OPEB Costs and Fiscal Stress in Rural School Districts in New York State

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Challenges facing rural school districts

- Over the past several decades, declining rural populations have led to lower enrollments and a shrinking tax base for rural school districts, threatening their financial sustainability.
- These challenges are further compounded by rising inflation and increasing pension and healthcare costs.
- Rural districts already face disadvantages in staff recruitment and curriculum offerings. These fiscal pressures have widened existing disparities.
- **OPEB (other post-employment benefits) costs** are a persistent budget pressure for rural school districts, where small enrollment bases make **fixed retiree health insurance costs** higher on a per-student basis.

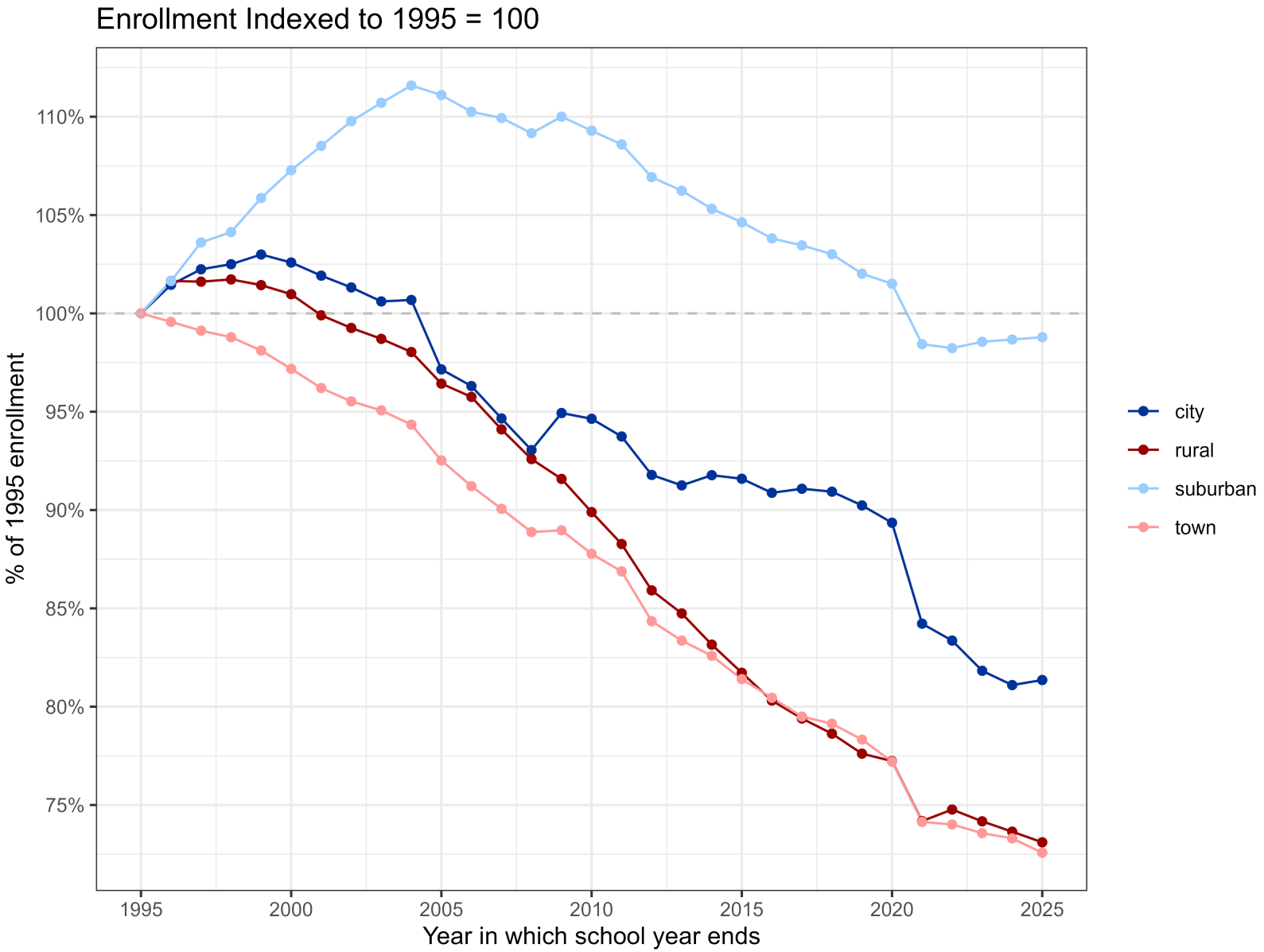
Overview of New York State rural school districts

