

# Labor Market Effects of Educator Pensions

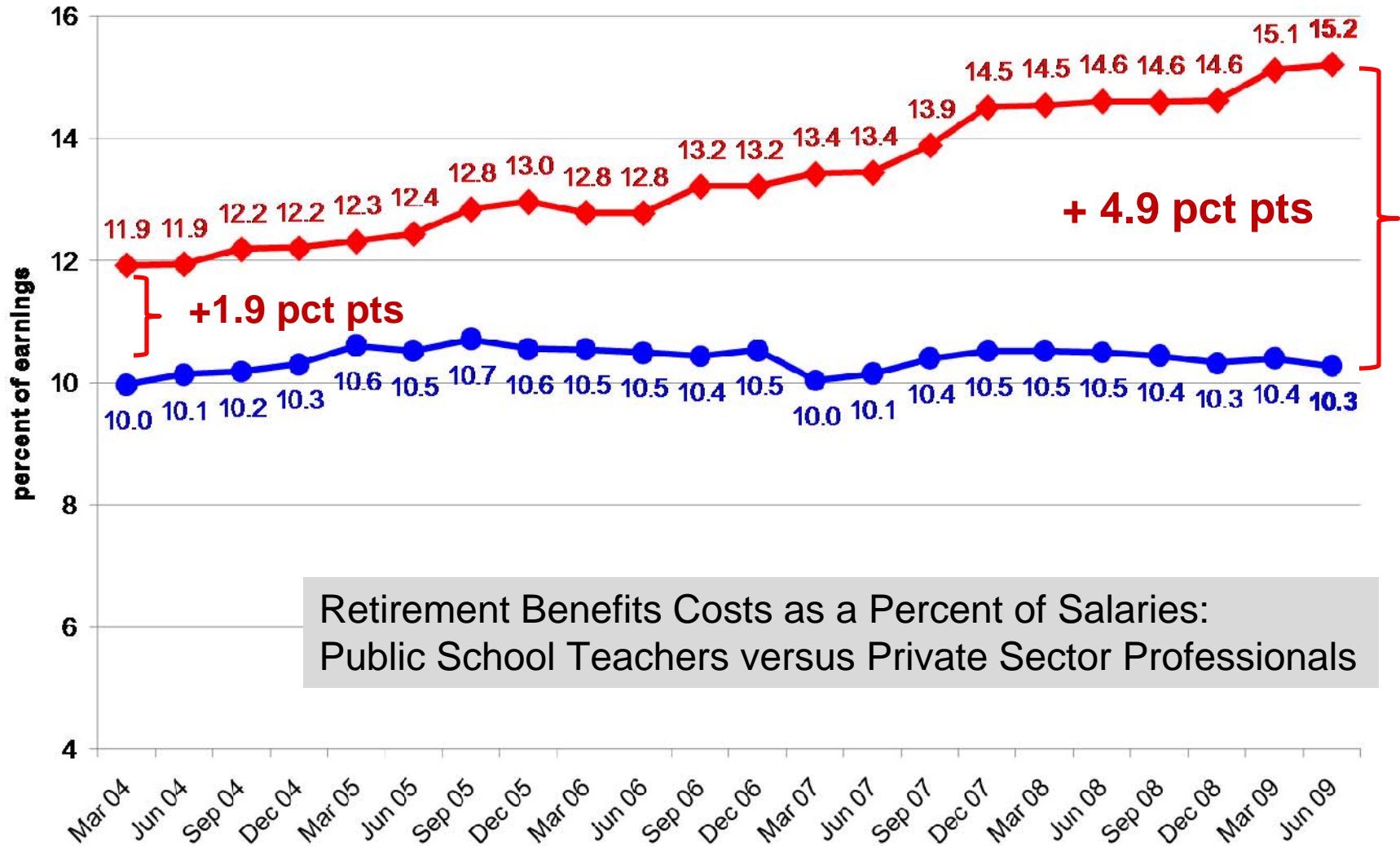
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# Teacher Retirement Benefit Systems: Overview

- Increasingly Expensive
  - Retiree health insurance
- Pull and Push Create Powerful Incentives for Early Retirement. Heavy Backloading
- Severely punishes mobile teachers
- Teacher quality?

Employer contribution to public teacher and private professional retirement & Social Security



Retirement Benefits Costs as a Percent of Salaries:  
Public School Teachers versus Private Sector Professionals

Source: BLS, National Compensation Survey, Employer Costs for Employee Compensation; author est. of teacher SS, using BLS estimate of SS coverage

— public K-12 teachers    — private mgt & professional

Source: Costrell and Podgursky, 2009c, updated

- Analysis of pension wealth accrual
  - Female Teacher
  - Enters at 25
  - Continuous Work
  - Salary Schedule of State Capital
  - Other assumptions, see
    - Costrell & Podgursky (2009)

## Typical DB teacher pension

Annual

$$\text{Pension} = S \times \text{FAS} \times r(S,A)$$

$S$  = service years

$\text{FAS}$  = final average salary

$r(S,A)$  = replacement factor

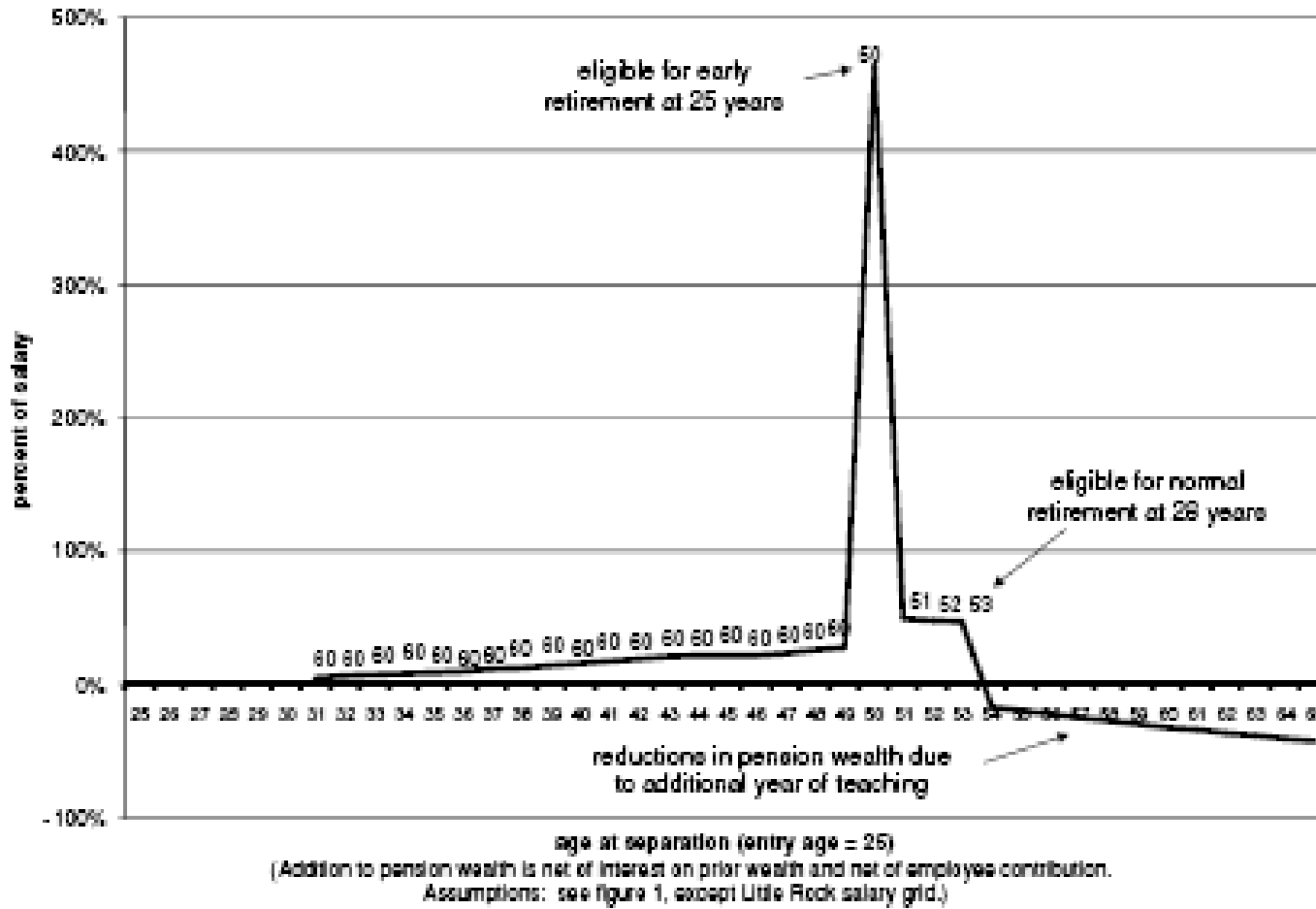
Age and /or service criteria for regular retirement

Formally, consider an individual's pension wealth,  $P$ , at some potential age of separation,  $A_s$ . The stream of expected payments may begin immediately or may (perhaps must) be deferred until some later retirement age. The present value of those payments is:

$$P(A_s) = \sum_{A \geq A_s} (1+r)^{-(A_s-A)} f(A | A_s) \cdot B(A | A_s), \quad (2)$$

Costrell and Podgursky (2009)

