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Do Strong Public Schools Breed Elite Private Ones?

Public System Strength and the Supply of Well-Resourced Independent Schools

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Abstract

Arguments for universal private school choice often assume that weak public systems can be offset by a strong private sector. I test the opposite proposition: that a robust, adequately funded public system is a condition for, rather than a substitute for, a deep tier of well-resourced independent schools. I link IRS Form 990 filings for private schools (2019–2024) to the NCES Private School Universe Survey, producing per-pupil spending, staffing and asset measures for 3,110 private schools in 2023–24, including 629 National Association of Independent Schools (NAIS) day schools. I relate these, and a reputational ranking of private high schools, to state public-system resources (wage-adjusted spending), adequacy (spending relative to the modeled cost of national-average outcomes, from the School Finance Indicators Database) and quality (8th-grade NAEP). Controlling for household income and regional wages, a one standard deviation increase in public spending is associated with about twice as many independent day schools per child that spend at least $43,000 per pupil, a third more NAIS day schools per child, 12% higher NAIS spending per pupil, and 7% fewer NAIS pupils per teacher. Adequacy yields similar estimates. Public test scores add nothing once public spending is in the model. The resources show up in the inputs that drive quality and that parents can see. Each SD of public spending also goes with 11% more public teachers per pupil, smaller public classes and more competitive public teacher pay, and with 9% more teachers per pupil in NAIS schools. Where Northeastern NAIS schools outspend Florida's, nearly all of the difference buys more teachers per child rather than higher pay. Florida, which pairs one of the least adequate public systems with the nation's largest voucher program, has a typical density of NAIS schools but a thin top tier of large, lean schools: compared with NAIS schools of the same size and grade span, Massachusetts schools spend 62% more per pupil and Connecticut schools 50% more. At the metropolitan level, no public school seat in metro Miami is in an adequately funded district, so all 84,000 families with children earning $200,000 or more depend on the private market. Measured against those families, Miami offers 7 well-funded independent seats per 100, against 20–25 in metro Boston and New York. The associations are cross-sectional and rest heavily on the Northeast; I discuss common-cause explanations and the limits of 990 coverage.

Keywords: private schools; independent schools; school finance; educational adequacy; school vouchers; IRS Form 990; Private School Universe Survey; Florida

JEL codes: I21, I22, I28, H75, R23

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1. Introduction

The case for universal private school choice rests in part on an assumption about supply: that if public funds follow children to private schools, a private sector of sufficient quality and capacity will be there to receive them. Florida, which made every child eligible for a state-funded scholarship in 2023, is the leading test of that assumption. Supporters often contrast Florida with high-tax Northeastern states and suggest that families relocating south can trade high property taxes and well-funded public districts for lower taxes and a voucher-supported private market.

This paper examines the supply side of that comparison. It asks whether the robustness, adequacy and quality of a state's public K–12 system is a determinant of whether the state has a deep tier of well-funded, highly regarded independent private schools. Two views predict opposite answers. In a substitution view, private schools fill gaps left by weak public systems, so states with underfunded public schools should have more, and more valuable, private alternatives. In a benchmarking view, a free and well-resourced public option raises the bar a private school must clear to justify its price. Where the free alternative is strong, independent schools compete on the inputs parents can see, such as class size, staffing and facilities, and the sector that survives is smaller per family but more richly resourced. Where the free alternative is weak, private schools can charge less, enroll more and spend less while still offering a visible step up.

The empirical literature on private school demand has focused mainly on enrollment shares and has rarely measured what private schools actually spend. In an earlier report, I used IRS Form 990 filings for about 1,500 private schools to show that private school spending varies far more than public school spending and that independent day schools spent roughly twice what public schools spent per pupil (Baker, 2009). That report recommended routinely linking federal private school survey data to tax filings. This paper does so for 2019–20 through 2023–24, using the IRS Statistics of Income extracts and e-filed returns, and uses the resulting measures to characterize the resources of each state's independent sector directly.

I make five contributions. First, I construct state- and metro-level measures of independent-sector resources from linked 990 and PSS data, separating NAIS day schools and excluding boarding schools, which recruit nationally, and Orthodox yeshivas, whose very low spending would

otherwise distort comparisons for New York and New Jersey. Second, I distinguish three dimensions of public-system strength (resources, cost-adjusted adequacy and test-score quality) and show that the first two, not the third, predict the depth and resources of the independent sector. Third, because spending levels alone are not a measure of quality, I trace what the dollars buy in both sectors: teachers per child, class size and teacher pay, which are among the best-documented drivers of school quality and the inputs parents most often cite when choosing schools. Fourth, I compare Florida's independent schools directly with those of Northeastern states, holding school size and grade span constant. Fifth, I move from states to metropolitan markets and compare affluent family demand with the supply of high-quality public and private seats in metro Miami, New York, Boston and Philadelphia.

