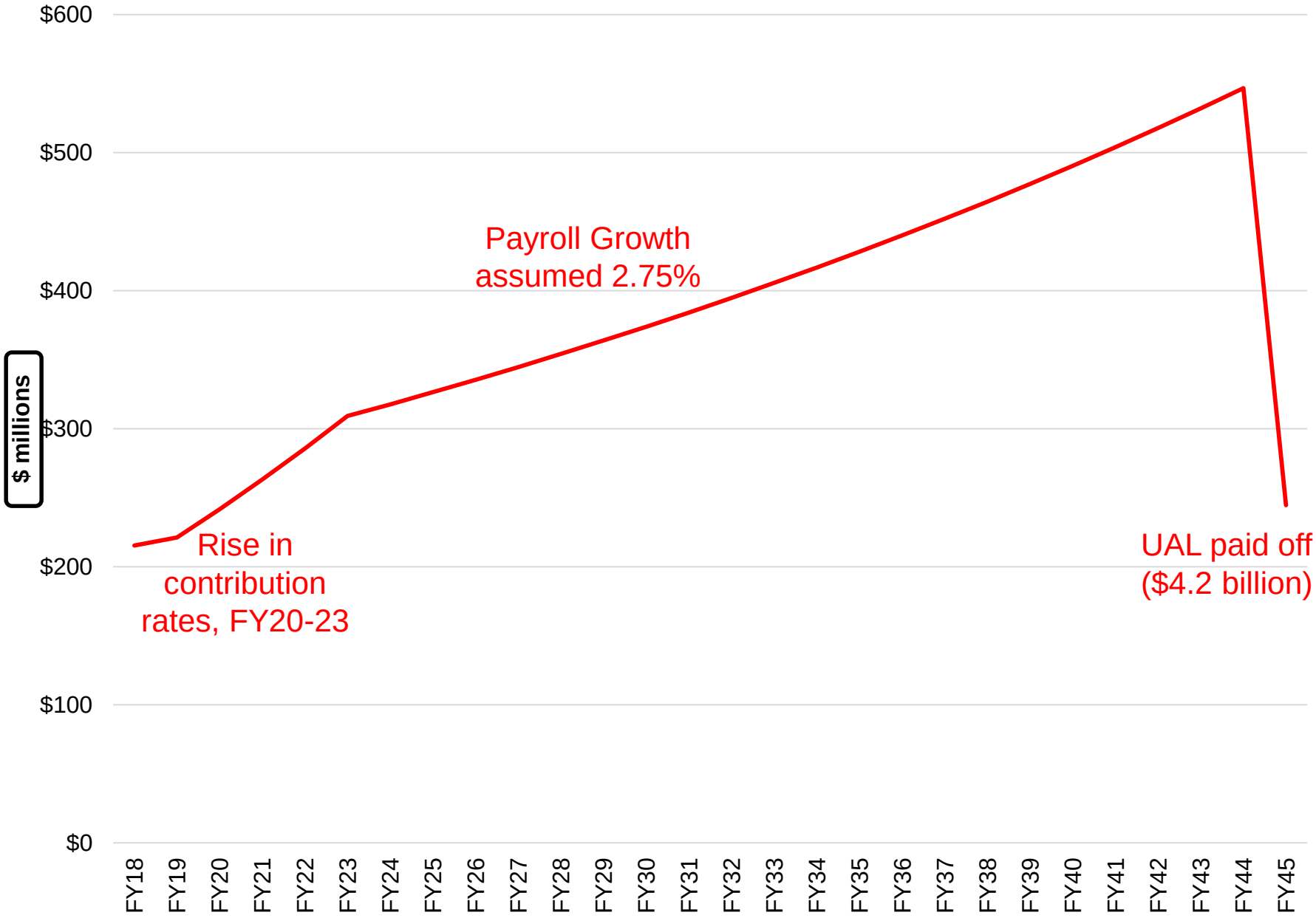
- Will the hikes to 15% (employer) and 7% (employee) suffice?
- Policy: amortization with constant rate to fund in ≤ 30 yrs
  - ATRS recognizes value in moving to 18 years
- Two issues:
  - Amortization method
    - Level-percent of payroll backloads payments
      - Failure to cover interest on UAL, as ATRS duly warns
        - Negative amortization
      - Depends on assumed return, payroll growth, funding period
    - "open interval": amortization period re-starts every year
      - Keeps rate lower in short run
      - but never pays off UAL, so payments persist > normal cost
  - What if assumptions on investment returns, payroll growth fail?
    - Reason, Pew will speak on investment returns
    - Consider payroll growth

What Assumptions Lead to Negative Amtz'n?



