

SPENDING VS. SCORES:

A DATA-DRIVEN LOOK AT EDUCATION SPENDING AND STUDENT ACHIEVEMENT

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WHY THIS MATTERS

- **EDUCATION FUNDING DECISIONS SIGNIFICANTLY IMPACT STUDENT SUCCESS.**
- **THE RELATIONSHIP BETWEEN SPENDING AND OUTCOMES IS OFTEN UNCLEAR.**
- **DATA-DRIVEN INSIGHTS CAN GUIDE STRATEGIC RESOURCE ALLOCATION.**
- **STUDENT SUCCESS SHAPES THE FUTURE WORKFORCE AND HAS LONG-TERM ECONOMIC IMPLICATIONS.**
- **GOAL: INFORM DECISIONS THAT EXPAND OPPORTUNITIES FOR ALL STUDENTS AND IMPROVE ACHIEVEMENT**



GUIDING QUESTIONS



Main Question:

Does more spending on education actually lead to better student performance over time?

Sub-questions:

1. How have overall education budgets and per pupil expenditure (PPE) changed over time?
2. Is there a measurable correlation between spending and student performance?
3. Do states with the highest and lowest education spending demonstrate predictable differences in student outcomes?
4. How do student economic backgrounds impact performance trends?



Data Sources:



- National Assessment of Educational Progress (NAEP)
4th & 8th Grade Reading and Math, 2000–2024
- US Department of Education Budget History
- Kids Count Data Center, Per-Pupil Educational Expenditures (via USDOE, IES, NCES)

Adjustments:

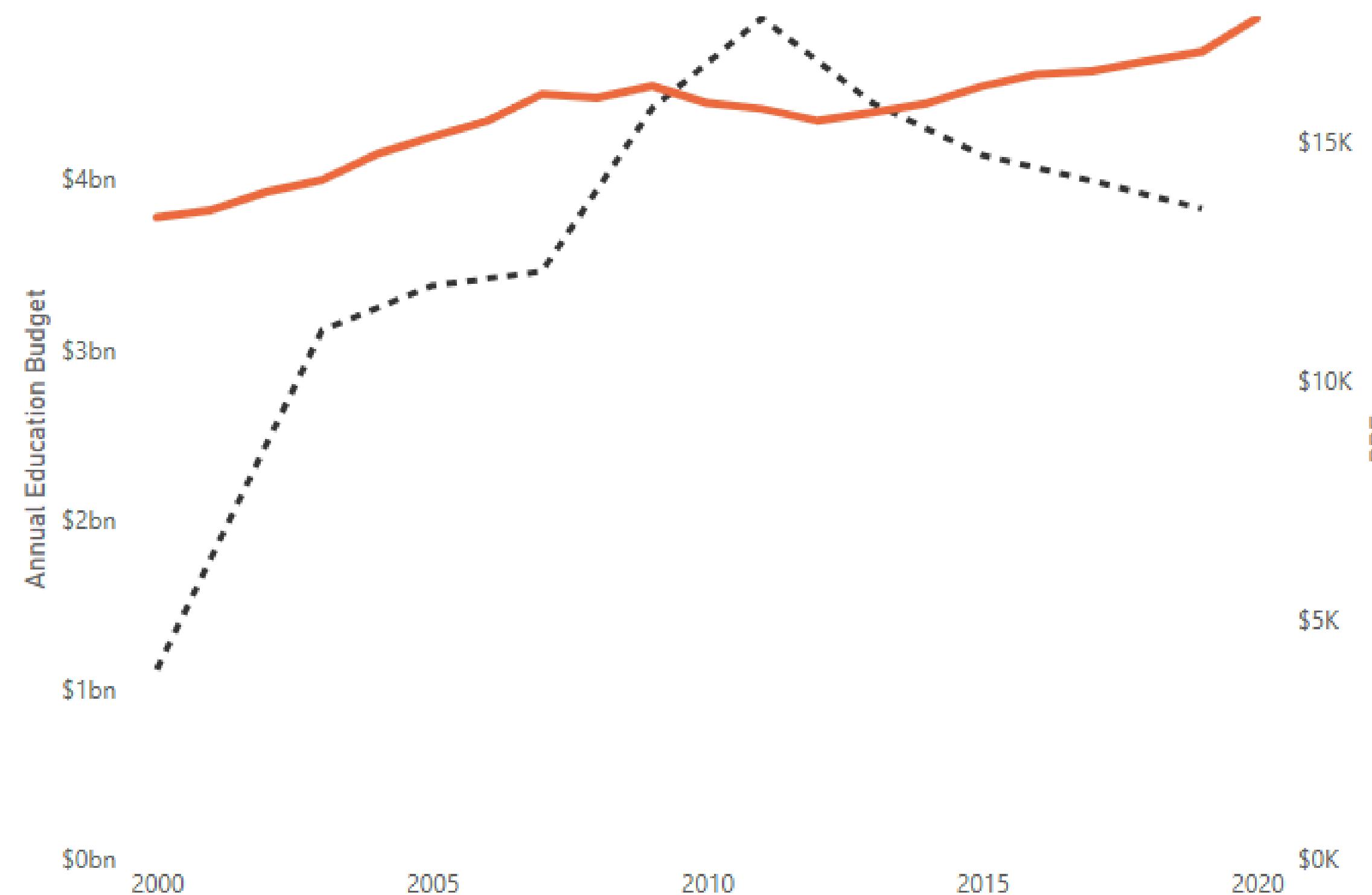
- Inflation-adjusted to 2024 dollar value
- Reporting Group: All students, public & nonpublic schools
- Jurisdiction: 50 states & DC (excluding US territories)

Approach:

- Analyze long-term spending trends
- Normalize data for comparability
- Compare performance outcomes
- Disaggregate by student subgroup
- Identify Policy Implications

AVG SPENDING TRENDS 2000-2020

--- National Education Budget
— Per-Pupil Expenditure (PPE)