School District Enrollment and Budgets by Location Type

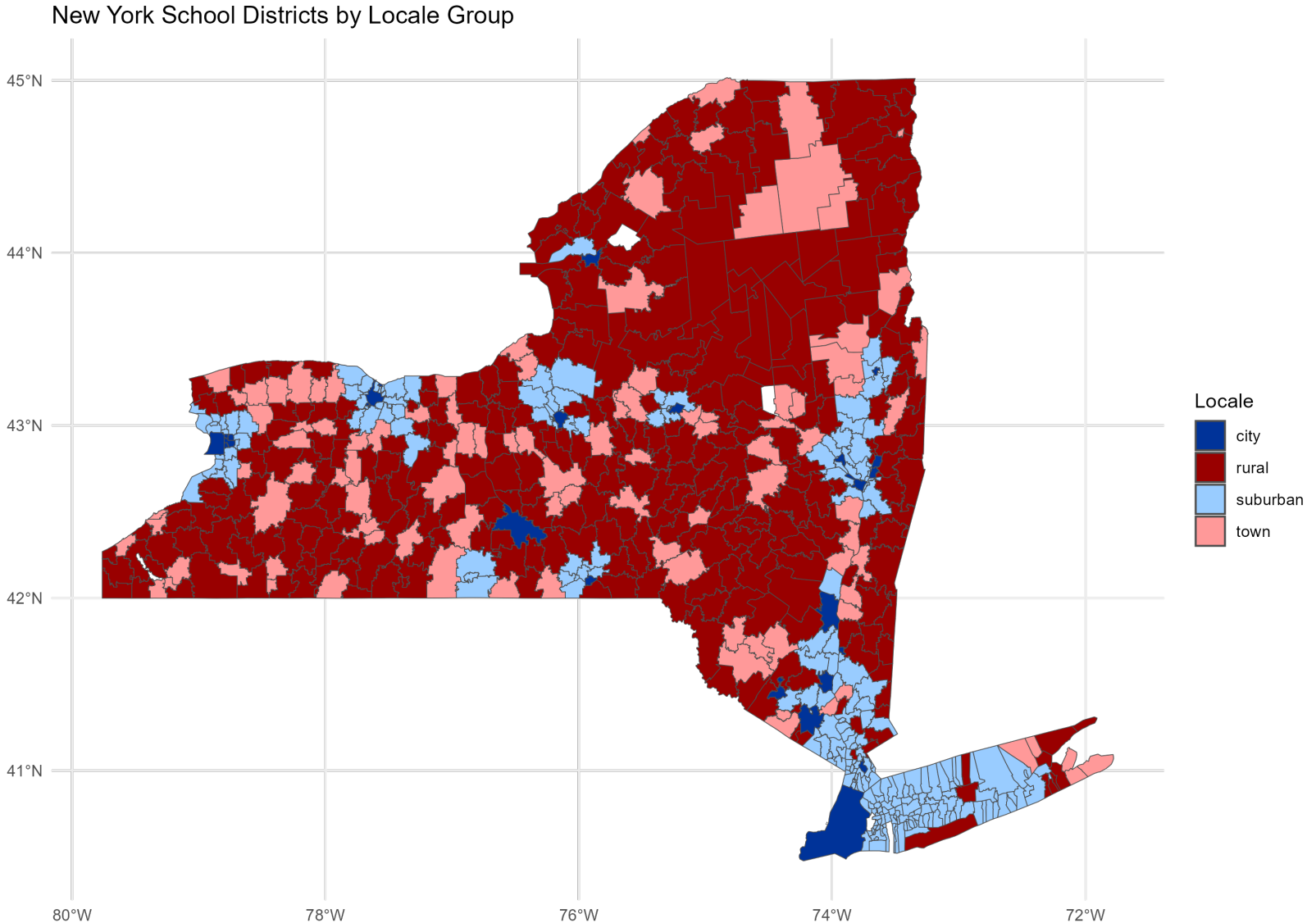
School Type	Districts	Avg. Students	Avg. Budget/Student	Total Students
City	23	7,380	$40,232	169,734
Suburban	253	3,592	$42,423	905,146
Town	102	1,518	$39,878	154,788
Rural	295	904	$46,714	265,016