The results support the benchmarking view. With household income and regional wages held constant, states that spend more on public schools, and spend more relative to the cost of adequate outcomes, have roughly twice as many well-funded independent day schools per child, more NAIS schools, and NAIS schools that spend more and staff more richly. Public NAEP performance does not add to the explanation once public spending is included. The dollars translate into staff in both sectors. Higher-spending public systems employ more teachers per child, run smaller classes and pay teachers better relative to other college-educated workers, and the independent schools in those states employ more teachers per child as well. Florida's independent sector is of about average density nationally but is thin at the top, and its leading schools are large and comparatively lean. In metro Miami, the absence of any adequately funded public district pushes the entire affluent market onto the private sector, which has responded by scaling up a small number of schools rather than by building the deep bench of small, high-spending schools found in the Northeast. The estimates are cross-sectional associations among 50 states and four metros, and they draw much of their leverage from the Northeast. I discuss the main alternative explanation, that the same affluent, education-oriented populations both fund strong public systems and patronize well-resourced private schools, in Section 8.

2. Related literature

2.1 Public provision and the demand for private schooling

Theoretical models of the public–private choice begin from the observation that free public provision creates a corner solution. Households that want more or different schooling than the public system provides must forgo the free option entirely and pay the full private price (Stiglitz, 1974; Sonstelie, 1982). Improvements in public quality therefore draw marginal families back into the public sector. Epple and Romano (1998) model private schools as competing for students on quality and peer composition, with tuition schedules that sort students by income and ability; in equilibrium, a strong public sector compresses the private sector toward the top of the quality distribution. Nechyba (2000, 2003) and Ferreyra (2007) embed this choice in multidistrict economies, showing that where households can buy access to good public schools through residential location, private schools serve a residual market whose size depends on the quality and price of public options across districts.

This framework has two implications that motivate the present analysis. First, the private sector's size and its resource level need not move together. A strong public system may reduce private enrollment at the margin while raising the quality bar for the private schools that remain. Second, the relevant public alternative for affluent families is not the state average but the best public option they can reach, which in fragmented metropolitan areas is often a high-spending suburban district whose quality is capitalized into house prices (Tiebout, 1956; Black, 1999; Bayer, Ferreira & McMillan, 2007).

2.2 Empirical determinants of private enrollment

Empirical studies consistently find that private enrollment rises with household income and with the share of Catholic and other religious populations, and responds, though modestly, to public school quality and spending (Long & Toma, 1988; Lankford & Wyckoff, 1992; Buddin, Cordes & Kirby, 1998). Downes and Schoeman (1998) attribute part of California's private enrollment growth after *Serrano* and Proposition 13 to the leveling down of public spending. Hoxby (2001) shows that equalization schemes that sharply constrain local spending can push affluent families toward private schools. Murnane and Reardon (2018) document that private enrollment among middle-income families has fallen since the late 1960s while enrollment among high-income

families has held steady, increasing income stratification in the private sector. This literature asks how much private schooling there is. It has said little about how well resourced private schools are, largely because comprehensive private school finance data do not exist in federal surveys.

2.3 Elite and independent schools

Sociological studies of elite private schools emphasize their role in reproducing advantage through dense resources, small classes and connections to selective colleges (Cookson & Persell, 1985; Khan, 2011). Recent evidence shows that, among applicants with the same test scores, those from private high schools are more likely to be admitted to Ivy-Plus colleges, largely because they receive higher non-academic ratings (Chetty, Deming & Friedman, 2026). Independent schools, especially NAIS members, therefore represent a distinct segment of the private market whose value lies in resources and networks rather than in a lower price than public alternatives. Their supply is the relevant margin for the professional families that relocation and voucher debates often invoke.

2.4 Private school finances

Because the Private School Universe Survey does not collect financial data, most knowledge of private school spending comes from tuition surveys or association reports. Tuition is a price, not a cost, and it understates spending at schools that rely on endowment and annual giving. Baker (2009) used 990 filings matched to the PSS to show that independent day schools spent about $20,000 per pupil in 2006–07, roughly twice the public average, while conservative Christian schools spent about $7,000. That analysis found that the highest-spending private schools cluster in states with high public spending, but it did not test whether public-system strength predicts private-sector resources once income and regional costs are held constant.

2.5 Vouchers and Florida

Florida's tax-credit and voucher programs grew steadily for two decades before universal eligibility in 2023. Studies of the earlier, means-tested program found modest positive competitive effects on nearby public schools (Figlio & Hart, 2014) that grew as the program matured (Figlio, Hart & Karbownik, 2023). Less attention has been paid to what kind of private sector those programs have built, or whether a state that invests comparatively little in its public schools can sustain an independent sector comparable to those of high-spending states.

3. Conceptual framework

A spending level is not itself a measure of quality. A dollar buys less in a high-wage labor market and less again where student needs are high, which is why adequacy, spending measured against the cost of a common outcome goal, is a better summary of public-system strength than spending alone. But even an adequate budget matters only through what it buys. In schools, most of the budget buys people, and two features of that staffing are especially consequential: how many teachers there are per child, which determines class size, and how well teachers are paid relative to other careers open to them, which shapes who teaches. Both have strong causal support as drivers of school quality, and class size is the input parents can see most easily (Section 7.3). The framework below therefore treats public resources as setting a benchmark in these visible inputs.