TOTAL GROWTH

31%
PPE

242%
EDUCATION BUDGET

AAGR
AVERAGE ANNUAL GROWTH RATE

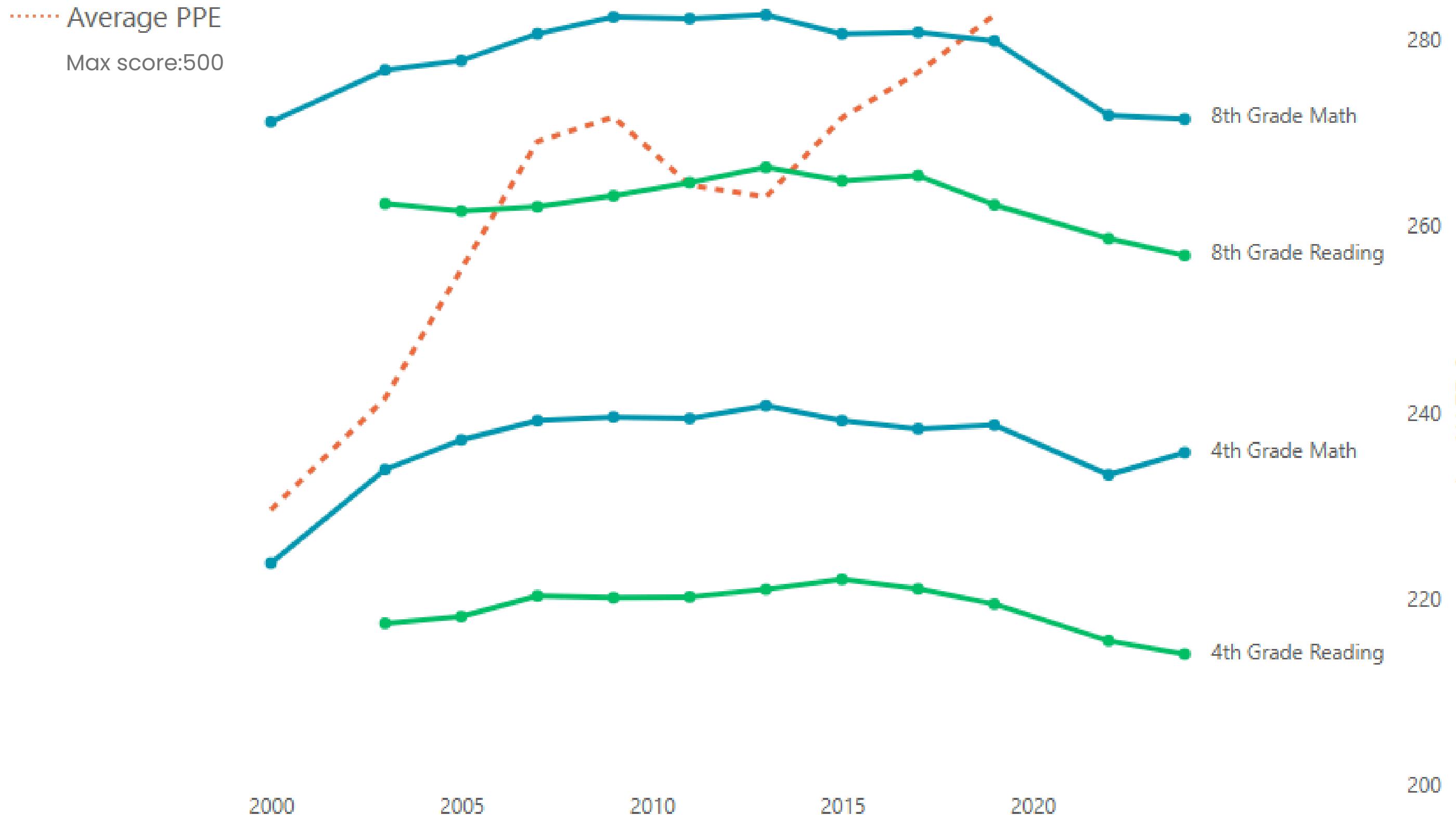
1.4%
PPE

6.7%
EDUCATION BUDGET

*Education budget values for 2016 and 2024 are DOE estimates

ANNUAL SPENDING VS OVERALL PERFORMANCE

NATIONAL



No clear link between spending trends and NAEP scores, even pre-pandemic

Stronger results in math compared to reading

Student scores in 4th and 8th grade reading at historic lows

Post-2019: pandemic-related learning loss evident

STATE SPENDING EXTREMES

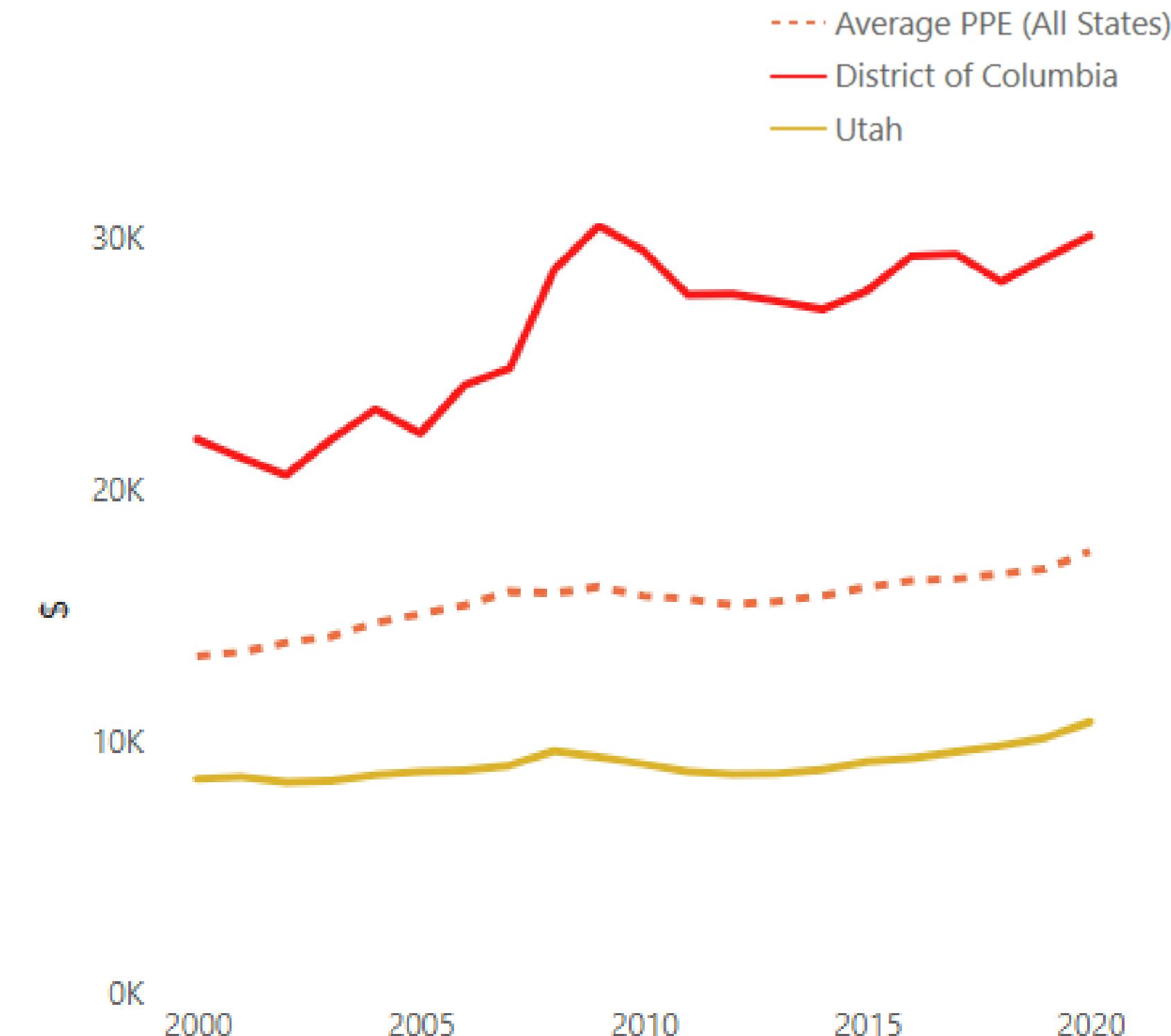
Highest Per-Pupil Expenditures

State	Avg PPE
District of Columbia	\$26,382
New York	\$26,081