# Arkansas



Source: Costrell and Podgursky (2009)b

# California

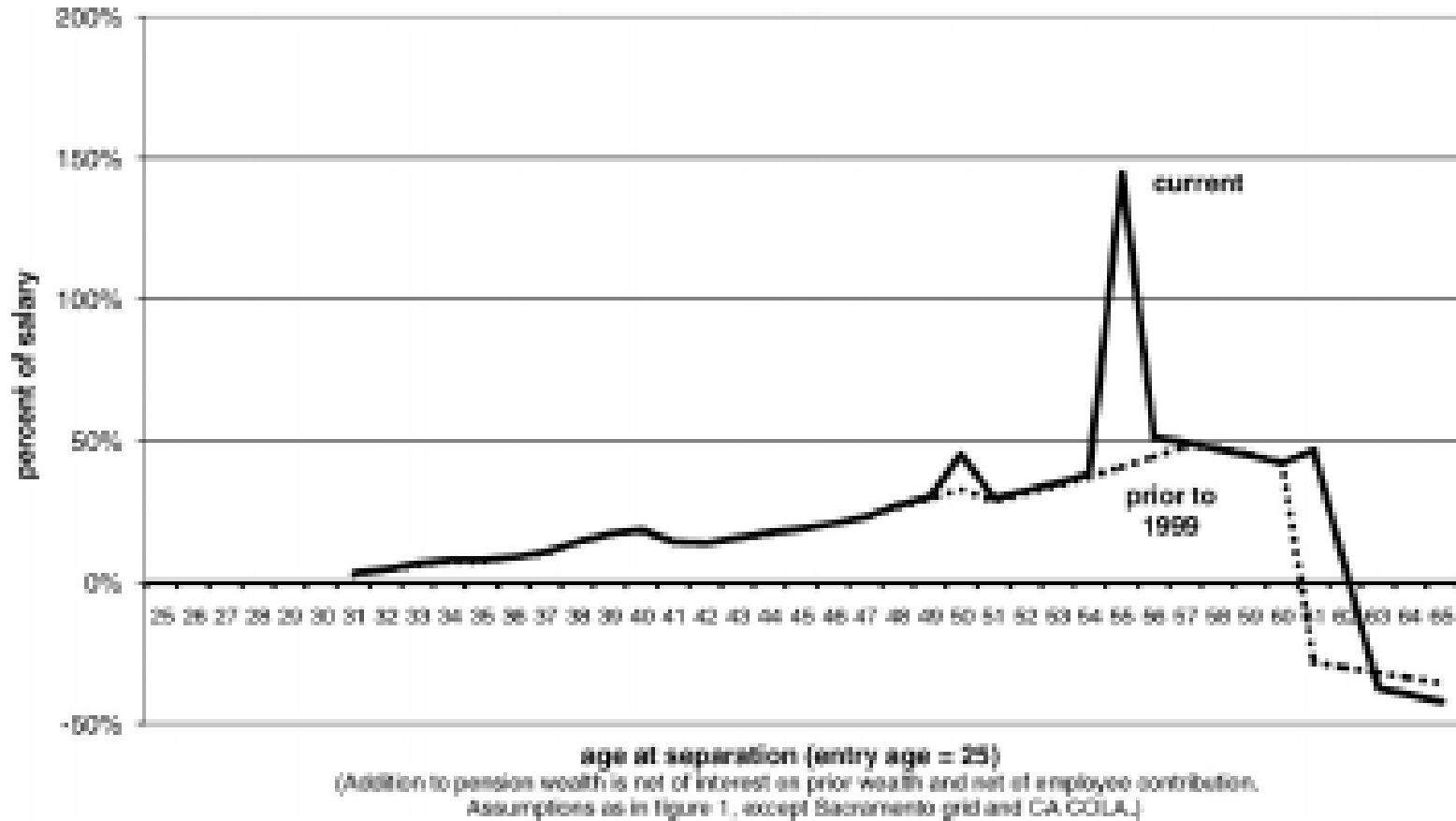


Figure 6. Deferred Income per Year, as Percent of Salary: California. Net Addition to Pension Wealth from an Additional Year of Teaching

Source: Costrell and Podgursky (2009b)

## Massachusetts

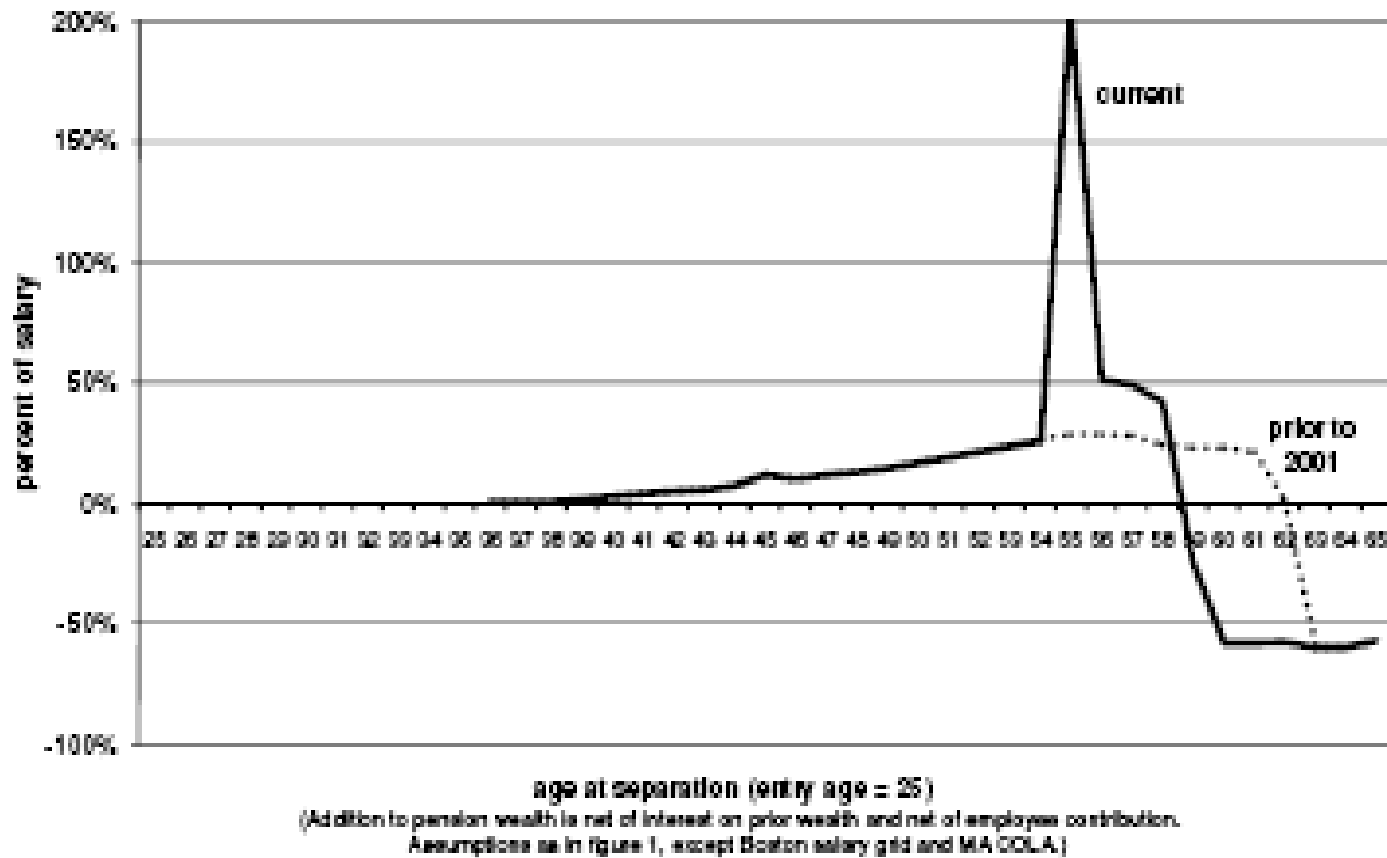


Figure 7. Deferred Income per Year, as Percent of Salary: Massachusetts. Net Addition to Pension Wealth from an Additional Year of Teaching

Source: Costrell and Podgursky (2009b)