Consider a household choosing between the best public school it can access, of quality q_g at zero tuition (with any housing premium already paid), and a private school of quality q_p at price t. The household chooses the private school when the value it places on the quality difference exceeds the price:

$$v(q_p - q_g; y) > t,$$

where v rises with household income y. Private schools choose quality, scale and price. If parents judge quality largely by observable inputs (class size and teachers per pupil, teacher quality as reflected in pay, program breadth, facilities), then q_g sets an input benchmark. Three predictions follow.

- **P1 (resource benchmarking).** Holding income constant, where public resources are higher, private schools that attract affluent families must offer more resources per pupil. The independent sector should be better funded and better staffed, and the number of high-spending independent schools should be larger. Because class size is the most visible input, private resources should go disproportionately to more teachers per child.
- **P2 (inputs over outputs).** If parents compare visible inputs rather than test results, public test-score quality should add little to the prediction once public resources are held constant.
- **P3 (residual demand and scale).** Where no adequately funded public option exists, all affluent demand for well-resourced schooling falls on the private sector. The private sector can absorb

it by expanding at scale, with larger schools and more pupils per teacher, since the quality bar set by the public alternative is low.

A substitution view instead predicts that weak public systems should be associated with more, and more expensive, private schools. A pure common-cause view predicts that public and private resources move together because both reflect income and preferences. The models below hold income and regional wages constant but cannot fully separate benchmarking from common causes (Section 8).

4. Data

4.1 Private school finances: IRS Form 990 linked to the PSS

Financial data. I draw financial data from the IRS Statistics of Income (SOI) Annual Extracts of Tax-Exempt Organization Financial Data for filing years 2019–2024, limited to Form 990 filers that check the box indicating that the organization operates a school (Schedule A, Part I, line 2). This yields 92,248 filer-year records. Because the 2024 extract is incomplete, I fill fiscal 2024 returns from e-filed XML returns, retrieving 2,487 additional school returns. The spending measure is total functional expenses (Part IX, line 25). I also use total assets, contributions and program service revenue. Organization names and addresses come from the IRS Exempt Organizations Business Master File.

School data. School characteristics come from the NCES Private School Universe Survey (PSS) for 2019–20, 2021–22 and 2023–24: enrollment, full-time-equivalent teachers, grade span, religious orientation, typology and association memberships. NAIS members are identified by the PSS association item for NAIS; boarding schools by membership in The Association of Boarding Schools (TABS); Orthodox schools by Agudath Israel membership and characteristic names (yeshiva, Bais Yaakov, cheder, Talmud Torah), with Prizmah network day schools retained.

Linking. I match 990 filers to PSS schools within state using fuzzy name matching combined with ZIP code, city and street address, requiring a location match and overlap on distinctive name tokens. The crosswalk contains 13,984 school–EIN links across the three PSS waves. Where one EIN covers several PSS campuses, enrollment is summed across campuses; duplicate PSS records are removed. Each filer is assigned to the fiscal year ending in the PSS school year. Following

Baker (2009), I retain schools with at least $500,000 in expenses, regular, Montessori or special-emphasis programs, plausible spending per teacher ($30,000–$700,000) and spending per pupil between $3,000 and $120,000. The analytic file contains 2,222 schools in 2019–20, 2,864 in 2021–22 and 3,110 in 2023–24, enrolling about 993,000 students in the latest year.

Coverage. Matched filers enroll 48% of NAIS day-school students nationally, ranging from 39% in Florida to 56% in New York. Catholic parish and diocesan schools almost never file 990s and are excluded from sector comparisons. Church-affiliated independent schools that file under a church's exemption are missing, including several large Florida Episcopal schools, as are for-profit schools, among them several large South Florida campuses. Measures based on matched filers are therefore floors on the number of well-funded schools and estimates of the average among filers.

Key private-sector measures. (i) *Well-funded independent day schools*: independent (nonsectarian or unaffiliated, non-boarding) day schools whose wage-adjusted spending per pupil is at least $43,237, the national 90th percentile among independent day schools. There are 175 such schools. (ii) *NAIS day schools*: counts from the full PSS, with sampling weights. (iii) *NAIS spending per pupil, assets per pupil and pupils per teacher*: enrollment-weighted state averages among matched NAIS day schools (spending and assets), or among all NAIS day schools in the PSS (pupils per teacher). Private spending is divided by the county value of the NCES Comparable Wage Index for Teachers (CWIFT; Cornman et al., 2019), 2022 release.

4.2 Public-system measures

I measure public-system strength in three ways. **Resources**: current spending per pupil from the Census Annual Survey of School System Finances, FY2024, divided by the state CWIFT. **Adequacy**: from the School Finance Indicators Database (SFID), the ratio of actual current spending to the National Education Cost Model (NECM) estimate of the spending required to reach national-average test outcomes, given each district's student needs, scale and labor costs (Baker, Weber & Srikanth, 2021). I use the statewide ratio and the ratio for the highest-poverty fifth of districts, both for 2022–23. **Quality**: average 8th-grade NAEP mathematics scale scores, 2009–2024. Alaska, Hawaii and the District of Columbia are excluded from analyses that use NECM measures; DC is excluded throughout. Controls are state median household income (2022–24) and the state CWIFT.