New Jersey	\$24,585
Connecticut	\$22,963
Vermont	22,627

Lowest Per-Pupil Expenditures

States	Avg PPE
Utah	\$9,154
Idaho	\$10,065
Arizona	\$10,711
Oklahoma	\$11,045
Mississippi	\$11,175

Avg PPE = average of years 2000-2020



DC & UTAH: SPENDING VS. NAEP PERFORMANCE

CORRELATION OF PER-PUPIL EXPENDITURE WITH 4TH AND 8TH GRADE SCORES

	Subject	National	District of Columbia	Utah
4th Grade	Reading	0.23	0.86	0.58
	Math	0.20	0.83	0.61

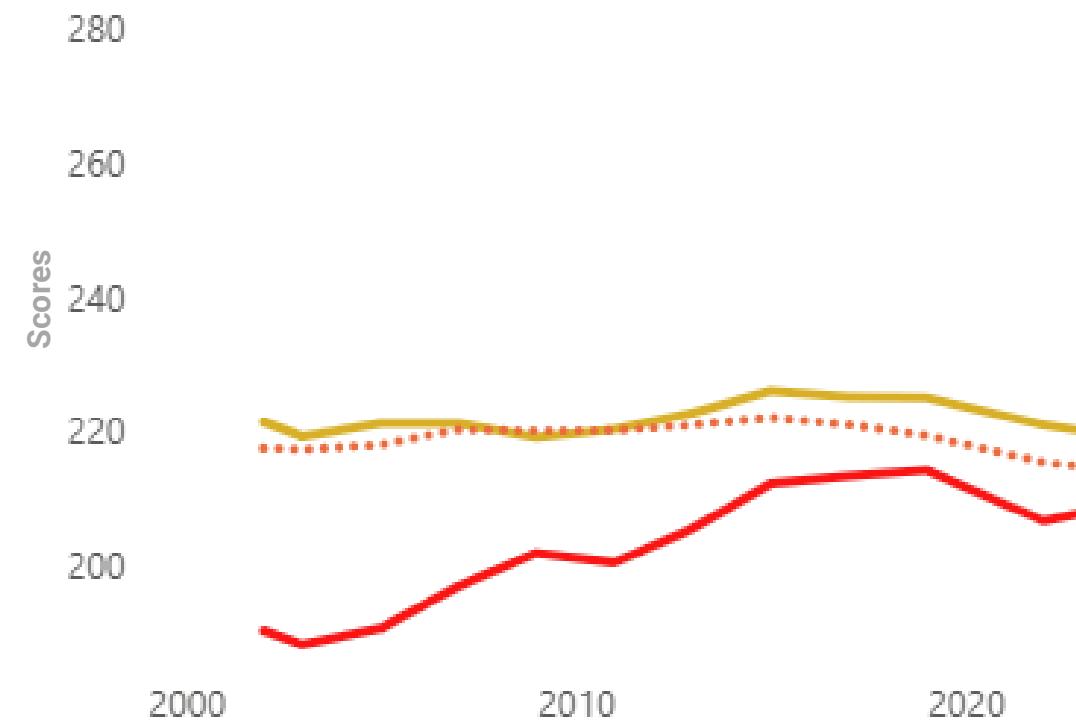
	Subject	National	District of Columbia	Utah
8th Grade	Reading	0.17	0.76	0.39
	Math	0.19	0.84	0.64

National correlation is weak.
Some states show strong correlation.