Source: Authors' calculations from OSC and NYSED data. Year: 2024-2025.

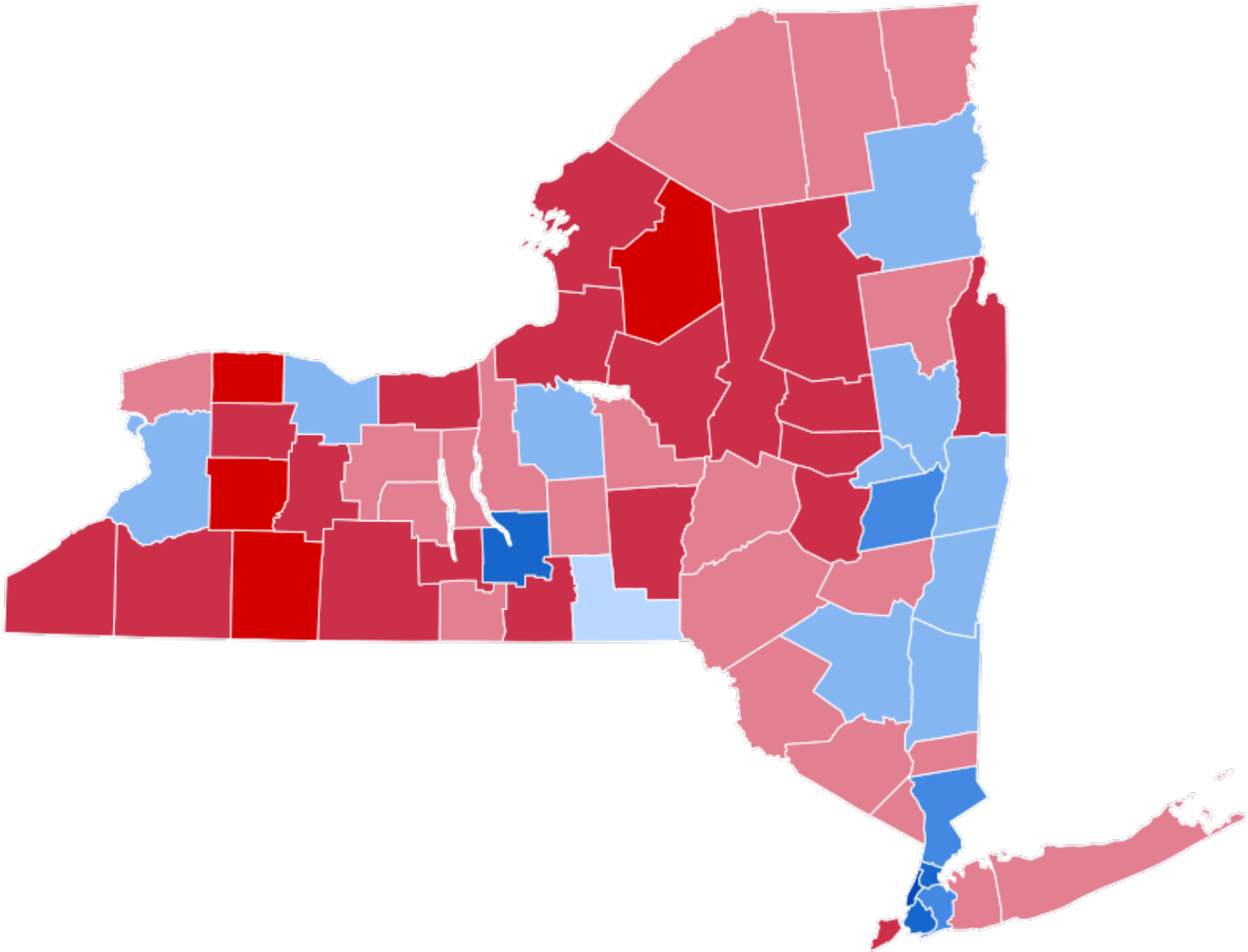
Declining populations and enrollments in rural areas