# Ohio

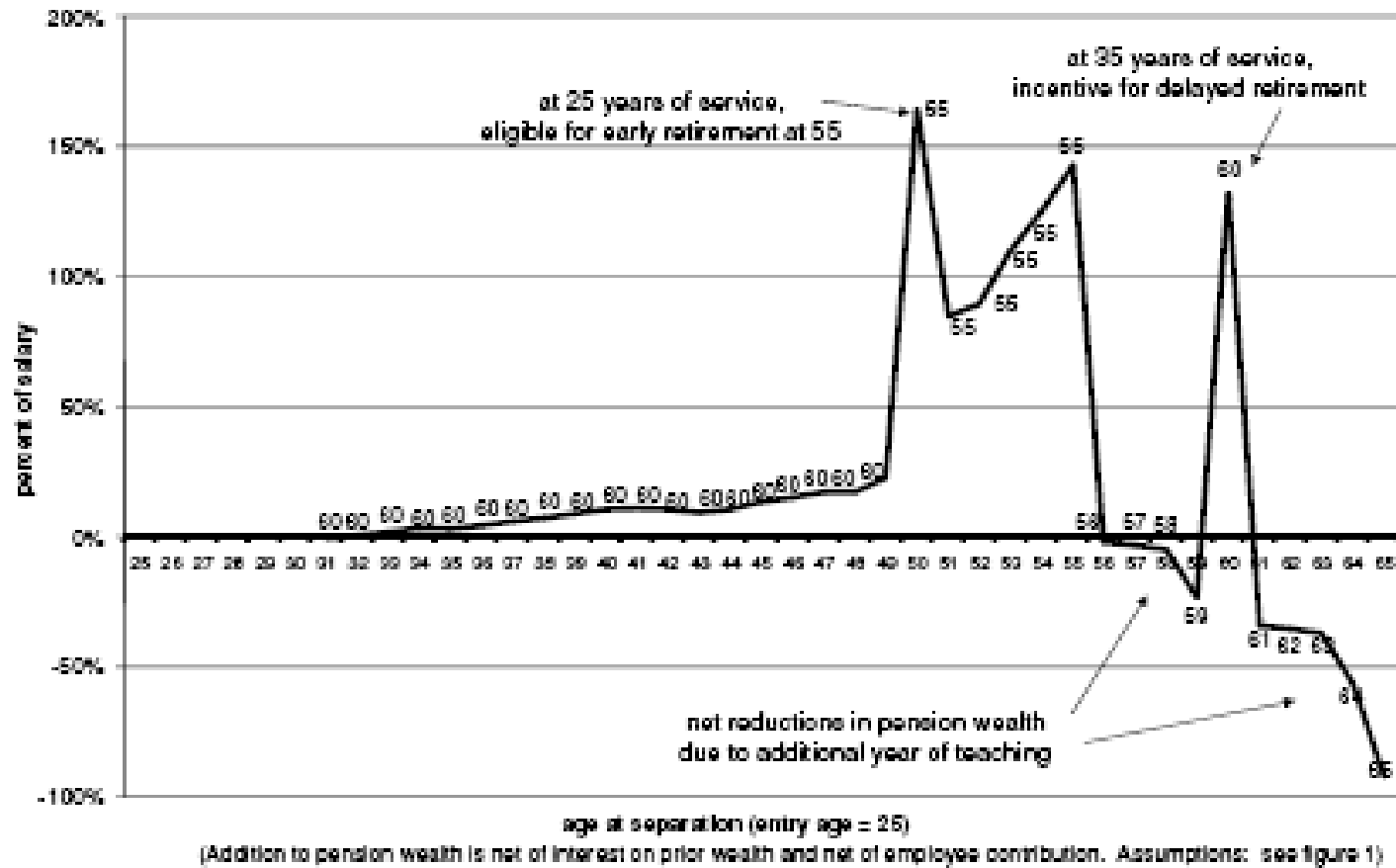


Figure 3. Deferred Income per Year, as Percent of Salary: Ohio. Net Addition to Pension Wealth from an Additional Year of Teaching (age of first pension draw indicated)

## Texas

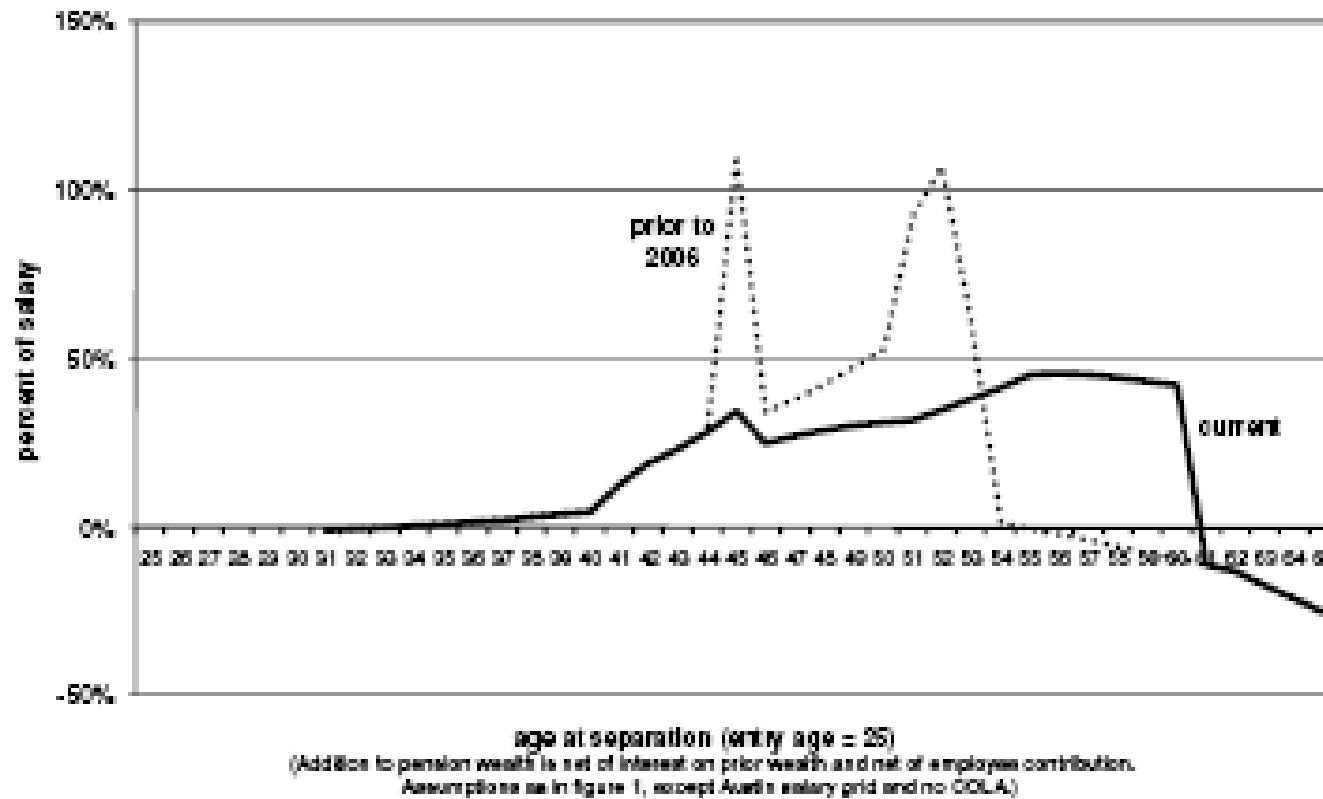


Figure 8. Deferred Income per Year, as Percent of Salary: Texas. Net Addition to Pension Wealth from an Additional Year of Teaching