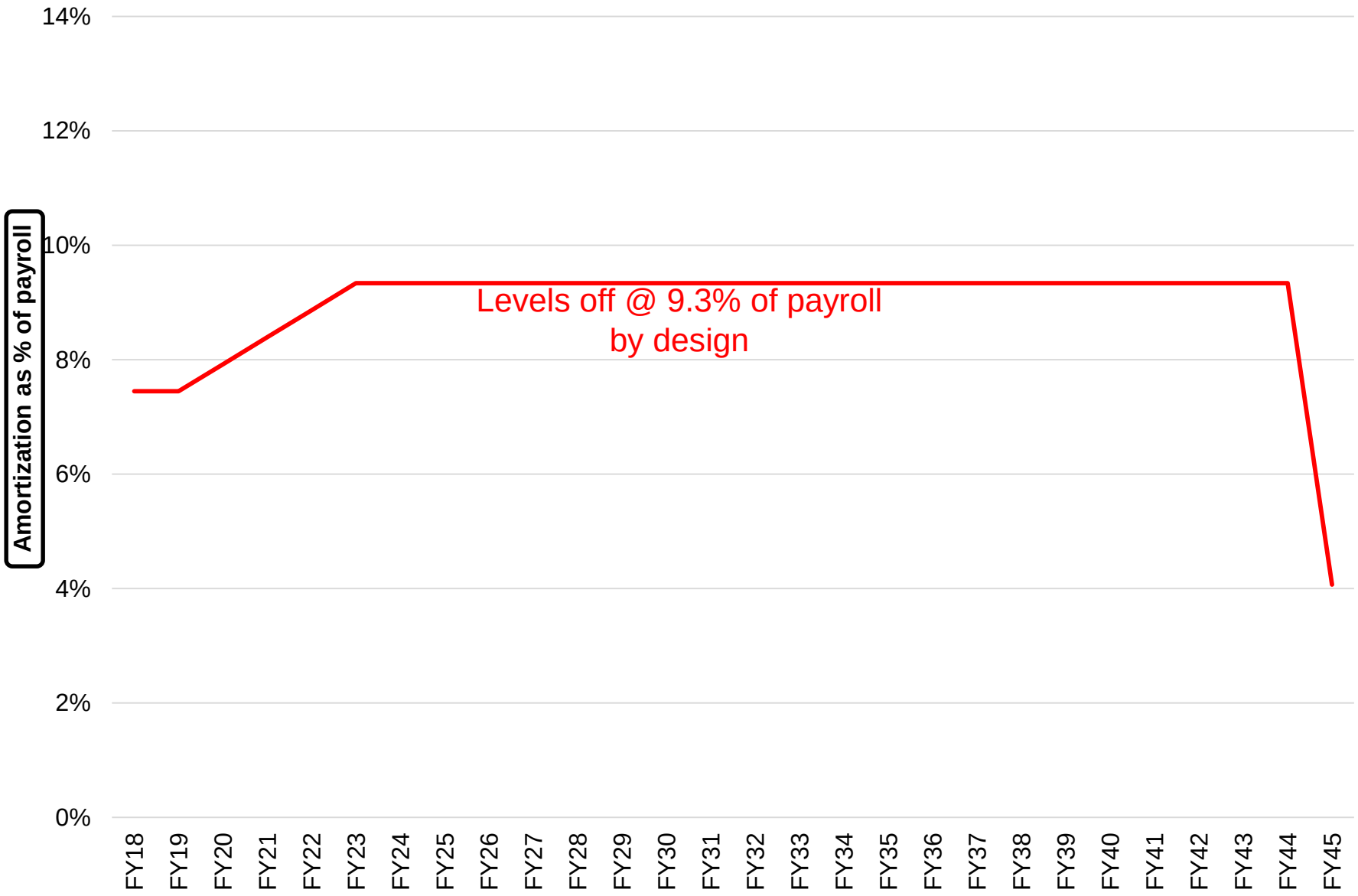
Source: Robert M. Costrell, "Accounting for the Rise in Unfunded Public Pension Liabilities," *Journal of Pension Economics and Finance*, January 2018.

Scheduled Amortization Payments ($)



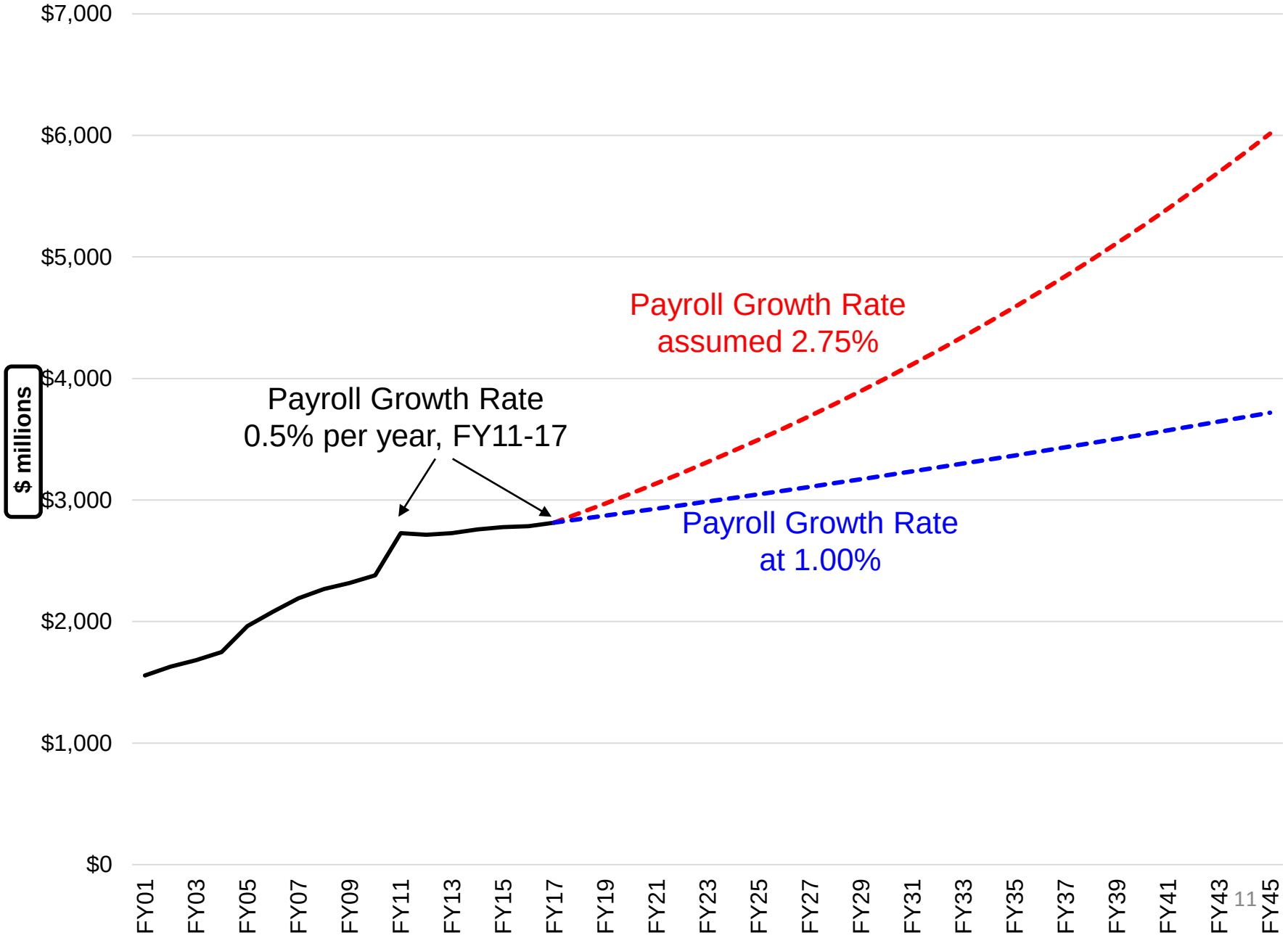
Source: ATRS, GASB Statement Nos. 67 & 68, 2017, p. 39