4.3 Reputational ranking and tuition

For a reputational measure, I use the Niche 2026 ranking of the best private high schools in America. Deduplicating the top roughly 300 listings yields 247 brick-and-mortar schools, of which 190 remain after removing 57 boarding schools. Average private high school tuition by state comes from a 2025 compilation by College Transitions. These data are less precise than the 990 measures (Section 8) but provide an independent check on the resource-based results.

4.4 Metropolitan supply and demand

For the metro analysis I use the 2023 OMB delineations of core-based statistical areas (CBSAs) for Miami–Fort Lauderdale–West Palm Beach, New York–Newark–Jersey City, Boston–Cambridge–Newton and Philadelphia–Camden–Wilmington. Public seats come from the SFID District Cost Database (2022–23), which provides each district's enrollment, NECM adequacy gap and outcome gap (in standard deviations relative to the national average); districts are assigned to counties, and hence CBSAs, with NCES EDGE geocodes. A seat is in an *adequately funded* district if actual spending meets or exceeds the NECM cost of national-average outcomes, and in a *high-quality public* district if, in addition, the district's outcomes are at or above the national average. Affluent demand is measured by families with own children under 18 and income of $200,000 or more, from ACS 2019–23 Table B19131 for unified and elementary school districts. Private supply is the sum of NAIS day-school enrollment (PSS 2023–24) and enrollment in well-funded independent day schools, located by county.

4.5 Staffing and teacher pay

Public schools. District teacher and total staff full-time equivalents come from the NCES Common Core of Data (CCD) local education agency files for 2022–23 and 2023–24, accessed through the Urban Institute's Education Data Portal. Compensation (salaries and wages plus employee benefits) comes from the Census Annual Survey of School System Finances, FY2024. Two SFID measures capture class size and pay competitiveness: predicted departmentalized and self-contained class sizes for a district at the labor-market average poverty rate (2021, the latest year available), and the ratio of predicted teacher wages to those of non-teachers with similar education, age and location (age 35, 2023). District staffing is matched to SFID District Cost Database records for 2022–23 to compare staffing across spending and adequacy levels.

Private schools. Teachers are PSS full-time-equivalent teachers. For matched 990 filers, compensation is the sum of officer compensation, other salaries and wages, pension contributions, other employee benefits and payroll taxes (Form 990, Part IX, lines 5–10; Part I, line 15 for e-filed returns). In both sectors, *compensation per teacher* is total compensation of all employees divided by teacher FTE, so it reflects both teacher pay and the number of non-teaching staff per teacher. It is a measure of how much the school spends on people for each teacher it employs, not a teacher salary. Dollar amounts are divided by the CWIFT.

5. Empirical strategy

For counts of schools in state s, I estimate Poisson models with the population aged 5–17 as exposure:

$$E[N_s] = Pop_s \cdot exp(\alpha + \beta \cdot Z_s + \gamma \cdot ln\ Income_s + \delta \cdot ln\ Wage_s),$$

where Z_s is one public-system measure, standardized to mean zero and unit standard deviation across states. exp(β) is the incidence-rate ratio, the proportional change in schools per child associated with a one-SD stronger public system. Income and wage are also standardized. For NAIS spending, assets and pupils per teacher, I estimate weighted least squares regressions of the log outcome on the same right-hand side, weighting by the number of matched filers (spending and assets) or NAIS schools (pupils per teacher), and limiting spending and asset models to states with at least three matched NAIS filers (37 states). All standard errors are heteroskedasticity-robust (HC1). I report models with no controls, with income, and with income and wages; the last is the preferred specification. To test P2, I enter public spending and NAEP together. I estimate the same state models for staffing and pay outcomes in both sectors: public and NAIS teachers per 100 pupils, public class size, compensation per teacher and teacher wage competitiveness. To show where each sector's additional dollars go, I decompose the log difference in spending per pupil between each Northeastern state and Florida into three additive parts: teachers per pupil, compensation per teacher, and the share of spending not devoted to compensation.

For direct comparisons with Florida, I estimate a school-level regression of log wage-adjusted spending per pupil on state indicators (Florida omitted), grade level and a quadratic in enrollment, weighting by enrollment, for 629 NAIS day schools in 47 states. The state coefficients give the

percentage difference from Florida for NAIS schools of the same grade span and size. I repeat the comparison for all sectors, excluding Orthodox yeshivas.

The metro analysis is descriptive. For each CBSA I compute the number of affluent families who do not live in a high-quality public district and divide private seats by that residual demand.

6. Descriptive patterns

Table 1 summarizes the state measures. The independent sector is highly concentrated: the median state has 0.08 well-funded independent day schools per 100,000 children, against 2.88 in Massachusetts and 2.20 in Connecticut. NAIS spending per pupil, adjusted for wages, ranges from about $17,000 to $84,000 across states. Public-system strength varies just as widely. Florida spends $14,100 per pupil after wage adjustment, against $22,100–$28,100 in Massachusetts, Connecticut, New Jersey and New York, and its statewide adequacy ratio is 0.81, against 1.46–1.69 in those states.