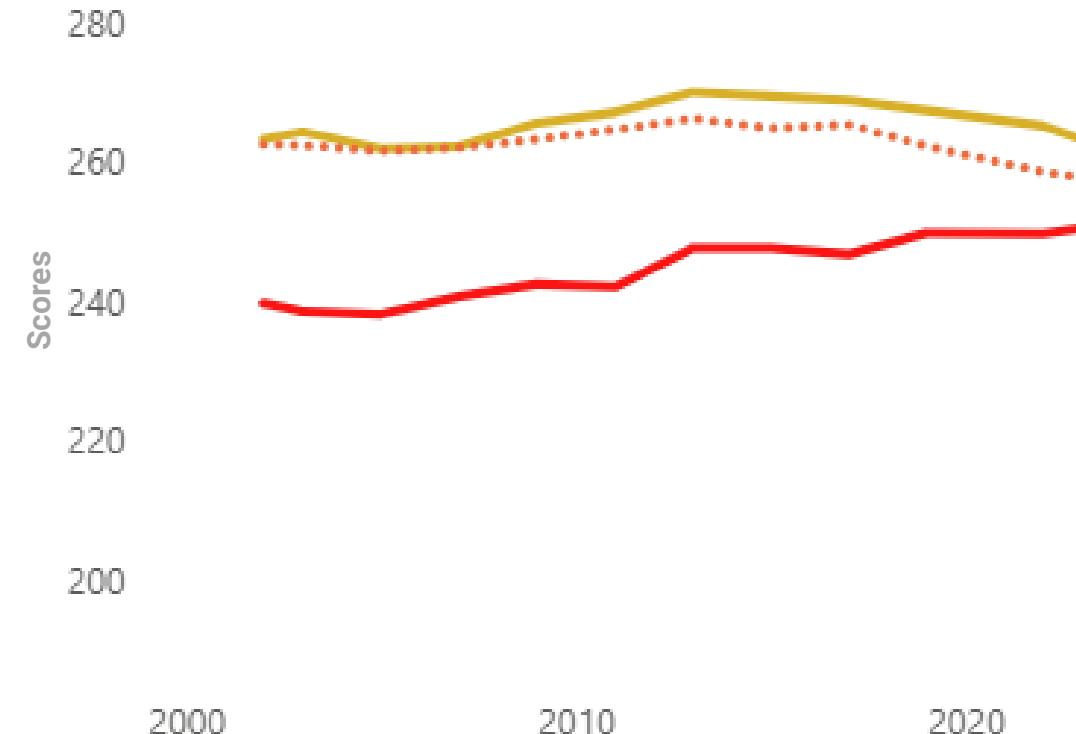
AVERAGE NAEP SCORES, 2000-2024 DC & UT

4TH

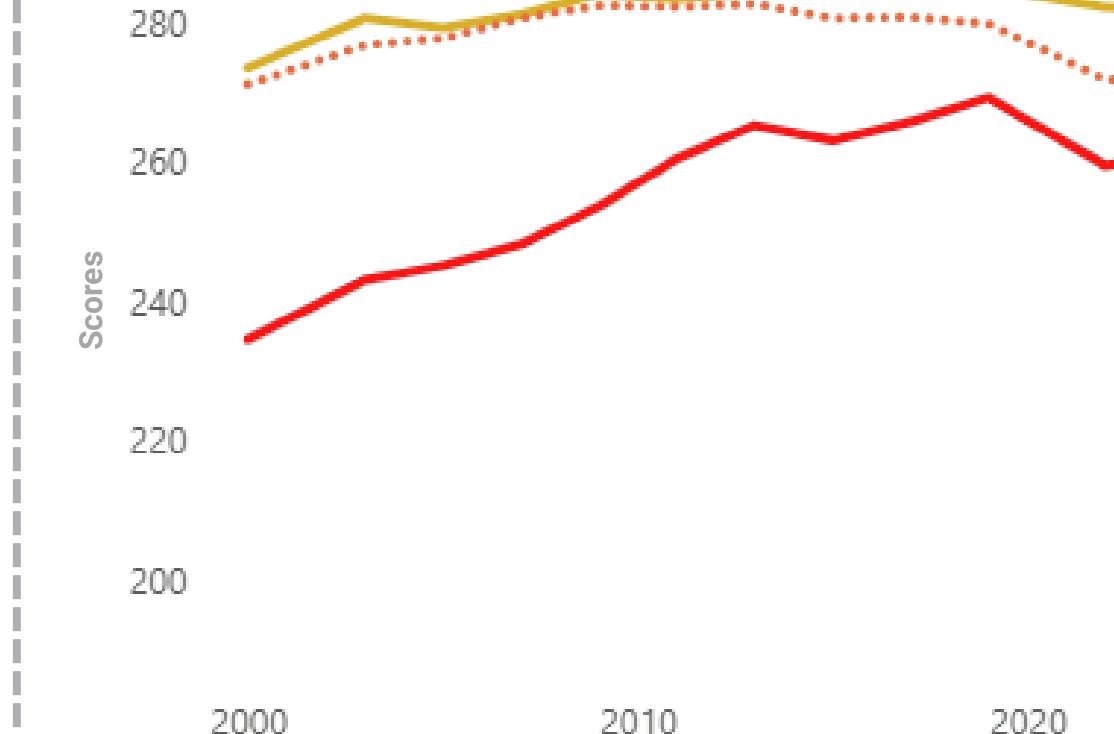
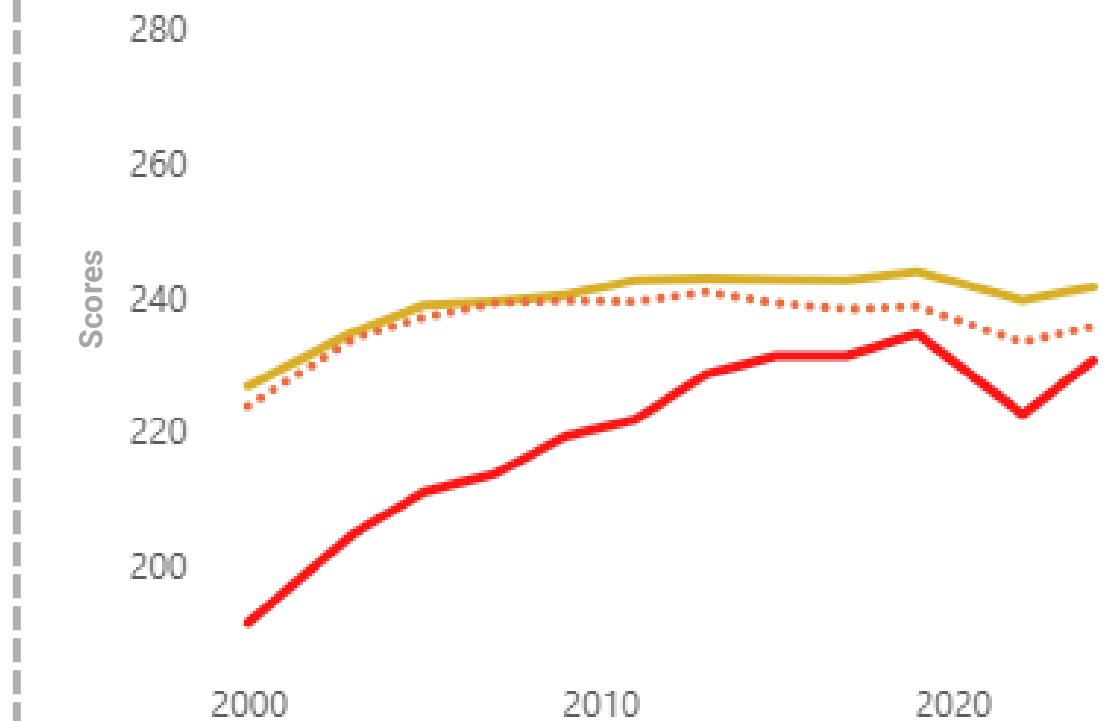
Reading



8TH



Math



District of Columbia
Utah
Nat'l Average
Max score:500

Utah consistently outperforms DC & national avg despite lower PPE

DC shows growth but remains below Utah and national avg

TOP & BOTTOM 5 STATES NAEP READING SCORES

4th GRADE	Top	Avg Score	Bottom	Avg Score
	Massachusetts	232.1	District of Columbia	202.6
	New Hampshire	227.7	New Mexico	206.3
	New Jersey	227.5	Alaska	208.6
	Connecticut	226.4	Louisiana	210.2
	Vermont	225	California	210.9