Amtz'n Cont'n *Rate* @ 2.75% payroll growth

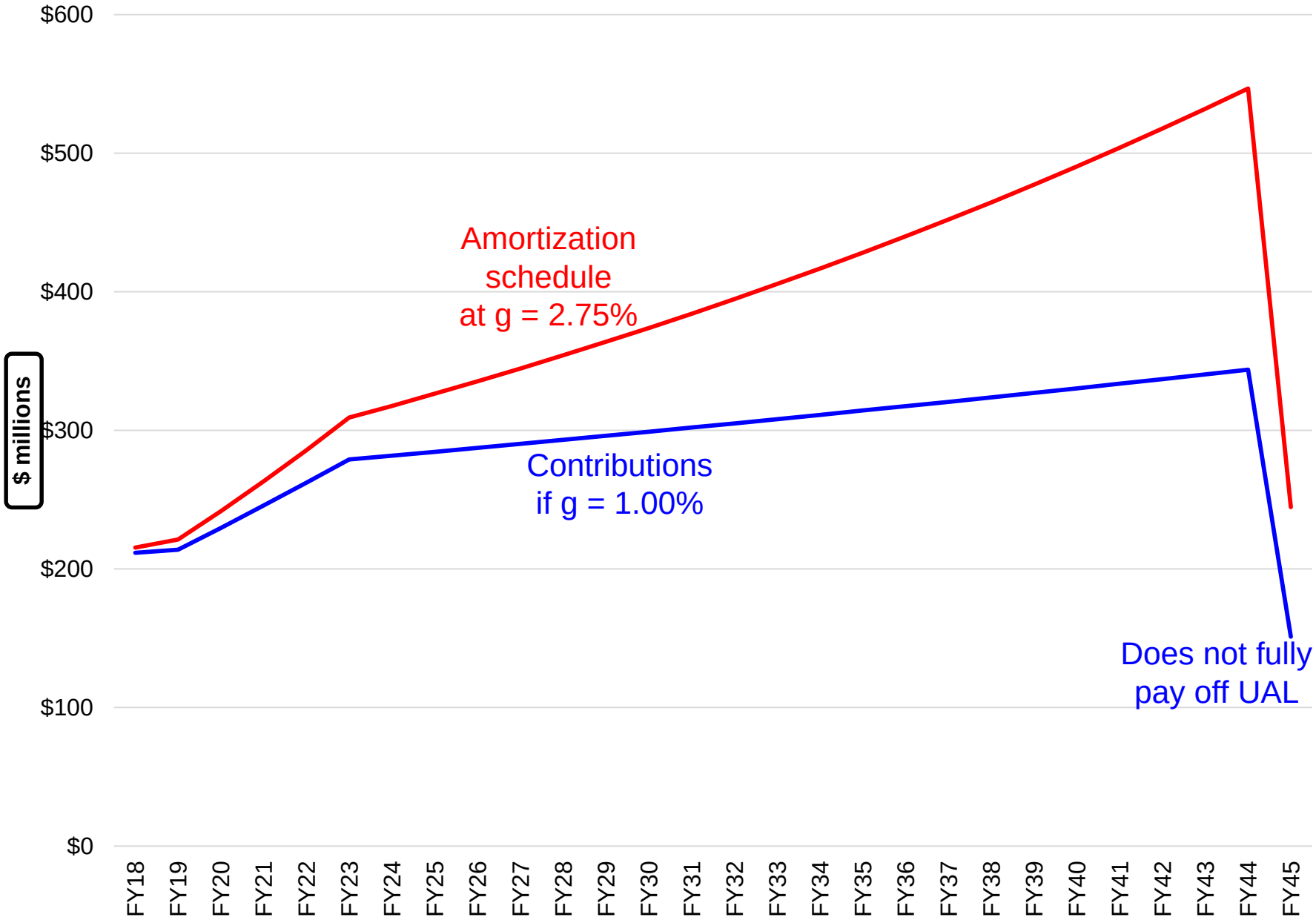


Source: ATRS, GASB Statement Nos. 67 & 68, 2017, p. 39

Actual & Projected Payroll Growth ($)