Table 1. Descriptive statistics, state measures

Measure	N	Mean	SD	Min	Median	Max	FL	NJ	MA	CT	NY
Independent sector, 2023–24											
Well-funded independent day schools per 100,000 children	50	0.38	0.63	0.00	0.08	2.88	0.21	0.66	2.88	2.20	1.02
NAIS day schools per 100,000 children	50	2.71	2.74	0.00	1.83	10.46	2.42	3.38	10.43	8.43	3.74
NAIS spending per pupil, wage-adj. ($000)	37	36.1	11.3	16.9	35.9	83.8	34.9	38.9	52.8	48.3	45.4
NAIS pupils per teacher	46	7.56	1.50	2.61	7.86	10.79	8.37	6.71	6.49	7.08	6.00
NAIS assets per pupil, wage-adj. ($000)	37	105	48	49	99	256	89	104	174	189	178
Public system											
Current spending per pupil, wage-adj. ($000), FY2024	50	18.4	4.2	12.2	17.4	32.2	14.1	24.9	22.1	24.4	28.1
Adequacy ratio, all districts (actual ÷ NECM cost)	47	1.09	0.31	0.59	1.04	2.07	0.81	1.69	1.54	1.57	1.46
Adequacy ratio, highest-poverty quintile	47	0.84	0.28	0.36	0.82	1.93	0.70	1.26	1.15	1.07	1.09
NAEP grade 8 math, mean 2009–24	50	280.4	6.3	267.1	281.4	294.2	276.2	290.3	294.2	283.5	279.0
Controls											
Median household income ($000)	50	79.8	12.7	53.1	79.3	106.5	70.9	95.8	104.1	93.6	81.3
Comparable Wage Index for Teachers	50	0.95	0.09	0.81	0.92	1.18	0.90	1.09	1.11	1.08	1.14

50 states; DC excluded. NECM measures are unavailable for Alaska and Hawaii. NAIS spending and assets are enrollment-weighted means among matched 990 filers in states with at least three matched NAIS day schools. Well-funded independent day

schools: wage-adjusted 990 spending per pupil of at least $43,237 (national 90th percentile among independent day schools). Spending and assets are wage-adjusted using the county CWIFT.

Table 2 updates the sector spending comparisons in Baker (2009). Nominal spending per pupil at independent day schools rose from about $20,100 in 2006–07 to $33,600 in 2023–24, and NAIS members averaged $38,000. Independent schools continue to spend about twice what conservative Christian schools spend per pupil, and roughly twice public current spending.

Table 2. Spending per pupil by private school sector, 2006–07 to 2023–24 (nominal dollars, enrollment-weighted)

Sector	2006–07 (Baker, 2009)	2019–20	2023–24	Schools, 2023–24
Independent day schools	$20,131	$30,368	$33,627	861
of which NAIS members	—	—	$38,019	629
Jewish day schools (all)	$17,008	$20,918	$24,300	204
Conservative Christian	$7,118	$9,920	$10,817	587
Public schools (current spending)	$10,140	—	$17,619	—

2006–07 figures from Table 5 of Baker (2009), 24 states; the public figure is for those states, 2005–06. Private figures are 990 total functional expenses per pupil for matched filers. Catholic schools are omitted because parish and diocesan schools rarely file 990s.

7. Results

7.1 Reputational rankings and tuition

Table 3 reports the reputational analysis. Without controls, states with higher public spending and adequacy have many more top-ranked private day schools per child and much higher private tuition. Once household income is held constant, public spending remains a significant predictor of both: each SD of wage-adjusted public spending is associated with 15% more top-ranked day schools per child and 19% higher tuition, controlling for income and wages. Statewide adequacy predicts tuition (+22%) but not the count of ranked schools. Public NAEP performance predicts neither once income is held constant. The figure following the table plots tuition against public spending.

Table 3. Public-system measures, top-ranked private day schools and private tuition

Per 1 SD higher public measure	No controls	+ Income	+ Income and wages
Top-ranked private day schools per child (incidence-rate ratio)			
Public spending per pupil (wage-adj.)	×1.64*	×1.20*	×1.15*
Adequacy, all districts	×1.73*	×1.02	×1.02
Adequacy, highest-poverty quintile	×1.68*	×0.88	×0.93
NAEP grade 8 math, 2009–24	×1.02	×0.92	×0.89
Average private high school tuition (approximate % difference)			
Public spending per pupil (wage-adj.)	+35%*	+19%*	+19%*
Adequacy, all districts	+36%*	+19%*	+22%*
NAEP grade 8 math, 2009–24	+23%*	+7%	+9%

Top-ranked schools: Niche 2026 Best Private High Schools; 190 day schools after removing boarding schools. Poisson models with school-age population as exposure; tuition models are OLS in logs. Public measures from SFID 2024. 50 states. * p<.05, robust standard errors.