Massachusetts tops
4th & 8th grade
reading

8th GRADE	Top	Avg Score	Bottom	Avg Score
	Massachusetts	273.2	District of Columbia	255.8
	New Jersey	271.3	New Mexico	252.2
	New Hampshire	270.2	Mississippi	253.3
	Vermont	270.1	Alabama	254.2
	Connecticut	269	Louisiana	255.3

D.C. ranks
lowest

TOP & BOTTOM 5 STATES NAEP MATH SCORES

4th GRADE	Top	Avg Score	Bottom	Avg Score
	Massachusetts	247.4	District of Columbia	220.1
	New Hampshire	246.7	New Mexico	226.7
	Minnesota	245.6	Alabama	228.8
	New Jersey	244.7	Louisiana	229.5
	Wyoming	243	Mississippi	229.9

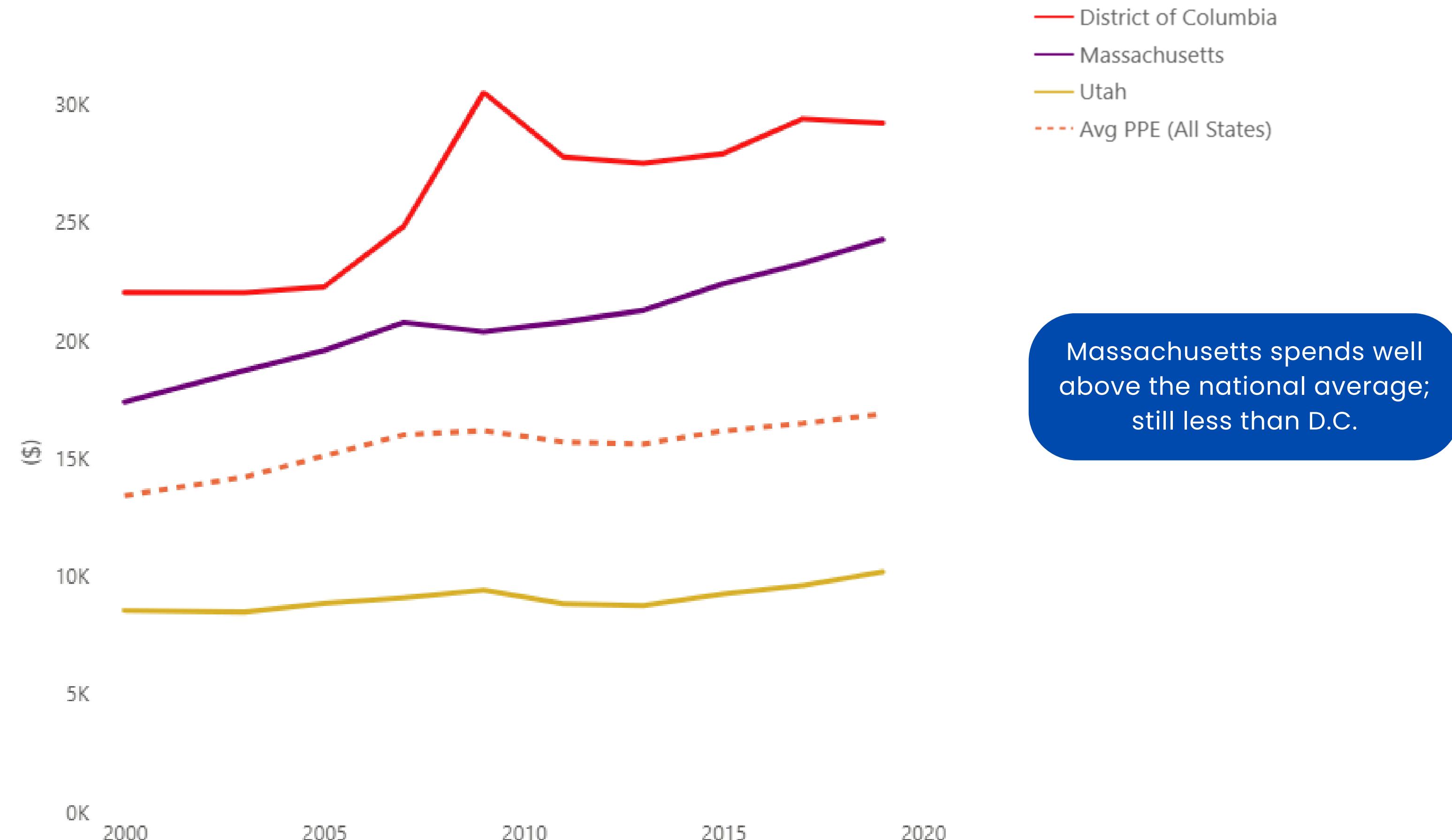
Massachusetts tops
4th & 8th grade math

8th GRADE	Top	Avg Score	Bottom	Avg Score
	Massachusetts	292.4	District of Columbia	255.8
	Minnesota	290.4	Alabama	265.9
	New Jersey	288.8	New Mexico	266.2
	New Hampshire	288.4	Mississippi	266.5
	Vermont	287	Louisiana	268.5