# Missouri

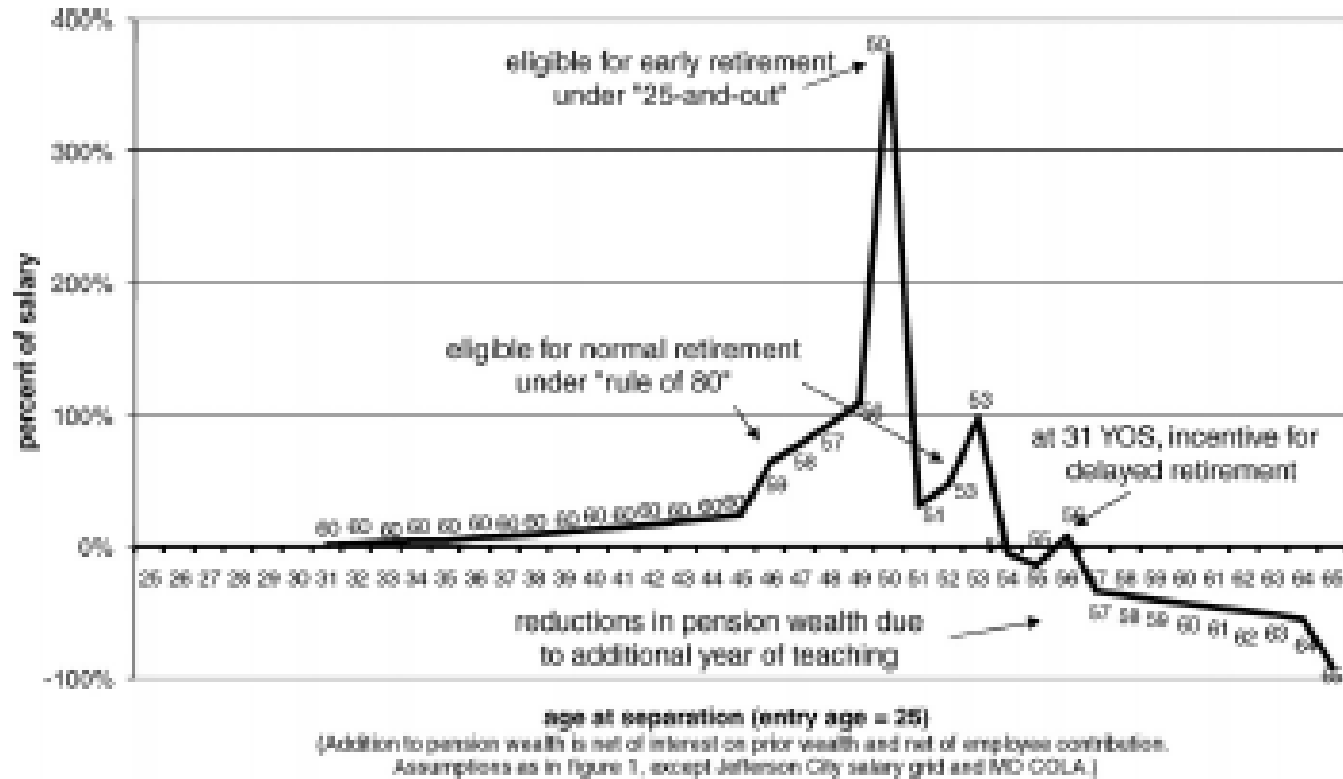
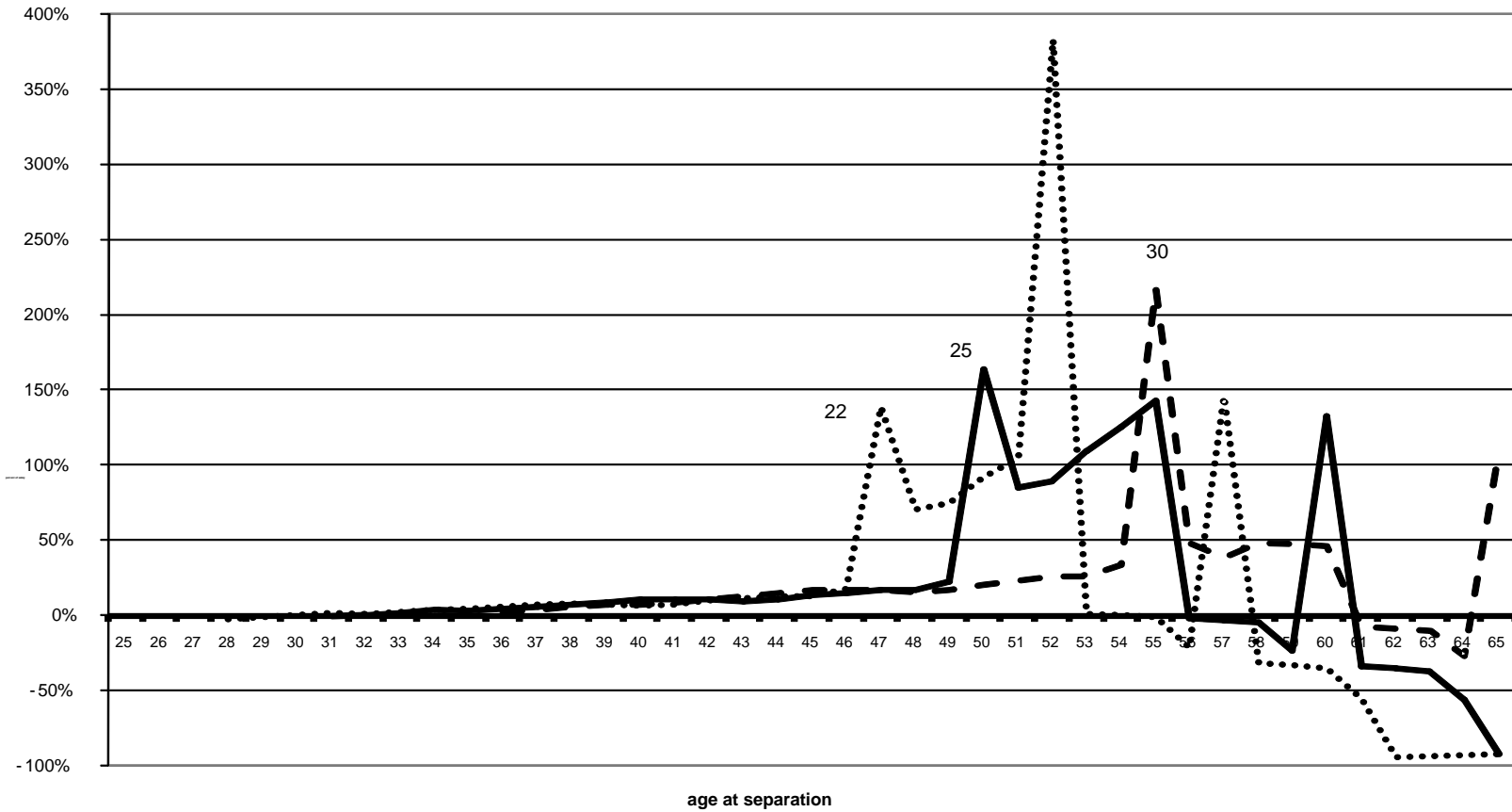


Figure 5. Deferred Income per Year, as Percent of Salary: Missouri. Net Addition to Pension Wealth from an Additional Year of Teaching (age of first pension draw Indicated)

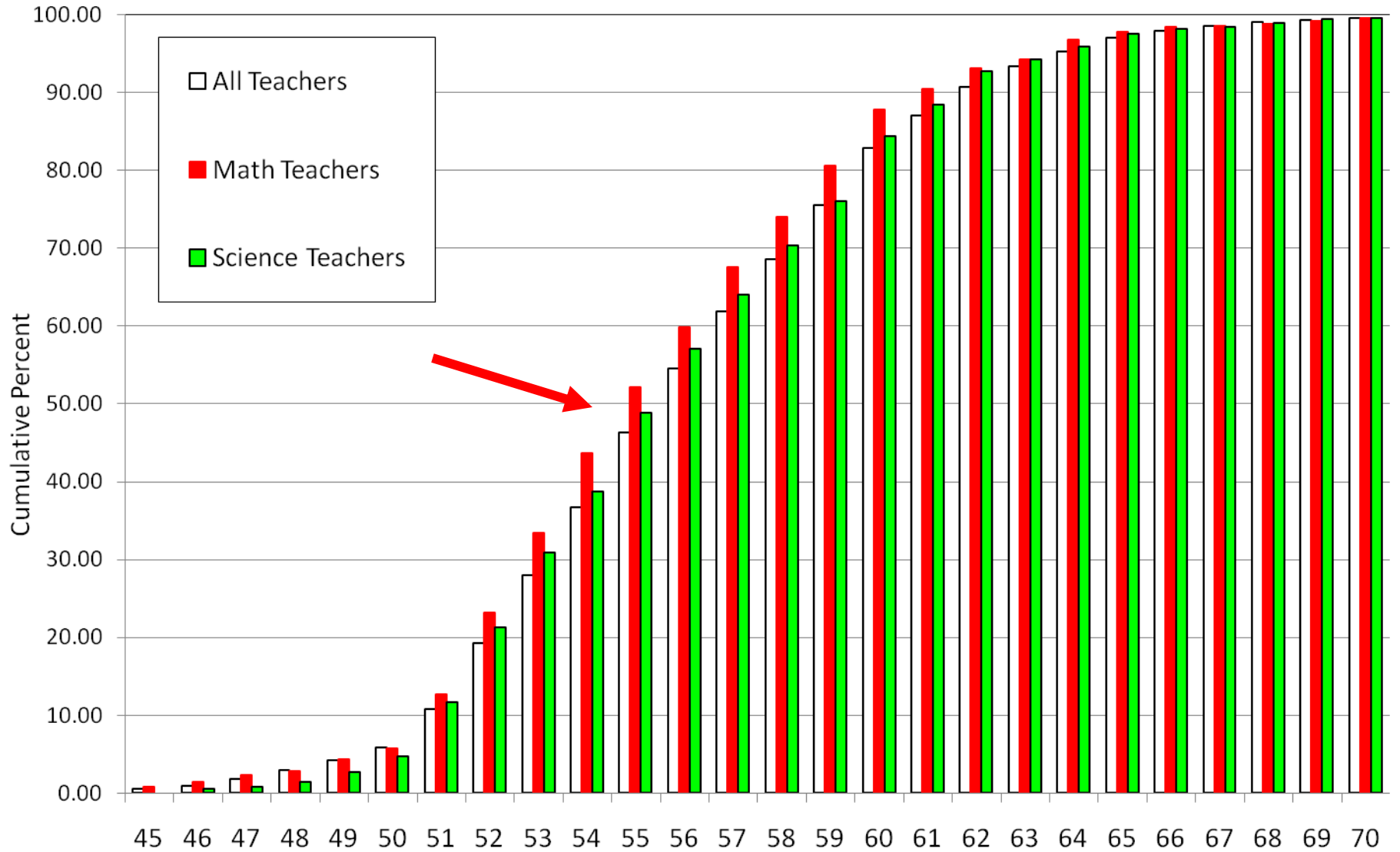
**Deferred income as percent of salary, Ohio: Entry ages 22, 25, 30**  
 Net Addition to Pension Wealth from an Additional Year of Teaching



(Addition to pension wealth is net of interest on prior wealth and net of employee contribution. Assumptions: see Figure 1. )

- Do these spikes affect teacher retirement decisions?
  - Yes
    - Furgeson, Strauss, Vogt (2006) - PA
    - Brown (2008) - CA
    - Podgursky, Ni, Ehlert (2009) – MO
    - Costrell and McGee (2009)- AR