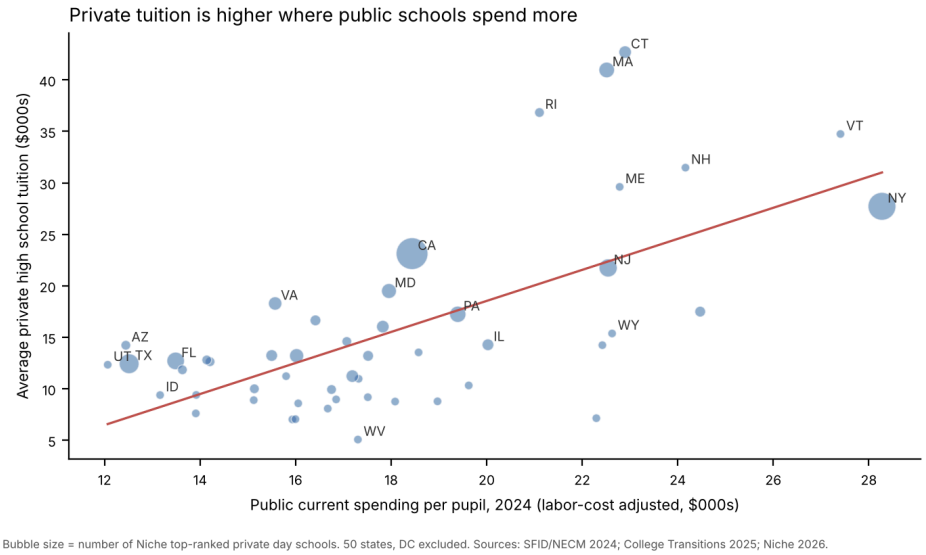


Figure 1. Average private high school tuition and public current spending per pupil (labor-cost adjusted), by state. Bubble size is the number of Niche top-ranked private day schools. Sources: SFID/NECM 2024; College Transitions 2025; Niche 2026.

The reputational data also show that stronger public systems do not crowd out private enrollment: the share of children in private school is no lower in states with stronger public systems once income is held constant. They do, however, reduce income sorting between sectors. With income controlled, the gap between the incomes of public and private school families is significantly smaller where public spending is higher (t ≈ 4–5). Strong public systems keep more affluent families, so the private schools that remain must offer something other than an exit.

7.2 Public-system strength and independent-sector resources

Table 4 presents the main estimates. Each cell is a separate regression of an independent-sector outcome on one public-system measure, controlling for income and wages. Each SD of wage-adjusted public spending is associated with 2.04 times as many well-funded independent day schools per child (column 1), 1.33 times as many NAIS day schools (column 2), 12% higher NAIS spending per pupil (column 3), 7% fewer NAIS pupils per teacher (column 4) and 10% more NAIS assets per pupil (column 5). Statewide adequacy produces nearly identical estimates. Adequacy in the highest-poverty districts predicts the number of well-funded schools, NAIS spending (+20%) and staffing (−9%) but not the number of NAIS schools.

Table 4. Public-system strength and independent-sector outcomes (controls for income and wages)

Public-system measure (1 SD)	**(1) Well-funded independent day schools (count)**	**(2) NAIS day schools (count)**	**(3) ln NAIS spending per pupil**	**(4) ln NAIS pupils per teacher**	**(5) ln NAIS assets per pupil**
Public spending per pupil (wage-adj.)	0.712***	0.288***	0.113***	-0.075***	0.098**
	(0.109)	(0.082)	(0.021)	(0.017)	(0.046)
	×2.04	×1.33	+11.9%	-7.2%	+10.3%
Adequacy, all districts (NECM)	0.758***	0.285***	0.143***	-0.084***	0.119*
	(0.173)	(0.107)	(0.032)	(0.024)	(0.069)
	×2.13	×1.33	+15.4%	-8.1%	+12.6%
Adequacy, highest-poverty quintile	0.763***	0.154	0.183***	-0.089***	0.172**
	(0.224)	(0.140)	(0.040)	(0.029)	(0.087)
	×2.14	×1.17	+20.0%	-8.5%	+18.8%
NAEP grade 8 math, 2009–24	0.434**	0.123	0.080**	-0.072***	0.053
	(0.195)	(0.148)	(0.031)	(0.024)	(0.060)
	×1.54	×1.13	+8.3%	-7.0%	+5.5%
States (N)	47–50	47–50	35–37	44–46	35–37
Estimator	Poisson	Poisson	WLS	WLS	WLS

Each cell is a separate regression of the column outcome on the row measure (standardized), standardized ln median household income and standardized ln CWIFT. Coefficients in log points with robust standard errors in parentheses; blue figures give the implied incidence-rate ratio (columns 1–2) or percentage difference (columns 3–5) per SD. Columns 1–2: Poisson with population aged 5–17 as exposure. Columns 3 and 5: WLS weighted by number of matched NAIS filers, states with at least three. Column 4: WLS weighted by number of NAIS day schools. *** p<.01, ** p<.05, * p<.10.