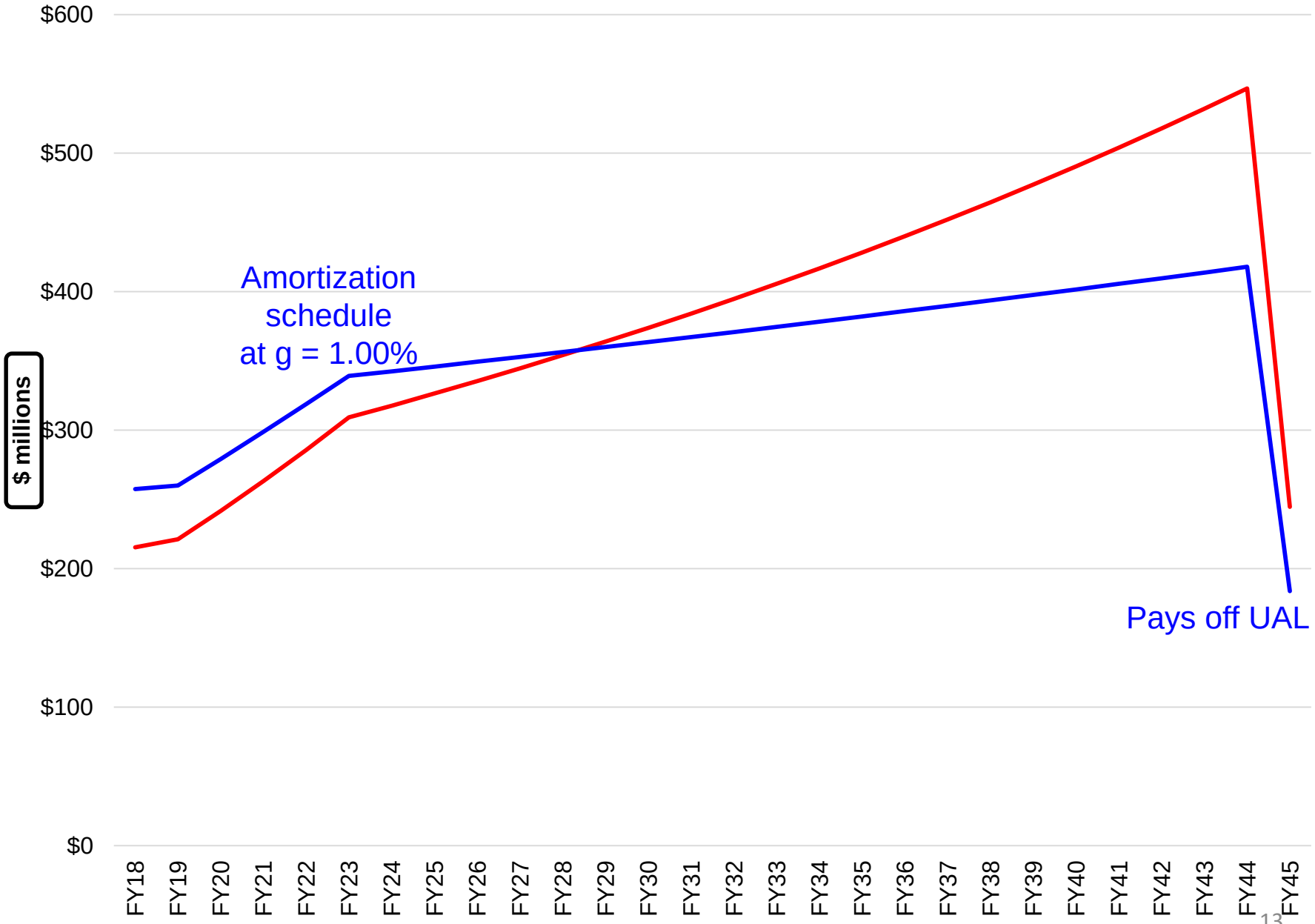


Shortfall if Payroll Growth is 1.00%



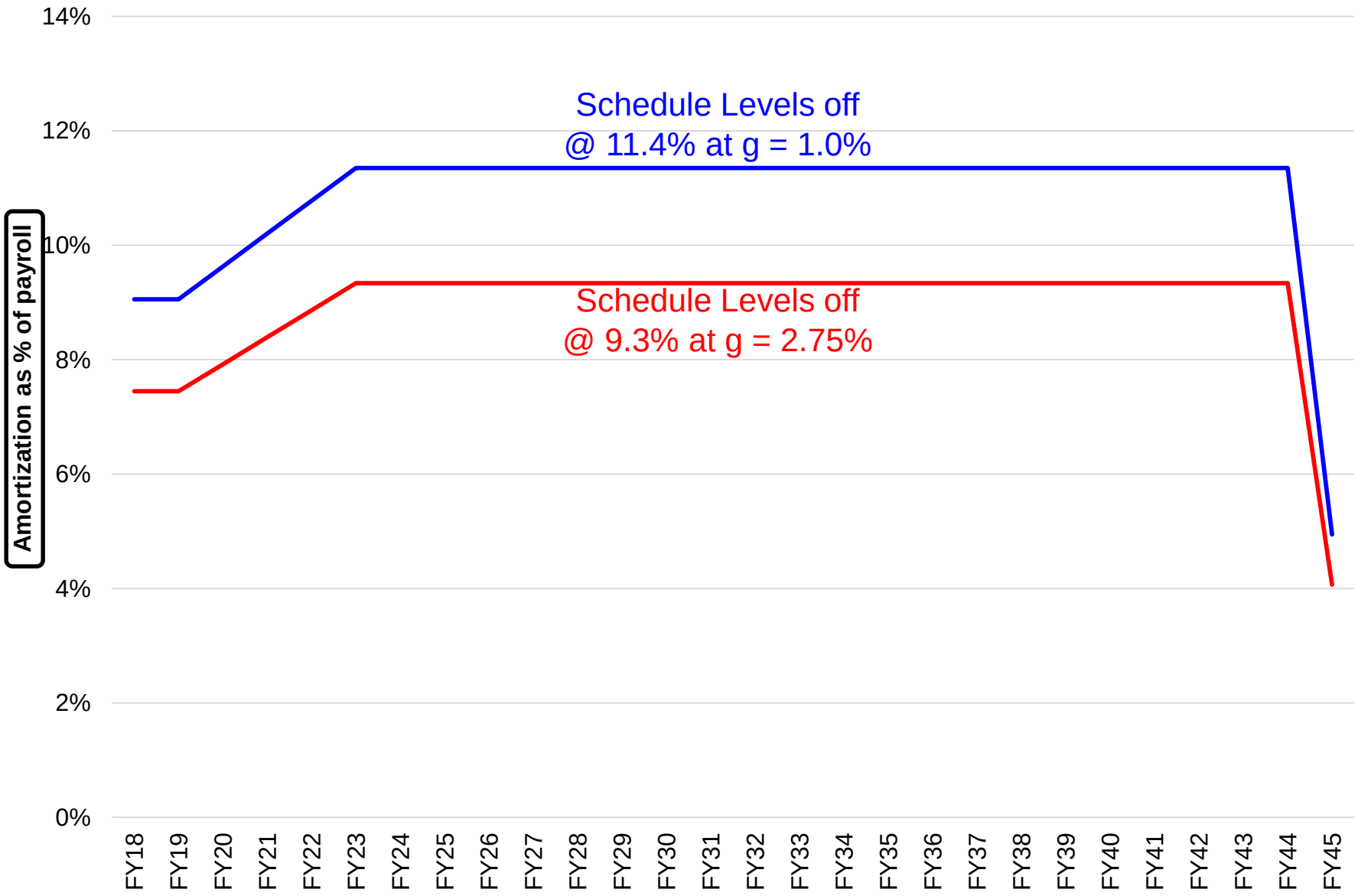
Source: ATRS, GASB Statement Nos. 67 & 68, 2017, p. 39

Scheduled Amortization if Assume 1.00%



Source: ATRS, GASB Statement Nos. 67 & 68, 2017, p. 39, author calculations

Amtz'n Cont'n Rate @ 1.0% payroll growth



Source: ATRS, GASB Statement Nos. 67 & 68, 2017, p. 39

Value of Risk-Free Benefits to Members