## Average Age at Retirement for Missouri Teachers by Field: 2002-2008 Retirees



Source: Ni, Podgursky, Ehlert, 2009 Retirement Age

# Penalties for Mobility

Female Teacher

Enters at 25

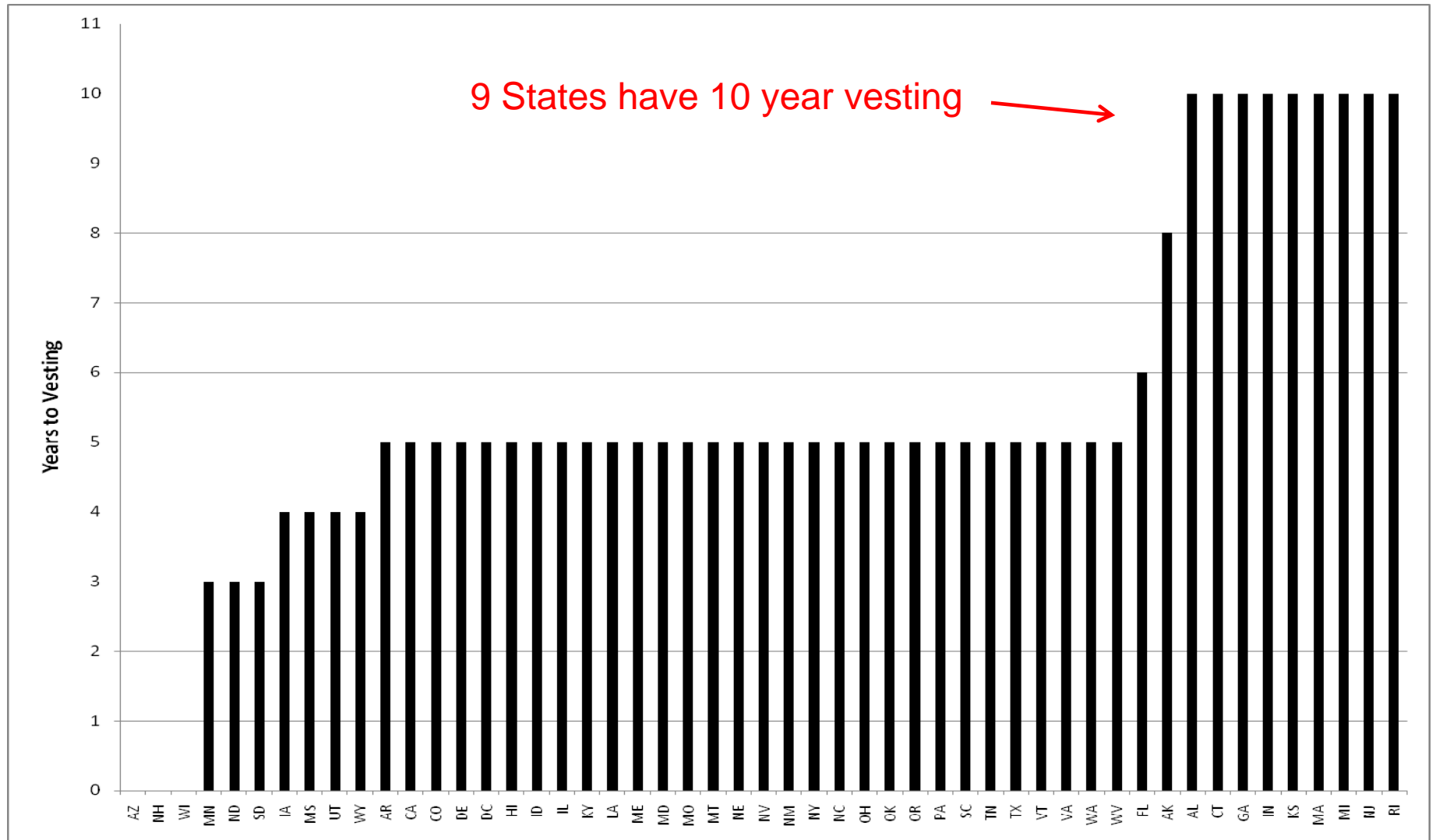
Continuous Work

Salary Schedule of State Capitol

Other assumptions, see

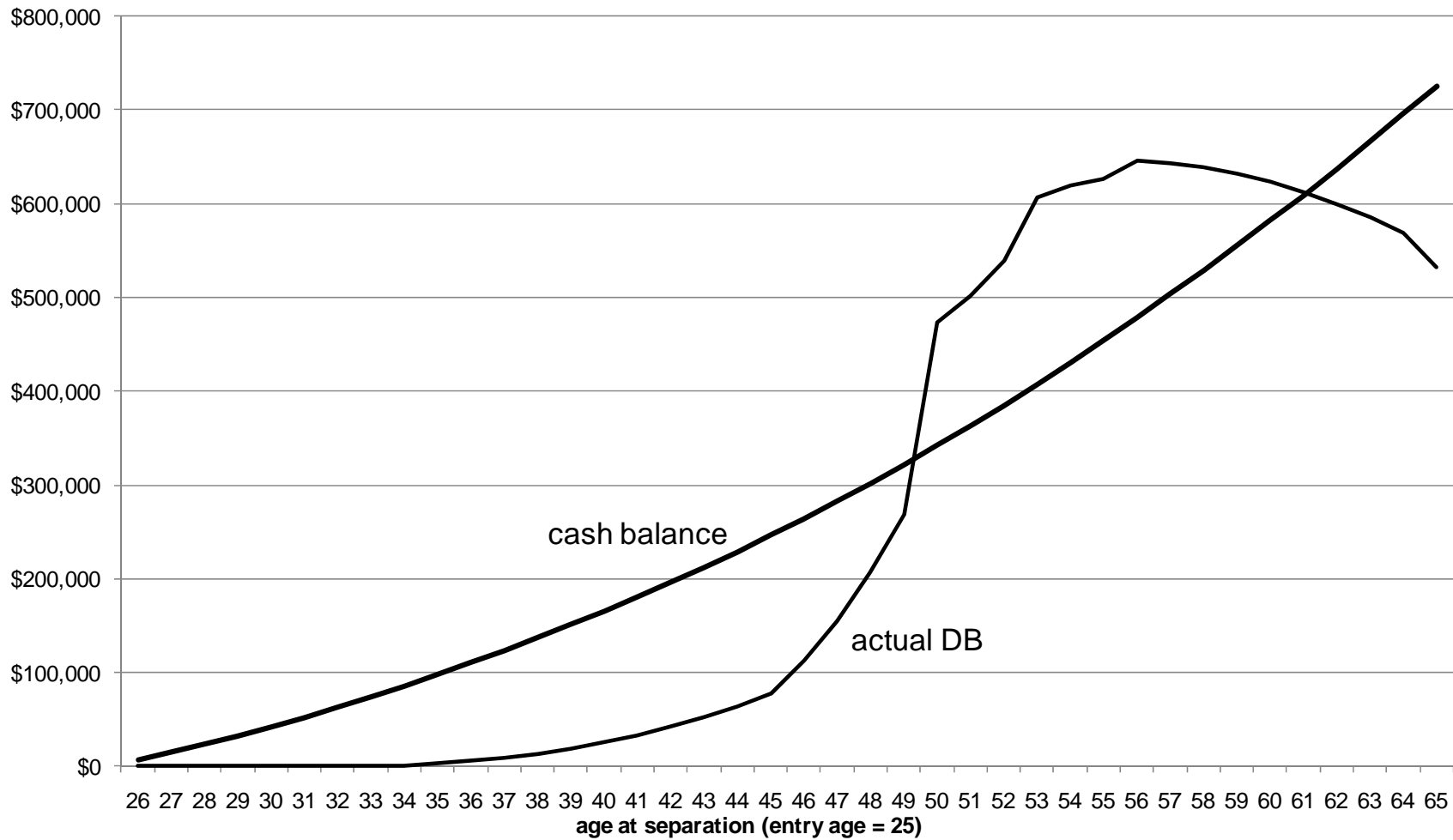
Costrell & Podgursky (2009)