New York State school districts by location



New York State 2024 presidential election map



Legacy costs

- Legacy costs are financial obligations from prior commitments that must continue to be paid even as service units decline (e.g., fewer students), potentially reducing funds available for other needs.
- Legacy costs are similar to sunk costs but are expected to remain and even increase in the foreseeable future, even as service units shrink.
- Major legacy costs include retiree pension benefits (if not pre-funded), **retiree health insurance costs (if not pre-funded)**, debt service (from prior borrowing), and capital maintenance costs for previously constructed capital projects.

Issues with legacy costs

- Public finance concerns:
  - Crowding out spending on essential services (focus #1)
  - Increasing fiscal stress, leading to budget deficits and reduced cash reserves (focus #2)
- Equity concerns: disproportionate impact on rural districts with declining and aging population, which also often lack resources and smaller tax bases
- Resilience concerns: Reducing flexibility in dealing with external shocks and uncertainties

Focusing on the OPEB costs

- In this research, we focus on the OPEB costs, defined as employers' retiree health insurance costs, which are a major component of legacy costs for school districts.
- Health insurance costs are the employer-paid share of premiums for employees and eligible retirees. These costs have been rising due to increases in healthcare prices and insurance premiums.
- We distinguish between health insurance costs for active employees (teachers and administrators) and Other Post-Employment Benefits (OPEB).

Rural school financial challenges

- Revenue Challenges
  - Rural districts depend heavily on state aid due to limited local fiscal capacity (Mathis, 2003).
  - State finance formulas often include small-size or sparsity adjustments, but funding adjustments may fall short of true fiscal equity and adequacy (Mathis, 2003; Sielke, 2004).
- Expenditure Pressures
  - Diseconomies of scale: Small enrollments and geographic isolation raise per-pupil costs.
  - Transportation: Longer, less efficient bus routes increase per-pupil transportation spending (Dhaliwal & Bruno, 2021).
  - Fixed costs: Administrative and operational expenses cannot decline proportionally with enrollment (Kolbe et al., 2021).
  - Staffing: Districts may need salary premiums or face added recruitment, training, and turnover costs.

Research questions

1. What is the magnitude of OPEB costs in rural school districts across New York State? How do these costs compare with those in non-rural districts?
2. What trends and patterns do OPEB costs exhibit over time? How do these trends compare with those in non-rural districts?
3. How do OPEB costs affect school budgets and financial conditions?

Data

- Step 1: Data Collection
  - Obtain school district financial and demographic data from the Office of the State Comptroller (OSC), the NYSED Annual Financial Report (ST-3), and NYSED public school enrollment data.
  - Use NYSED and NCES codes to classify school districts by location types (Rural – Fringe (41), Distant (42), Remote (43)).
  - Descriptive statistics: 2010-2025; 673 school districts in 2025
  - TWFE models: 2012-2025, because of data availability for the control variables; 7,350 district-years across 645 districts
- Step 2: Cost Measurement & Trend Analysis
  - Identify and compare rural school districts' OPEB costs by location types
- Step 3: Budgetary Impact Analysis
  - Use regression analysis to examine the impact on spending categories and financial conditions.