D.C. ranks
lowest

AVERAGE PPE 2000-2024

DC & MA

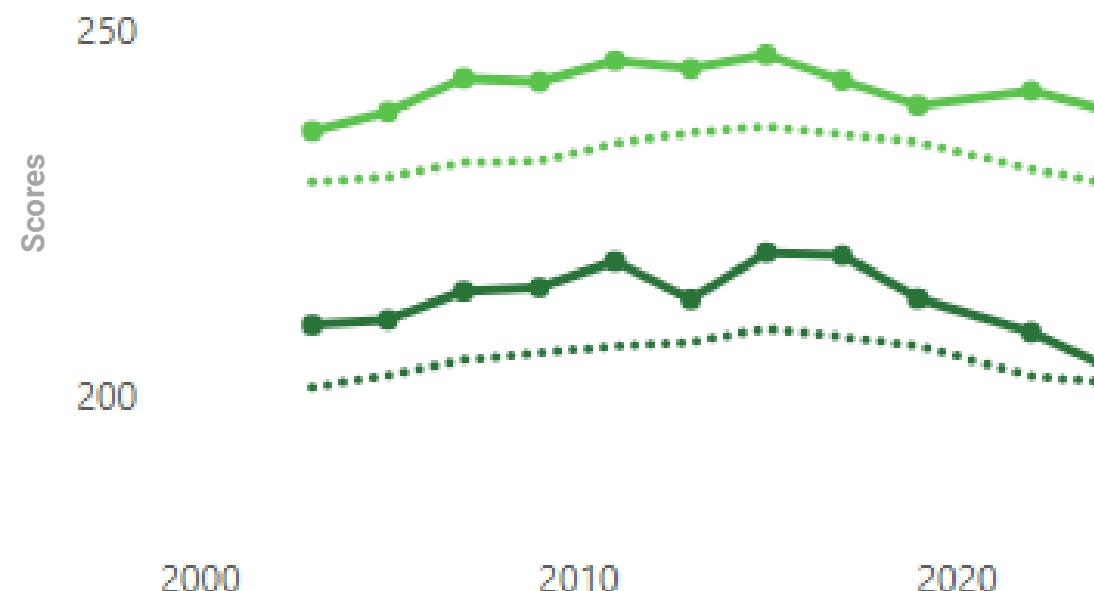


ECONOMIC DISADVANTAGE & PERFORMANCE **READING**

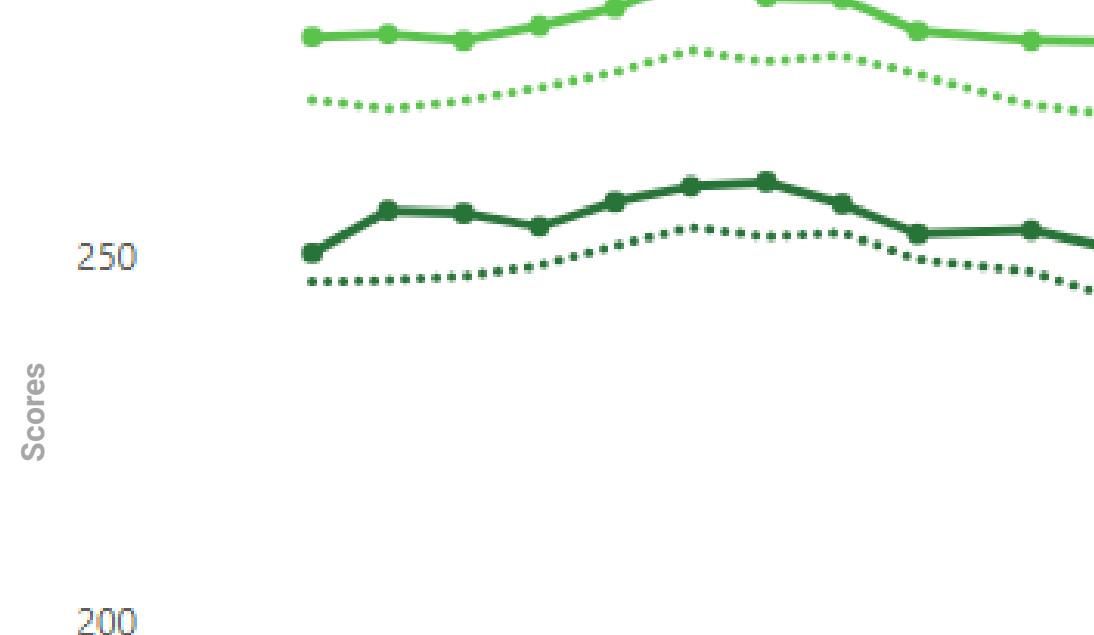
4TH & 8TH GRADE ANNUAL AVERAGE NAEP SCORES: DC AND MASSACHUSETTS

MA

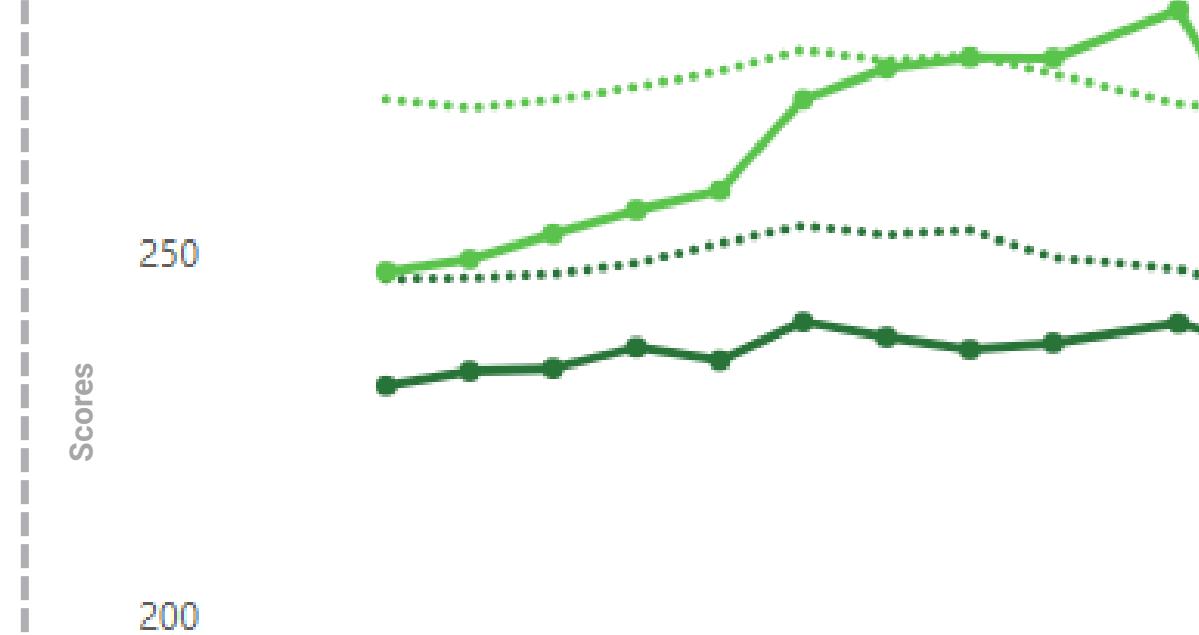
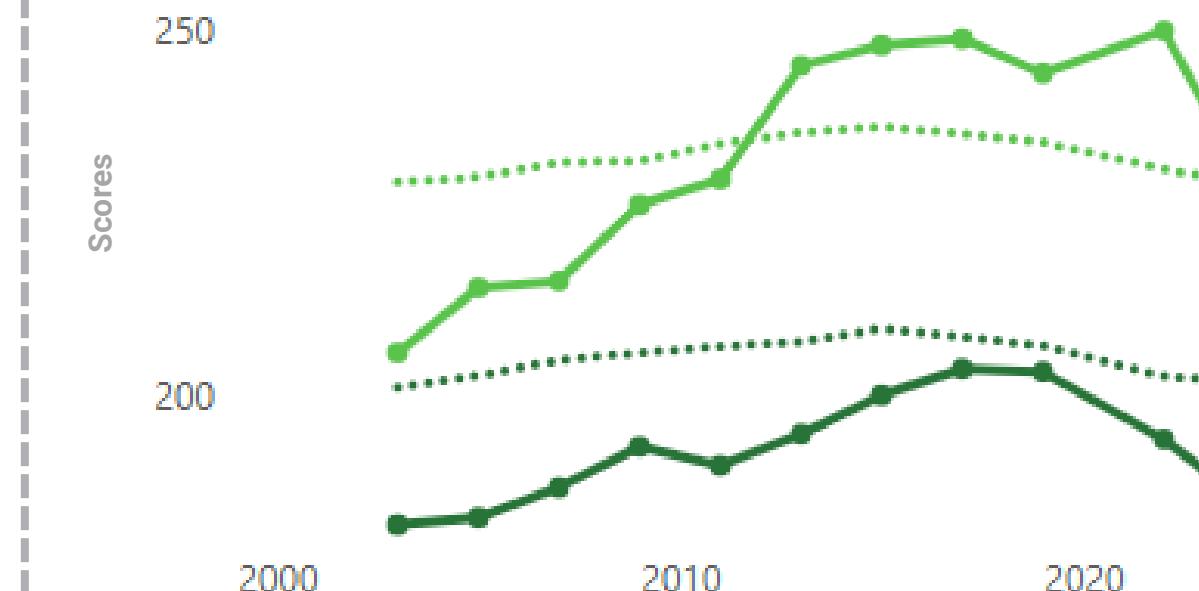
4TH