- Shift gears from amortization costs to normal costs
- We will look at *individual* normal costs:
  - The annual cost to pre-fund individual benefits
- Evaluate at expected rate of return, and then at risk-free rate
- The difference is value of pension guarantee to members
- Risk-sharing will reduce that benefit

Individual NC Rates

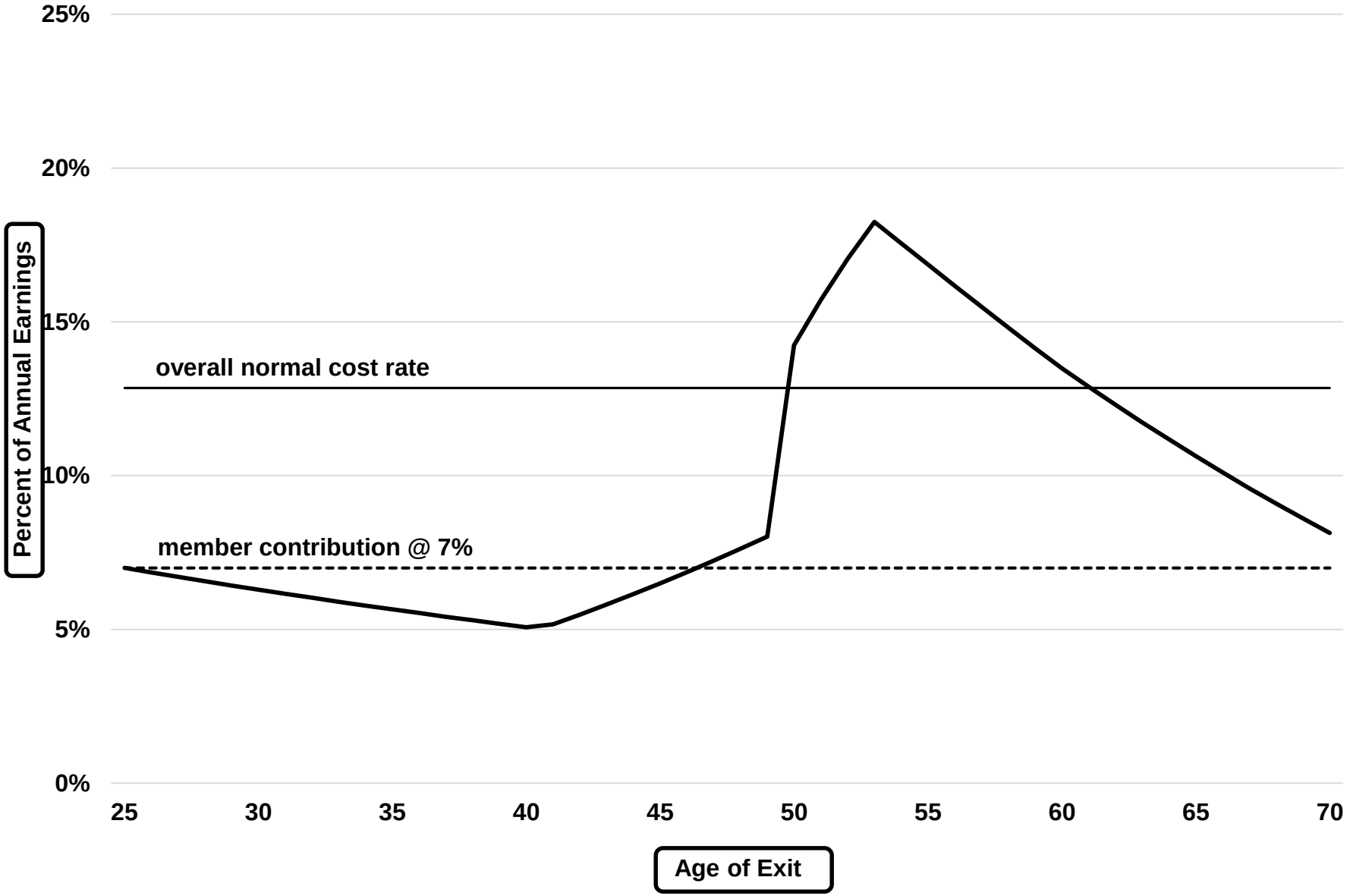
- Individuals vary by entry and separation age (yrs of service)