Dependent variables

- **Spending outcomes** (total real dollars, inflation-adjusted to 2025 dollars, and winsorized):
  - Education core: OSC (level-1) education operating spending.
  - Instructional core: OSC (level-2) instructional operating spending; a subcategory of education core.
  - Non-instructional education: education core less instructional core (pupil services, education transportation, student activities, and miscellaneous education).
  - General government: OSC (level-1) district governance and central administration operating spending.
  - Culture/recreation: OSC (level-1) cultural and recreational operating spending.
  - Capital costs.
  - Operating categories exclude capital, debt, and employee benefit costs.
- **Financial ratios** (winsorized at the 5th and 95th percentiles):
  - Cash Ratio: Cash and short-term investments / Total Expenditures;
  - Operating Ratio: Operating Surplus or Deficit / Total Expenditures;
  - Fund Balance Ratio: Fund Balance / Total Expenditures;

Independent variables

- **Independent variable (per student)**:
  - OPEB payments per student in the same year, inflation-adjusted to 2025 dollars, and winsorized.
- **Control Variables** :
  - Total enrollment;
  - Economically Disadvantaged Percentage; Students with Disabilities Percentage; English Language Learner Percentage;
  - Federal aid per student; State aid per student;
  - Total expenditures per student (financial indicator models only);
  - Year & district fixed effects; standard errors clustered by district

Identifying and estimating OPEB costs

- Start with total health insurance costs
  - OSC account 9060.8, all funds
  - Includes active and retired employees
- Measure retiree OPEB payments
  - Following Bifulco et al. (2022) and Bifulco & Shybalkina (2025), retiree health costs are measured as pay-as-you-go OPEB benefit payments.
  - FY 2010-2017: use ST-3 item 69:20, "Actual Contribution Made"
- Estimate post-GASB 75 OPEB costs
  - FY 2018 onward: ST-3 no longer reports actual contributions
  - Estimate each district's retiree share using a weighted 3-year moving average from FY 2010-2017 (weights: 50% t-1, 30% t-2, 20% t-3)
  - OPEB expense = estimated retiree share x observed health insurance costs
  - Validation: audited financial statements for a random sample of 40 districts, FY 2018-2025; margin of error around 1%.

Regression models

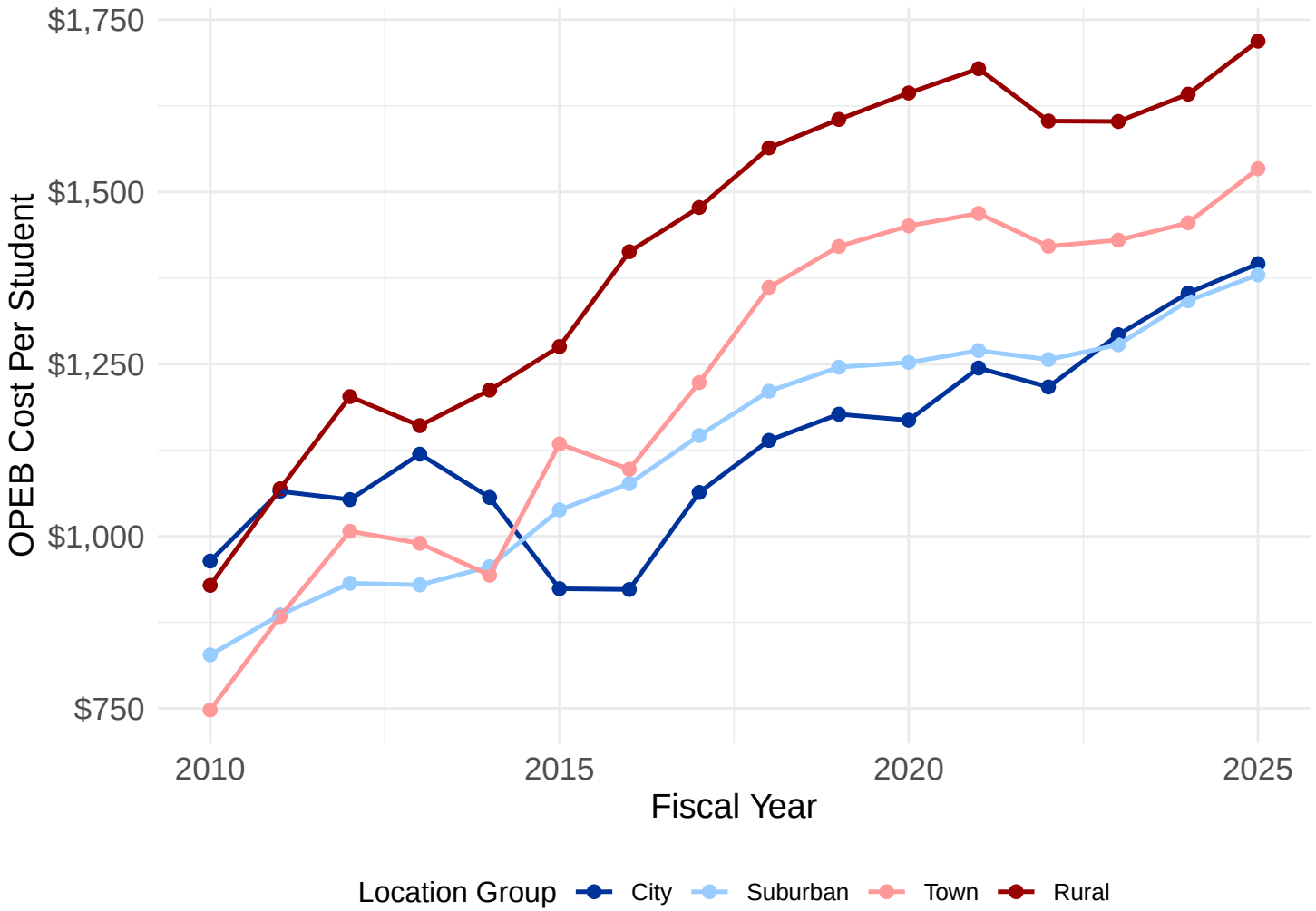
- For crowding out spending categories:

$$Spending_{it} = \alpha + \beta\, OPEB_{it} + \delta\,(OPEB_{it} \times Rural_i) + \theta\, Enrollment_{it} + \gamma\, Controls_{it} + \lambda_t + \mu_i + \varepsilon_{it} \quad (1)$$

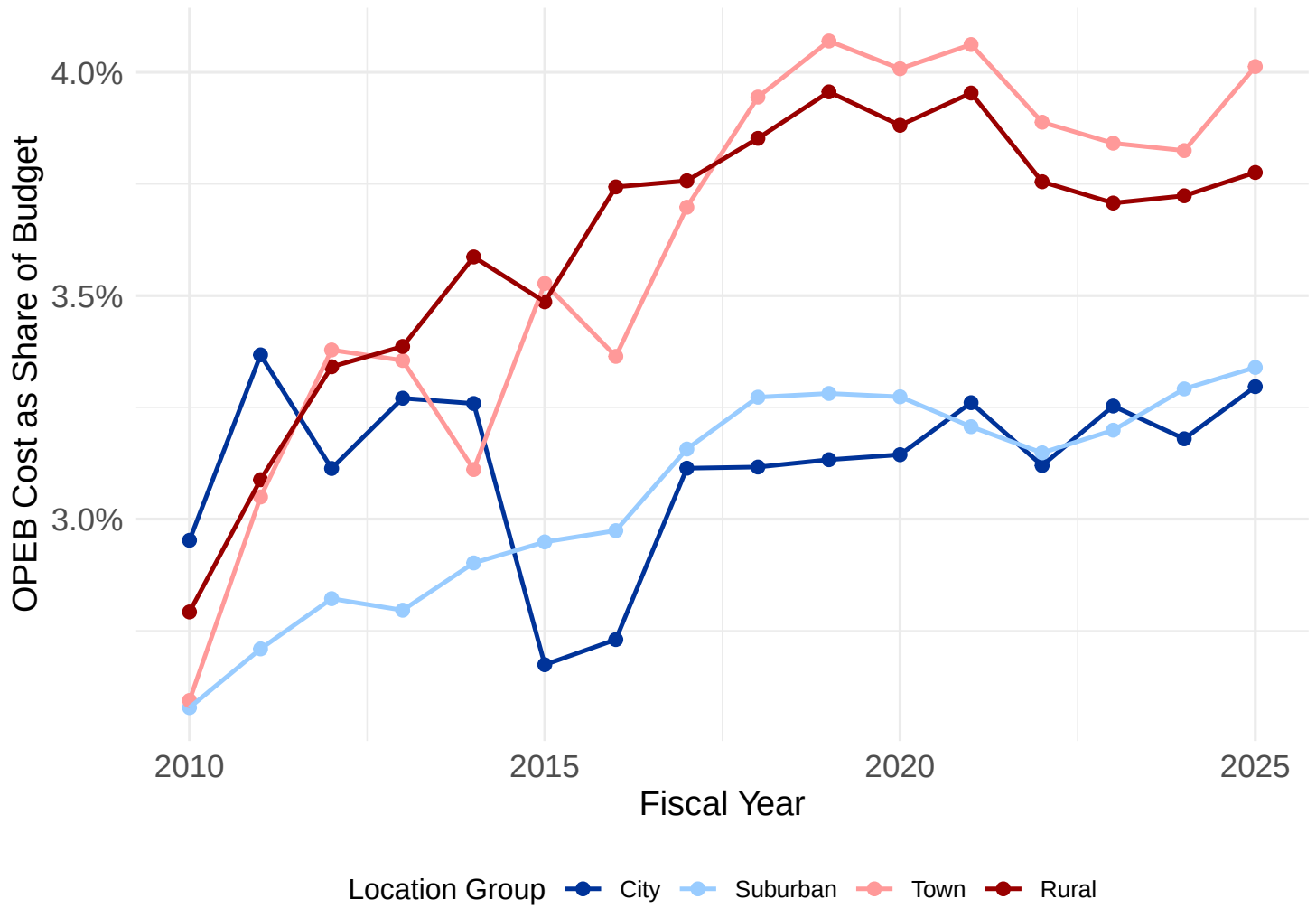
- For financial conditions:

$$FinancialIndicator_{it} = \alpha + \beta\, OPEB_{it} + \delta\,(OPEB_{it} \times Rural_i) + \theta\, Enrollment_{it} + \gamma\, Controls_{it} + \lambda_t + \mu_i + \varepsilon_{it} \quad (2)$$

OPEB payments by location (per student)



OPEB payments by location (% of budget)



OPEB costs by location type

OPEB Costs by Location Type

School Type	OPEB Payments / Budget	OPEB Payments Per Student
City	3.30%	$1,396
Suburban	3.34%	$1,380
Town	4.01%	$1,534
Rural	3.78%	$1,719

Source: Authors' calculations from OSC, ST-3, and NYSED data. Year: 2024-2025.

TWFE spending results: Education

	Education Core	Instruction Core	Non-instr. Educ.
OPEB Per Student	-0.015***	-0.016***	-0.011
	(0.005)	(0.006)	(0.008)
OPEB Per Student x Rural	0.010	0.010	0.010
	(0.007)	(0.007)	(0.011)
Num.Obs.	7350	7350	7350
R2	0.998	0.998	0.992
Districts	645	645	645

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Standard errors clustered by district. Outcomes are total real dollars, winsorized and IHS-transformed. Controls: enrollment (IHS), economically disadvantaged, disability, and English learner shares, federal and state aid per student; district and year fixed effects. Culture/Rec. uses only district-years that report the category.

Interpretation

A 1% increase in OPEB per student is associated with approximately a 0.015% decrease in education core spending and a 0.016% decrease in instructional core spending. The rural interaction terms do not provide evidence that rural status intensifies the crowding-out relationship.

TWFE spending results: Other functions

	Capital costs	General Gov.	Culture/Rec.
OPEB Per Student	0.208*	0.012	-0.175
	(0.118)	(0.013)	(0.122)
OPEB Per Student x Rural	-0.382**	-0.019	0.124
	(0.180)	(0.017)	(0.133)
Num.Obs.	7238	7350	2120
R2	0.436	0.977	0.894
Districts	643	645	246

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Standard errors clustered by district. Outcomes are total real dollars, winsorized and IHS-transformed. Controls: enrollment (IHS), economically disadvantaged, disability, and English learner shares, federal and state aid per student; district and year fixed effects. Culture/Rec. uses only district-years that report the category.