8TH



DC



Disadvantaged
Not Disadvantaged
Nat'l Disadv.
Nat'l Non-Disadv.
Max score:500

Achievement gaps persist between disadvantaged and non-disadvantaged students; gap widened

Gap is wider in D.C. compared to MA

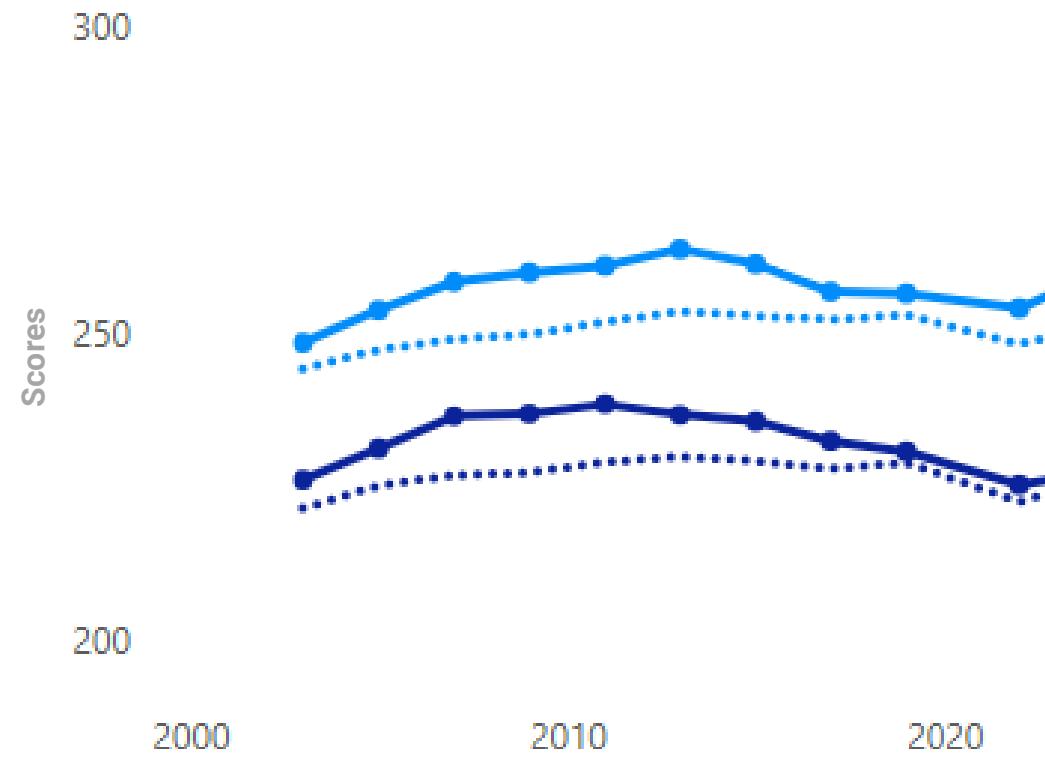
Scores for disadvantaged students show slower growth over time

ECONOMIC DISADVANTAGE & PERFORMANCE **MATH**

4TH & 8TH GRADE ANNUAL AVERAGE NAEP SCORES: DC AND MASSACHUSETTS

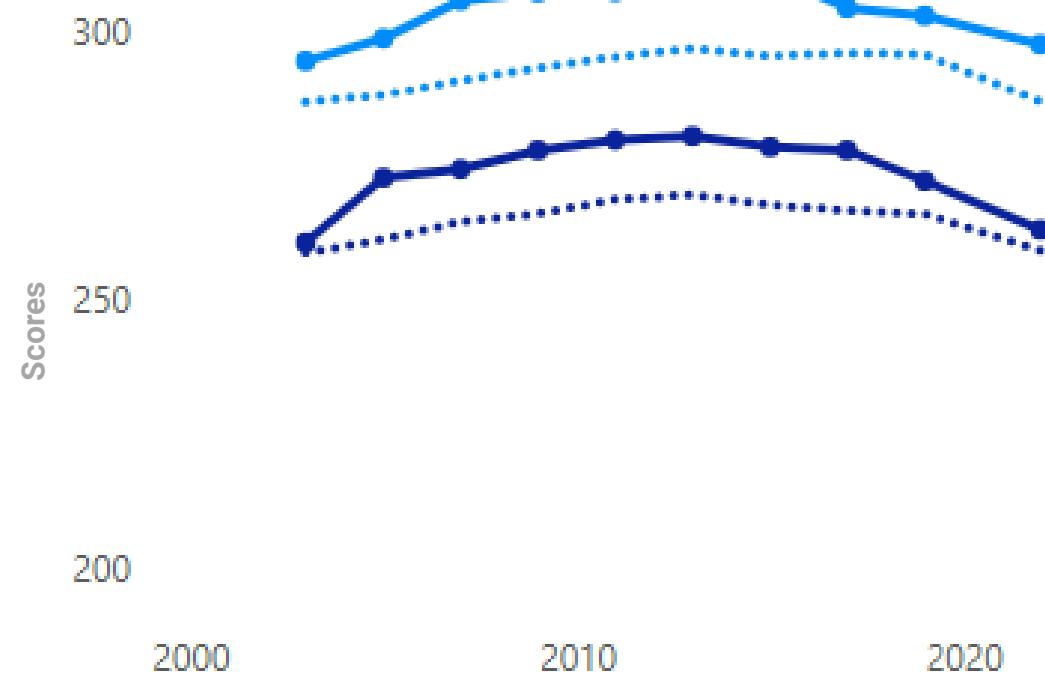
MA

4TH



DC

8TH



Disadvantaged
Not Disadvantaged
Nat'l Disadv.
Nat'l Non-Disadv.