- *Individual* NC rate (employer+employee)
  - ***applied to each year's pay would cover benefits***
    - ***the annual cost (or value) of individual benefits, as % of pay***
  - ***Comparable to contribution rates for individual retirement accounts***

- *Uniform* NC rate, applied to all, is average of ind'l rates.
  - set to cover *cohort's* benefits

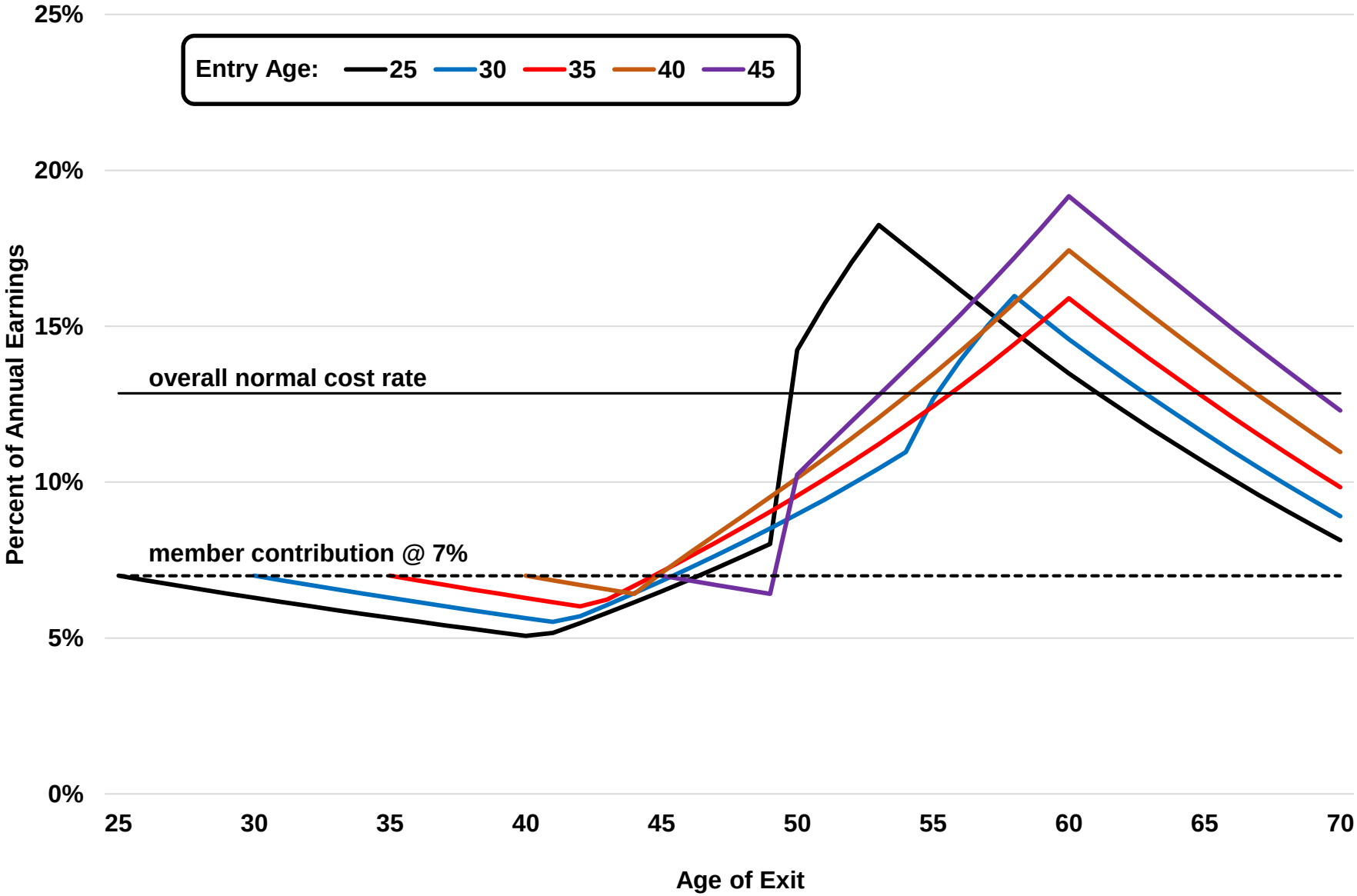
NC, by Age of Exit, Age 25 entrant, *r = 7.5%*

Estimated using 2017 ATRS assumptions for F teacher and benefit formula for new hires, with FY23 contribution rate
Value of T-DROP excluded



NC, by Age of Entry & Exit, *r = 7.5%*

Estimated using 2017 ATRS assumptions for F teacher and benefit formula for new hires, with FY23 contribution rate
Value of T-DROP excluded



The curves depict n_{es}, the annual contribution rate required to fund benefits of an individual entering at age e and exiting at age s.
Variation in cost by age of exit is shown along each curve; variation by age of entry is shown across curves.