## Years to Vesting in State Teacher Pension Plans



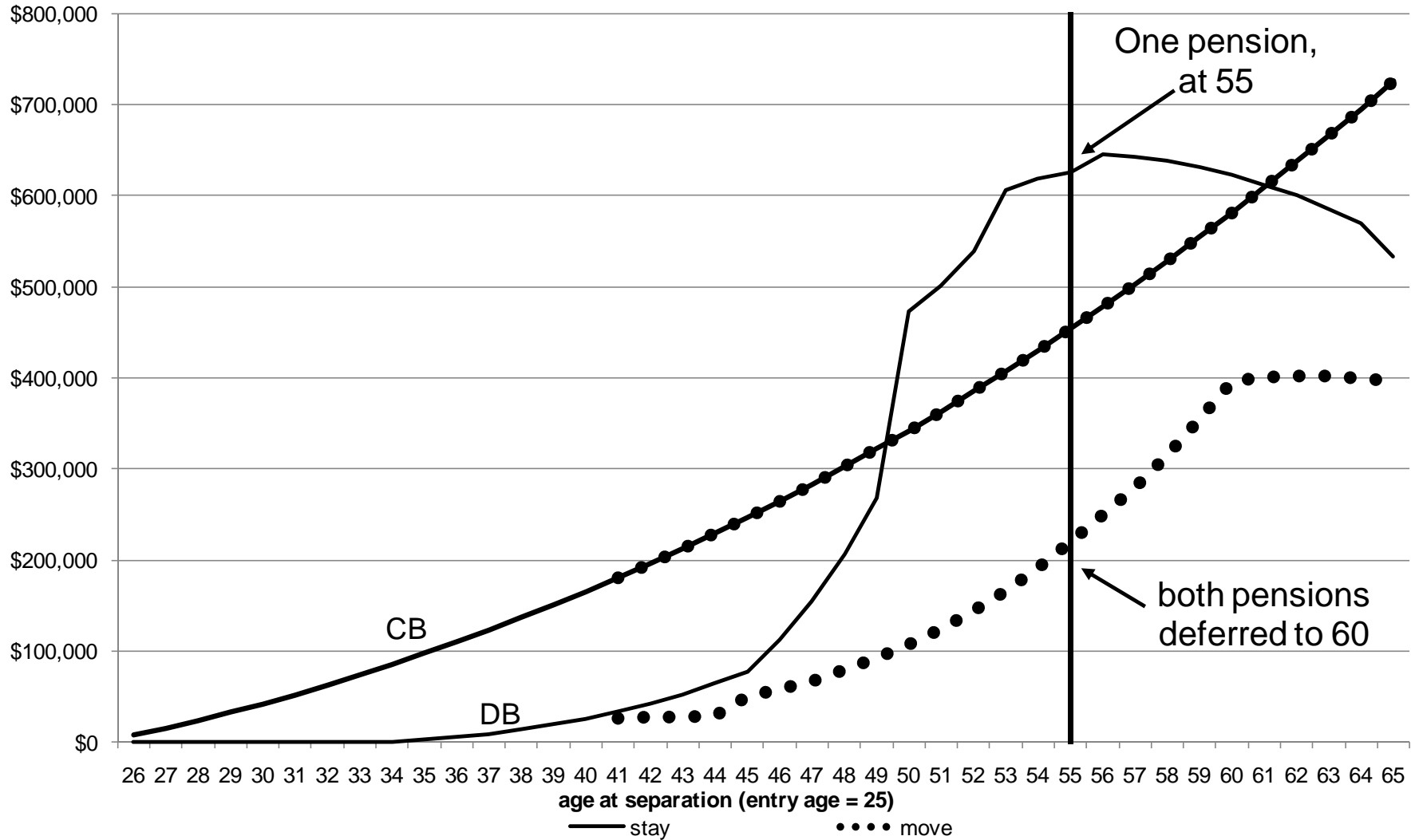
Source: [www.nasra.org](http://www.nasra.org), public fund survey

**Figure 5. Net Pension Wealth, MO: actual DB & hypothetical cash balance**  
(adjusted for inflation)



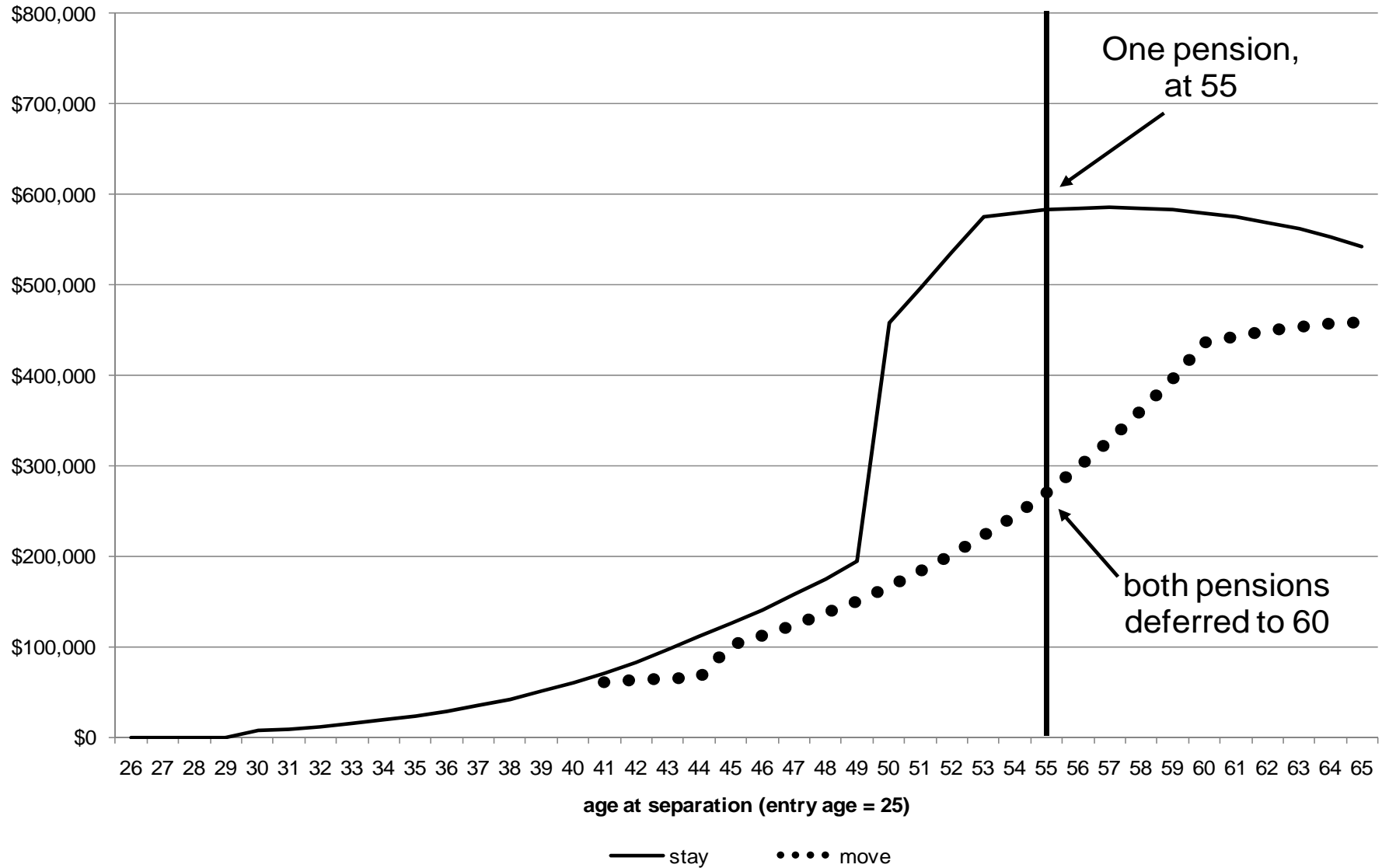
Source: Costrell and Podgursky (2009a)

**Figure 7: Net Pension Wealth, MO: movers vs. stayers, DB & CB**  
**65% Loss from Mobility for age 55 separator: \$407K**



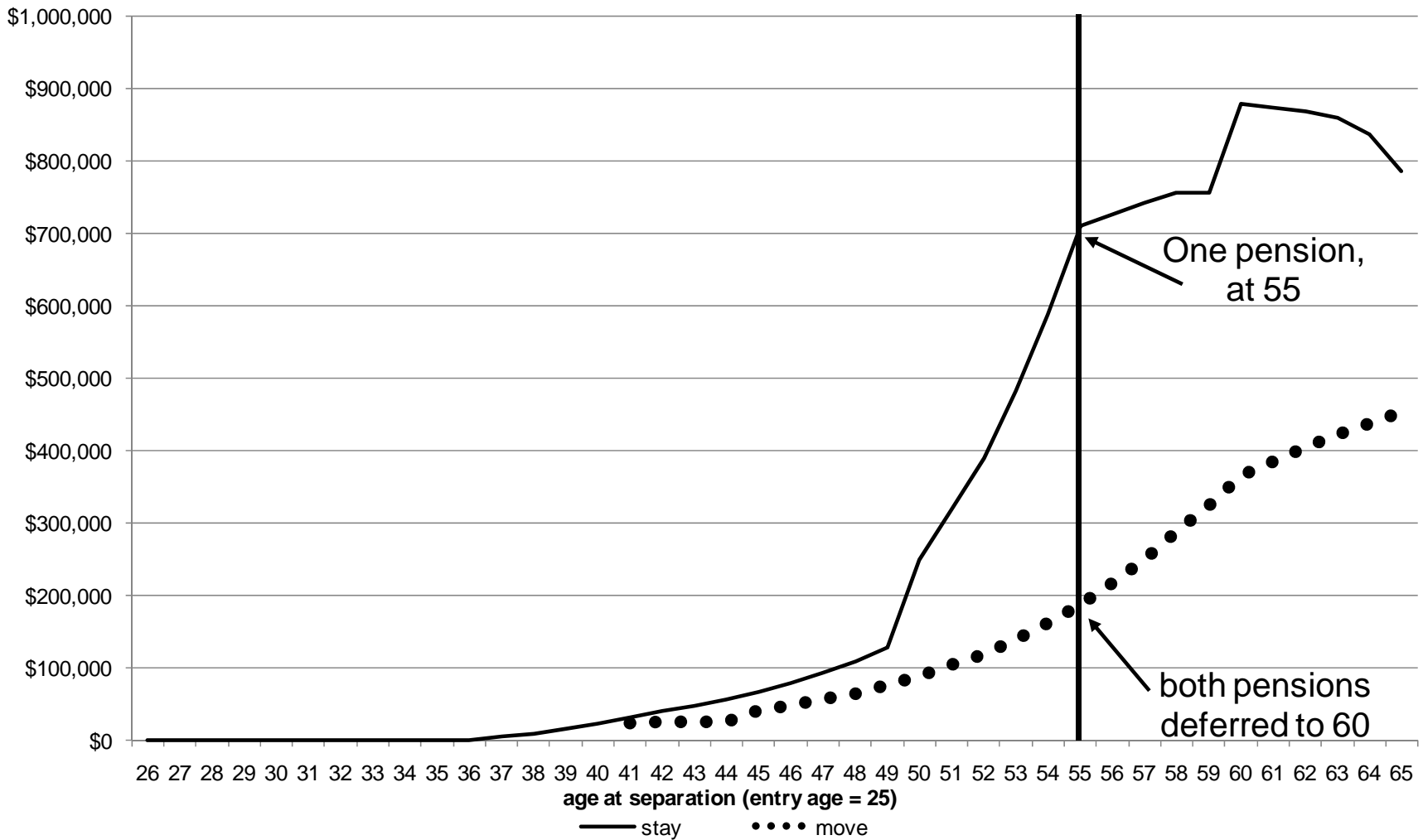
Source: Costrell and Podgursky (2009a)