Max score:500

Persistent performance patterns:

- MA outperforms DC
- Achievement gaps widening.

KEY FINDINGS

- 1 • Spending rose steadily, but overall student scores didn't rise proportionally.
- 2 • Correlation at national level is weak, but varies by state.
- 3 • High spending is not a predictor of top outcomes.
 - PPE: UTAH < DC > MA
 - Scores: UT > DC ; MA > DC
- 4 • Economic disadvantage remains a strong predictor of lower scores.

CONCLUSION & IMPLICATIONS

Does more spending on education actually lead to better student performance over time?

- Not necessarily, but it may
 - state policy
 - resource allocation
- Bottom Line: **Targeted investments drive results**

ex. Classroom-Level Investments to Boost Achievement

- High-quality instructional materials & evidence-based reading/math interventions
- Extended Learning Opportunities (summer & after-school)
- Teacher Capacity and Support



CONCLUSION **POLICY RECOMMENDATIONS**

1. Weighted Student Funding (wsF) & Equity Formulas

- based on student need

2. Teacher Incentives in High-Need Schools

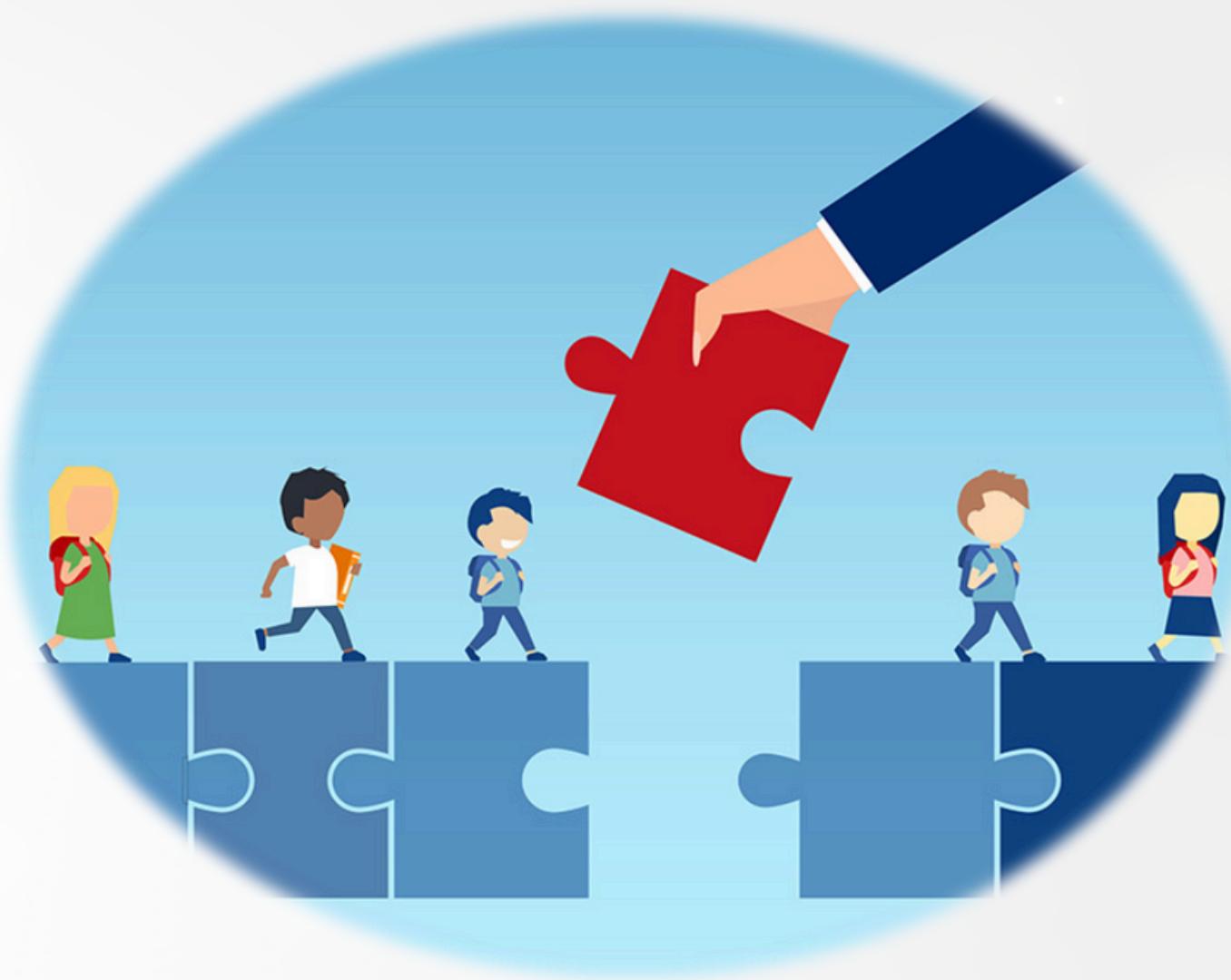
- salary incentives, retention bonuses, loan forgiveness

3. Technology & Resource Equity

- equal access to devices and internet
- digital literacy training for parents & students in low-income communities

4. State/District Accountability

- transparency on how funds are used
- explicitly track achievement gaps
- publicly report school and district-level progress (& student outcome by subgroup)



STATE SUCCESS STORIES 2024 EXEMPLARS



Louisiana

- 4th grade reading:
 - ranks 15th nationally (49th in 2019, 41st in 2022)
 - only state to reach pre-pandemic reading levels
- 4th grade math
 - ranks 37th nationally (43rd in 2022 & 49th in 2019)
 - top 5 states for gains in math

Key Policy Actions

- Science of Reading
- Let Teachers Teach workgroup, 2024
- Louisiana Educational Assessment Program (LEAP), '16-'17 school year



Mississippi

- 4th grade reading:
 - ranks 9th nationally (49th in 2013)
- 4th grade math
 - ranks 16th nationally (50th in 2013)

Key Policy Actions

- A-F School Accountability, 2013
- Literacy-Based Promotion Act (LBPA), 2013

FUTURE DIRECTIONS

- Lagged effects of spending
- Additional demographics
 - exs. race/English-learners/students with disabilities
- Incorporate local-level data
- Analysis of Elementary and Secondary School Emergency Relief (ESSER) pandemic relief funds



THANK YOU



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