Value of Risk-Free Benefit

- Finance economics: risk-free benefit valued at risk-free *r*
  - Wilcox & Brown, Novy-Marx & Rauh, Biggs

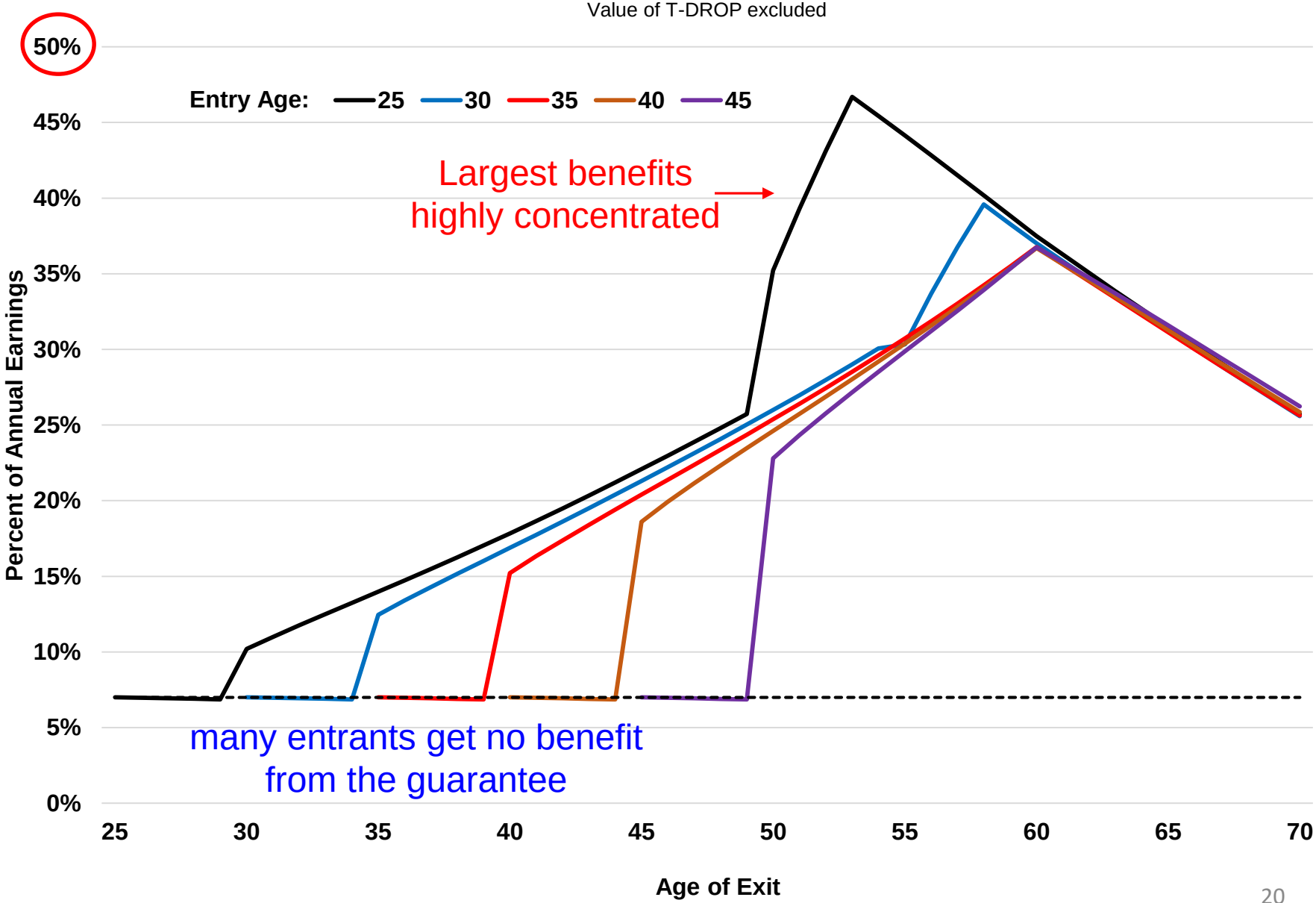
- Value of individual benefits much higher than contribution rate
  - Not only critics of traditional DB plans
  - Defenders, too (NCTR publication on ATRS website)

➢ **N.B. This is *NOT* an argument that cont'ns should be calculated at risk-free rate. That is a different matter. This is simply about what it would cost on the market to buy a risk-free stream of benefits.**