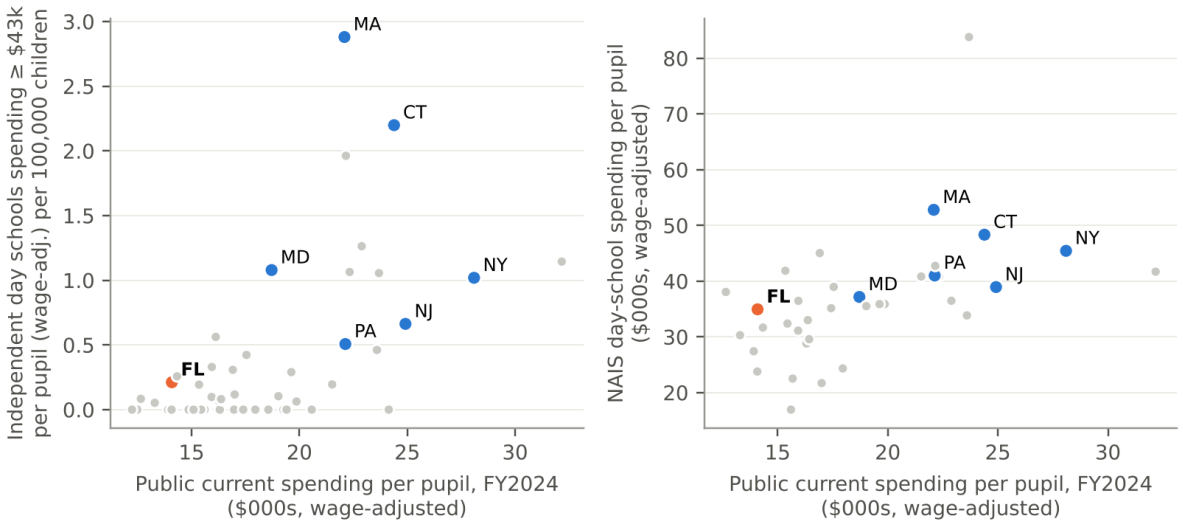


Figure 2. Public spending and the independent-school tier, by state, 2023–24. Left: independent day schools spending at least $43,000 per pupil (wage-adjusted) per 100,000 children. Right: enrollment-weighted NAIS day-school spending per pupil, wage-adjusted, for states with at least three matched NAIS filers.

NAEP has weaker associations on its own: it predicts the count of well-funded schools (×1.54), NAIS spending (+8%) and staffing (−7%). Table 5 tests whether these reflect test-score quality or the resources that accompany it. With public spending and NAEP entered together, public spending retains its full association with every outcome (×2.05 for well-funded schools, ×1.35 for NAIS schools, +11% for NAIS spending), while the NAEP coefficients fall to near zero and lose significance, with the partial exception of pupils per teacher (p = .06). This is prediction P2: the independent sector tracks public inputs, not public outputs.

Table 5. Public resources versus public test scores: both entered together

	(1) Well-funded independent day schools (count)	(2) NAIS day schools (count)	(3) ln NAIS spending per pupil	(4) ln NAIS pupils per teacher	(5) ln NAIS assets per pupil
Public spending per pupil (wage-adj.)	0.718***	0.302***	0.102***	-0.061***	0.094*
	(0.118)	(0.090)	(0.024)	(0.019)	(0.051)
	×2.05	×1.35	+10.7%	-5.9%	+9.9%
NAEP grade 8 math, 2009–24	-0.012	-0.040	0.036	-0.045*	0.012
	(0.200)	(0.150)	(0.036)	(0.024)	(0.062)
	×0.99	×0.96	+3.6%	-4.4%	+1.3%
States (N)	50	50	37	46	37

As Table 4, with public spending per pupil and NAEP entered in the same model, controlling for income and wages. *** p<.01, ** p<.05, * p<.10.

7.3 What the resources buy: staffing and teacher pay

Spending more is not by itself evidence of a better school. What matters is what the money buys. In both sectors, most of it buys people, and two features of that spending are especially well documented as drivers of quality. The first is class size. In the Tennessee STAR experiment, students randomly assigned to small classes scored higher (Krueger, 1999), and kindergarten classroom quality, including class size, affected adult earnings (Chetty et al., 2011). The second is teacher pay relative to other careers. Where teacher wages are higher relative to local alternatives, student outcomes are better (Loeb & Page, 2000; Britton & Propper, 2016). The long-run effects of court-ordered school finance reforms worked largely through these channels: the additional spending went to smaller classes, higher teacher salaries and longer school years (Jackson, Johnson & Persico, 2016). Class size is also what parents notice. In a survey of Georgia scholarship families, about half named smaller class sizes among their top five reasons for choosing a private school (Kelly & Scafidi, 2013). If private schools set their resources against a public benchmark, this is where it should show.

Dollars translate into staff in both sectors. Across U.S. districts, the highest-spending fifth (wage-adjusted) employs 8.5 teachers and 18.3 total staff per 100 pupils, against 6.0 and 12.2 in the lowest-spending fifth. Within states, a 10% increase in district spending goes with 3.3% more teachers and 4.8% more total staff per pupil. Among matched private schools, the highest-spending fifth employs 13.2 teachers per 100 pupils, against 8.1 in the lowest, and within states a 10% increase in spending goes with 2.7% more teachers per pupil. Staffing does not rise as cleanly with adequacy: the least adequately funded fifth of districts has about as many teachers per pupil (6.4) as the middle fifth (6.3). That is the point of the adequacy measure. Many high-need districts employ typical numbers of staff, but not enough for the needs of their students.