**Figure 8: Net Pension Wealth, AR: movers vs. stayers**  
**54% Loss from Mobility for age 55 separator: \$312K**



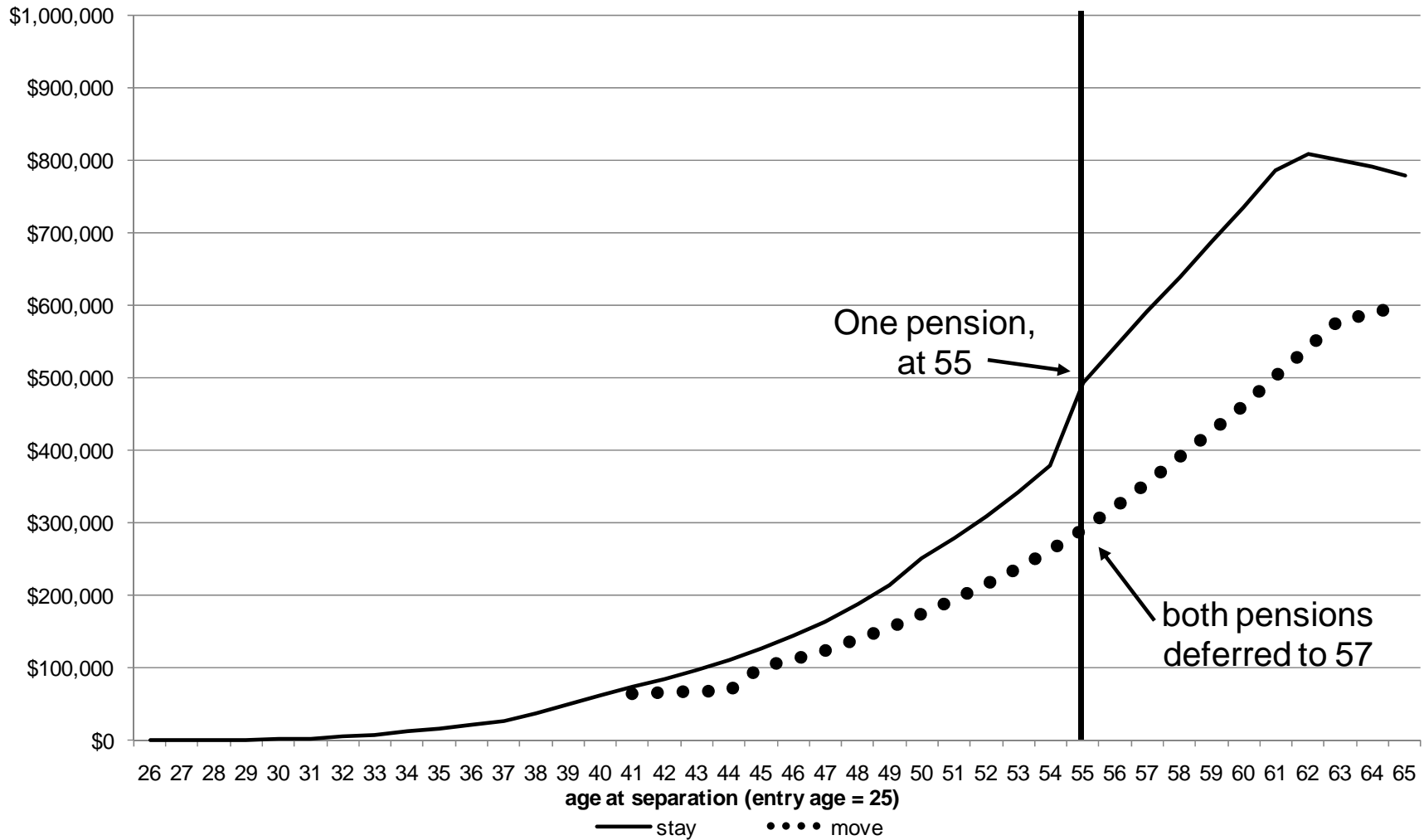
Source: Costrell and Podgursky (2009a)

**Figure 9: Net Pension Wealth, OH: movers vs. stayers**  
**74% Loss from Mobility for age 55 separator: \$522K**



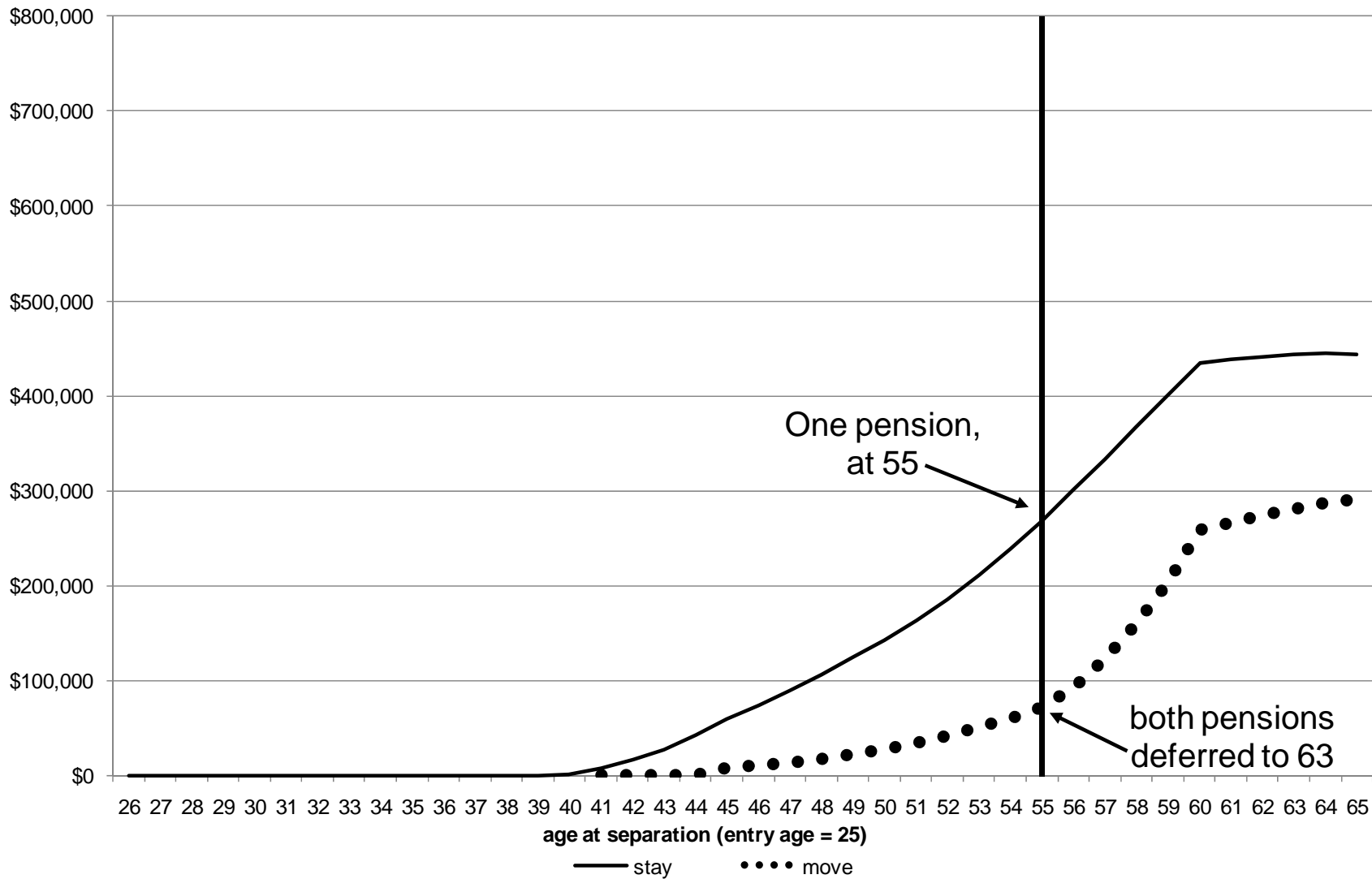
Source: Costrell and Podgursky (2009a)