Spending results: Rural and non-rural subsamples

	Rural only			Non-rural only		
Outcome	OPEB coef.	N	Districts	OPEB coef.	N	Districts
Education Core	-0.010** (0.005)	3,124	279	-0.010** (0.004)	4,226	366
Instruction Core	-0.010** (0.005)	3,124	279	-0.010** (0.005)	4,226	366
Non-instr. Educ.	-0.005 (0.008)	3,124	279	-0.013* (0.008)	4,226	366
Capital costs	-0.133 (0.137)	3,051	277	0.154 (0.113)	4,187	366
General Gov.	-0.008 (0.010)	3,124	279	0.014 (0.014)	4,226	366
Culture/Rec.	-0.100* (0.055)	787	104	-0.092 (0.114)	1,333	142

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. OPEB coefficient from separate models estimated on each subsample, without the rural interaction; clustered standard errors in parentheses.

Interpretation

The crowding-out effect exists in both samples, with a 1% increase in OPEB per student associated with a 0.01% reduction in education core and instructional core spending. Because rural districts have higher OPEB costs per student, the overall crowding out may still be greater in rural school districts.

TWFE financial indicator results

	Cash Ratio	Operating Ratio	Fund Balance
OPEB Per Student	0.005	-0.013**	-0.006
	(0.007)	(0.006)	(0.009)
OPEB Per Student x Rural	-0.018	0.007	-0.011
	(0.012)	(0.007)	(0.014)
Num.Obs.	7350	7350	7350
R2	0.448	0.243	0.688
Districts	645	645	645

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Standard errors clustered by district. Financial indicators are winsorized at the 5th and 95th percentiles. Controls as in the spending models plus total expenditures per student; district and year fixed effects.

Interpretation

OPEB per student is negatively associated with the operating ratio and fund balance; only the operating-ratio estimate is statistically significant ($p < 0.05$). The rural interaction terms are not statistically significant.

Financial indicator results: Rural and non-rural subsamples

	Rural only			Non-rural only		
Outcome	OPEB coef.	N	Districts	OPEB coef.	N	Districts
Cash Ratio	-0.012 (0.010)	3,124	279	0.002 (0.008)	4,226	366
Operating Ratio	-0.009* (0.005)	3,124	279	-0.008 (0.006)	4,226	366
Fund Balance	-0.020* (0.011)	3,124	279	-0.004 (0.010)	4,226	366

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. OPEB coefficient from separate models estimated on each subsample, without the rural interaction; clustered standard errors in parentheses.

Interpretation

In the rural subsample, OPEB costs per student are negatively associated with the operating ratio and the fund balance ratio, but only at the $p < 0.10$ level.

Conclusions

- From 1995 to 2025, rural district enrollment declined by 26.9% and town district enrollment by 27.4%. Rural districts have the highest average budget, $46,714 per student in 2025.
- Rural districts had the highest OPEB costs in 2025: $1,719 per student, equal to 3.78% of total district budgets.
- Rural OPEB costs rose from $929 per student in 2010 to $1,719 in 2025, and from 2.79% of the budget to 3.78%.
- Higher OPEB costs are associated with lower education core and instructional core spending, consistent with a crowding-out pattern. The rural interaction results do not show that rural status intensifies these relationships.
- OPEB costs are negatively associated with the operating ratio and fund balance, but only the operating-ratio estimate is statistically significant.

Policy implications

- State policymakers: state aid policy should account for the challenges created by OPEB costs. Foundation Aid is based on student need and local capacity but does not explicitly account for retiree health insurance costs; because much state aid is tied to enrollment, costs that do not decline with enrollment impose a growing burden as student counts fall.
- District administrators and board members: develop mid- to long-term projections of OPEB costs alongside enrollment forecasts, and incorporate both into multi-year budget models used for planning and policy decisions.
- Educational equity: OPEB costs are a fiscal constraint that can translate into challenges in staffing, student support, and course offerings, compounding existing rural capacity challenges; the rural-nonrural divide warrants closer attention in future research and policy design.

Thank You

Thank you!!

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