- **How is the value of the guarantee distributed?**

Annual Value of Risk-Free Benefits, *r = 4.0%*

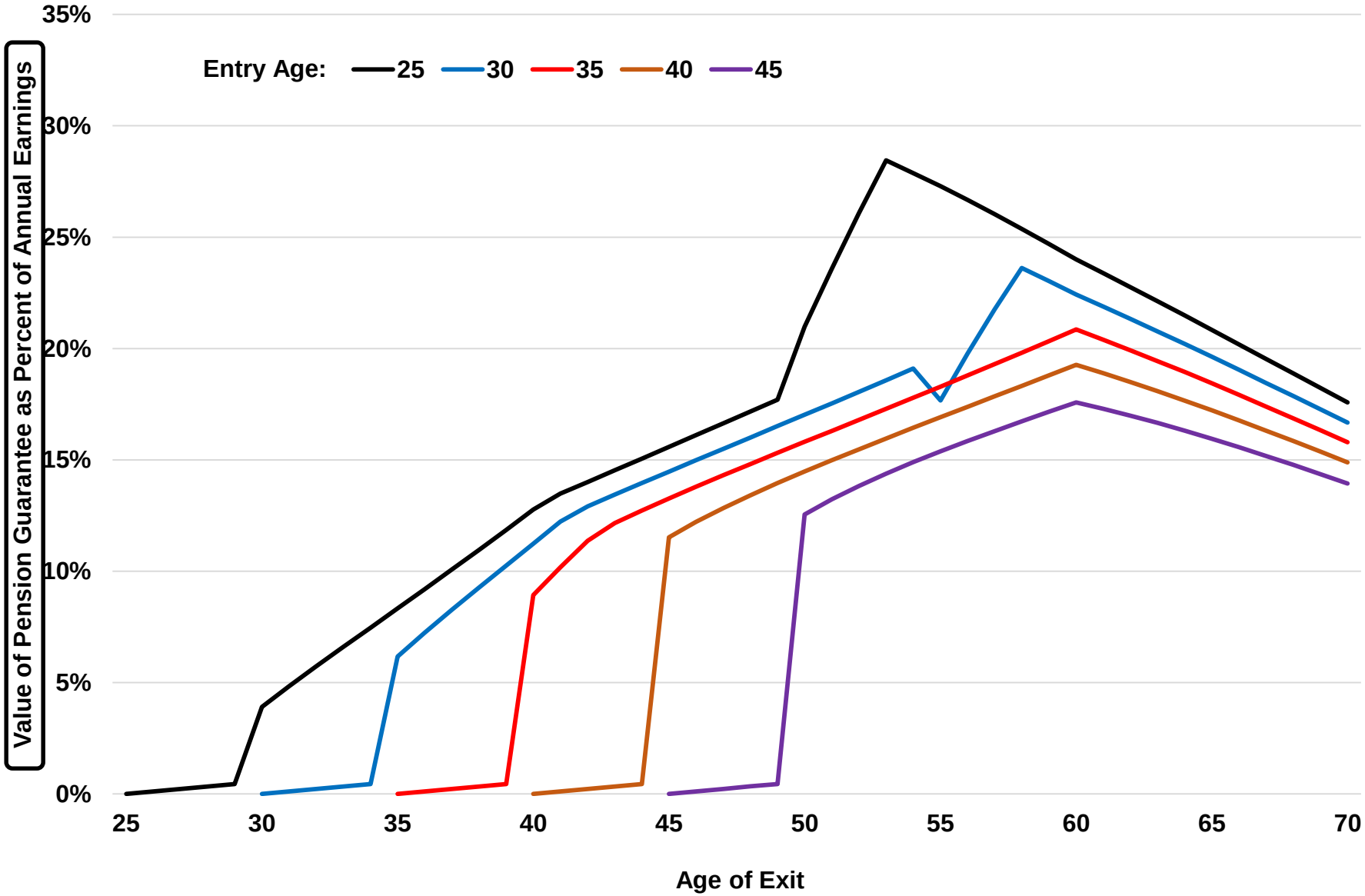
Estimated using 2017 ATRS assumptions for F teacher and benefit formula for new hires, with FY23 contribution rate
Value of T-DROP excluded



The curves depict n_{es}, the annual contribution rate required to fund benefits of an individual entering at age e and exiting at age s.
Variation in cost by age of exit is shown along each curve; variation by age of entry is shown across curves.

Annualized Market Value of Pension Guarantee

Difference between value of individual normal cost evaluated at 4.0% and 7.5% for ATRS new hires
Value of T-DROP excluded



The curves depict the annualized market value of the pension guarantee for an individual entering at age e and exiting at age s. Variation in the value of the guarantee by age of exit is shown along each curve; variation by age of entry is shown

ATRS Has Cut Benefits & Taken Steps to Share Risks

- Multipliers reduced for first 10 years, FAS raised to 5 years, $ stipend cut
- If amortization period > 18, can raise employer cont'n to max of 15%
- If amortization period > 18, can raise member cont'n to max of 7%
- T-DROP interest credit to include upside risk-sharing for market returns

Steps Other States Have Taken to Share Risks

- Pew reports that 17 states use risk-sharing measures
- If actuarially required cont'n rises, split between employer/member
  - Maine: 55/45 split subject to cap
- If required cont'n rises, suspend COLA in full or in part (SD)
  - E.g. limit to CPI

Account-Based Plans

- DC plans place all investment risk on members
- Hybrid plans (split between DB & DC) split the risk, e.g. RI
- Cash Balance plans can share the risk (as ATRS T-DROP CB plan)
  - They redistribute benefits more uniformly
  - Value of risk-reduction for members is less concentrated

Nation's 1st Teacher Cash Balance Plan: KS

- New hires since 2015
- Employee cont'n = 6%
- Employer cont'n credit:
  - < 5 YOS: 3%
  - 5 – 11 YOS: 4%
  - 12 – 23 YOS: 5%
  - > 23 YOS: 6%
- Interest credit, *i* = ***4%*** + *0.75* × *[actual r (5-yr ave) – 6%]*
- 5-year vesting to get employer cont'n credit
- annuitiz'n @ 55 w/10 YOS; @ 65 w/5-10 YOS

- KPERS assms: *r = 7.75%, i = 6.25%*

Takeaways

- AR has managed its costs much better than US
- Risks lie ahead, so AR is wise to get ahead of the game
  - e.g. back-loaded amortization schedule & payroll growth ass'n
- Value of pension guarantee is high & highly concentrated
- Risk-Sharing measures: ATRS has adopted several
- AR may want to consider enhancing these measures
  - And/or considering others:
    - within existing structure, or beyond (CB, hybrid)
- Since the value of pension guarantee is high (& highly concentrated):
  - ➢ Risk-sharing will reduce the benefit of the guarantee
  - ➢ But it will still be high compared to private sector DC plans