**Figure 10: Net Pension Wealth, CA: movers vs. stayers**  
**41% Loss from Mobility for age 55 separator: \$201K**



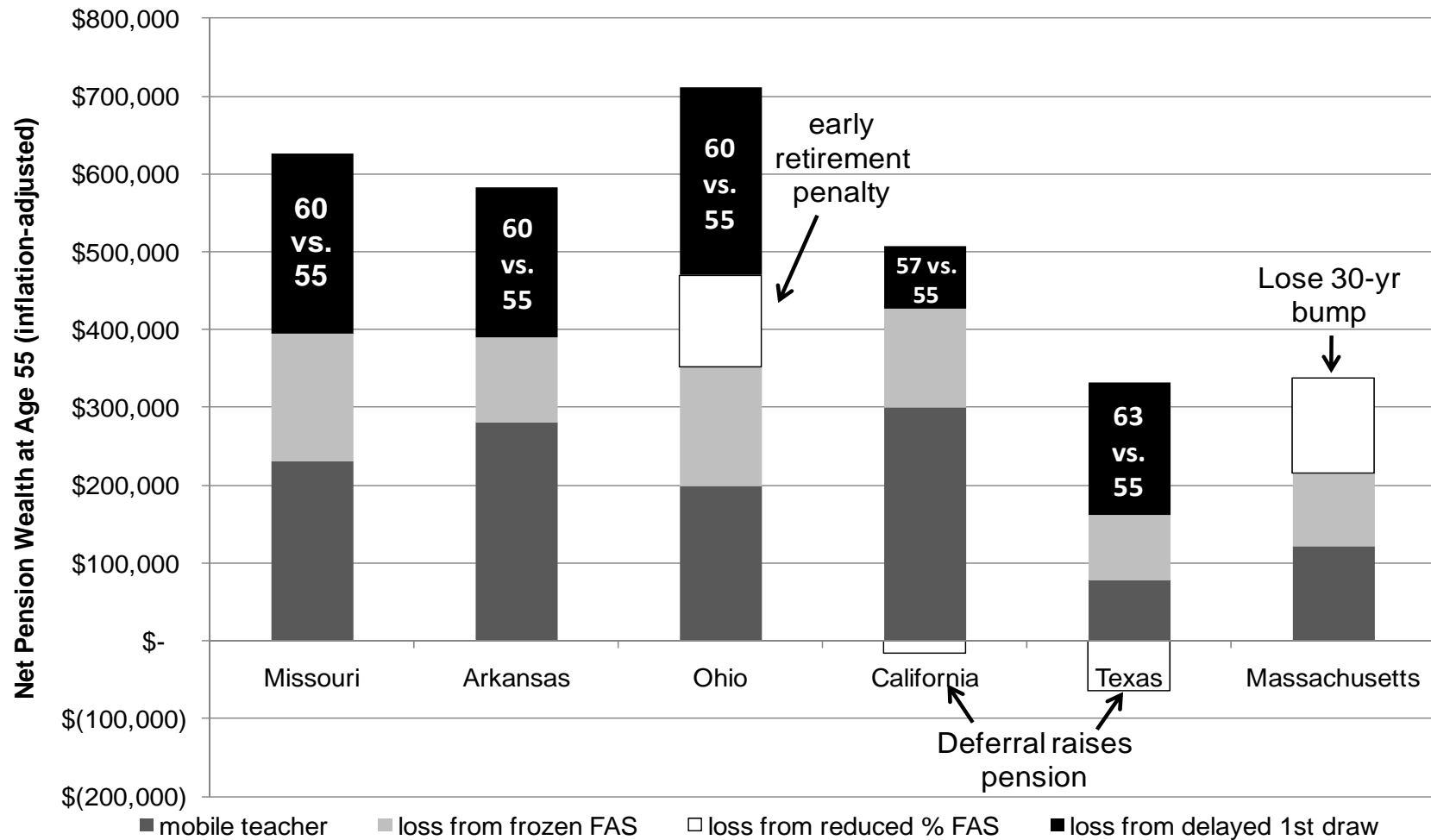
Source: Costrell and Podgursky (2009a)

**Figure 11: Net Pension Wealth, TX (new hires): movers vs. stayers**  
**73% Loss from Mobility for age 55 separator: \$197K**



Source: Costrell and Podgursky (2009a)

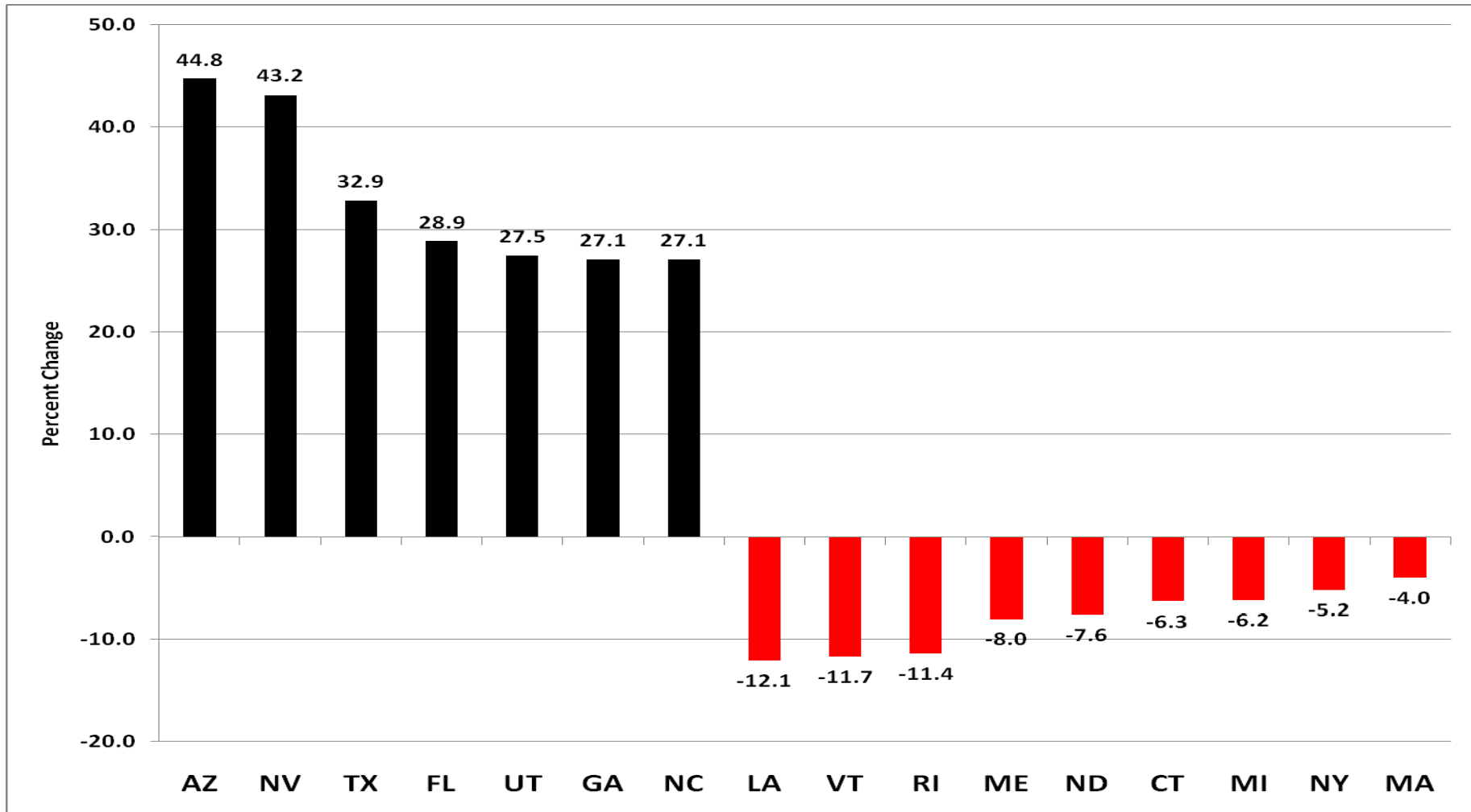
**Figure 13: Decomposition of Loss From Mobility**  
 entry at 25, move at 40, retire at 55



Note: losses from each source taken separately, over-explain the mobility loss.  
 In this chart, the interaction term is allocated proportionately among the three sources

Source: Costrell and Podgursky (2009a)

# Projections of Public School K-12 Enrollment: 2005 to 2017



Source: U.S. Department of Education. National Center for Education Statistics.  
<http://www.nces.ed.gov/programs/projections/projections2017/sec1c.asp>

# Conclusion

- Greater Labor Market Transparency
- Teacher retirement benefits as a tool for recruiting, retaining, and motivating a high quality workforce
- Policy space for experiments

# References

- R. Costrell and M. Podgursky. 2009a. "[Distribution of Benefits in Teacher Retirement Systems and Their Implications for Mobility](#)" Vanderbilt: NCPI
- . R. Costrell and M. Podgursky. 2009b. "[Peak, Cliffs, and Valleys: The Peculiar Incentives in Teacher Retirement Systems and Their Consequences for School Staffing.](#)" Education Finance and Policy. 4 (2): 175-211.
- R. Costrell and M. Podgursky. 2009c "[Teacher Retirement Benefits.](#)" Education Next 9 (2), 59-63.
- S. Ni, M. Podgursky, M. Ehlert. 2009. "[Teacher Pension Incentives and Labor Market Behavior: Evidence from Missouri Administrative Teacher Data.](#)" Vanderbilt: NCPI

Also

- R. Costrell and M. Podgursky. "Mountains or Molehills? Let the Reader Decide." blog . [www.educationnext.net](http://www.educationnext.net)