Table 6. What the resources buy: staffing, class size and pay in public and private schools, 2023–24

	FL	NJ	MA	CT	NY	U.S.
Public schools						
Spending per pupil, wage-adjusted	$14k	$25k	$22k	$24k	$28k	$18k
Teachers per 100 pupils	5.4	8.4	8.5	8.4	8.3	6.6
Total staff per 100 pupils	11.8	17.3	16.1	19.8	16.2	13.9
Predicted class size, departmentalized (2021)	23.7	19.8	19.6	18.5	19.4	—
Predicted class size, self-contained (2021)	18.0	15.5	14.9	17.0	15.9	—
Teacher wage ÷ non-teacher wage, age 35	75%	84%	78%	82%	87%	76%
Compensation per teacher, wage-adjusted	$176k	$225k	$205k	$216k	$248k	$204k
Compensation share of current spending	67%	74%	77%	77%	72%	77%
NAIS day schools						
Teachers per 100 pupils (full PSS)	12.0	14.9	15.4	14.1	16.7	13.2
Spending per pupil, wage-adjusted (matched filers)	$35k	$39k	$53k	$48k	$45k	$36k
Teachers per 100 pupils (matched filers)	10.7	13.4	16.0	15.1	16.1	12.5
Compensation per teacher, wage-adjusted	$179k	$176k	$180k	$184k	$160k	$164k
Compensation share of spending	55%	61%	55%	57%	57%	57%
Well-funded independent day schools						
Teachers per 100 pupils	11.0	14.4	16.8	13.7	16.8	14.7
Compensation per teacher, wage-adjusted	$240k	$208k	$189k	$222k	$183k	$196k

Public: CCD 2023–24 teacher and staff FTE; F-33 FY2024 salaries, wages and benefits; SFID class size (2021) and teacher wage competitiveness (2023). Private: PSS 2023–24 teacher FTE; matched 990 filers' compensation (Part IX, lines 5–10).
Compensation per teacher is all-employee compensation divided by teacher FTE in both sectors. The U.S. public spending figure is the enrollment-weighted state average. Dollar figures divided by the CWIFT.

Florida against the Northeast. Table 6 shows the gap in both sectors. Florida's public schools employ 5.4 teachers and 11.8 total staff per 100 pupils, against 8.3–8.5 teachers and 16.1–19.8 total staff in Massachusetts, Connecticut, New Jersey and New York. Predicted class sizes are about four to five students larger in departmentalized classrooms (23.7 against 18.5–19.8) and one to three students larger in self-contained elementary classrooms. Florida teachers also earn 75% of what similar non-teachers earn at age 35, slightly below the national median of 76% and below the 78–87% in the four Northeastern states. On the private side, Florida's NAIS schools employ 12.0 teachers per 100 pupils, against 14.1–16.7, and its well-funded independent schools 11.0, against 13.7–16.8.

Table 7. Where the extra dollars go: spending differences from Florida, decomposed

State vs. Florida	Spending per pupil	Teachers per pupil	Compensation per teacher	Non-compensation share
Public schools				
New Jersey	+77%	+54%	+28%	-10%
Massachusetts	+57%	+56%	+16%	-13%
Connecticut	+73%	+55%	+22%	-13%
New York	+99%	+53%	+41%	-7%
NAIS day schools (matched filers)				
New Jersey	+11%	+25%	-2%	-10%
Massachusetts	+51%	+49%	+0%	+1%
Connecticut	+38%	+41%	+3%	-4%
New York	+30%	+50%	-11%	-3%

Spending per pupil (wage-adjusted) is the product of teachers per pupil, compensation per teacher and the inverse of the compensation share of spending, so the log differences add up: ln(spending ratio) = ln(staffing ratio) + ln(pay ratio) + ln(non-compensation ratio). Entries convert each log difference to a percentage. Public: F-33 FY2024 and CCD 2023–24. NAIS: matched 990 filers, 2023–24.

Where the extra dollars go. Table 7 decomposes each state's spending advantage over Florida. In the public sector, the Northeastern states spend 57–99% more per pupil after wage adjustment, and the money buys both more staff and better-paid staff: teachers per pupil are 53–56% higher, and compensation per teacher is 16–41% higher. In NAIS schools, the extra dollars go almost entirely to staffing. Massachusetts NAIS schools spend 51% more per pupil than Florida's and employ 49% more teachers per pupil, while compensation per teacher is the same. Connecticut and New York follow the same pattern. Northeastern independent schools do not pay much more per teacher than Florida's; they hire many more teachers per child. That is what the benchmarking account predicts. Where the public alternative already offers small classes, independent schools compete by offering even smaller ones.

Table 8. Public-system strength, staffing and pay in public and NAIS schools (controls for income and wages)

Public-system measure (1 SD)	(1) Public teachers per 100 pupils	(2) Public class size (departmentalized)	(3) Public compensation per teacher	(4) Public teacher wage competitiveness	(5) NAIS teachers per 100 pupils	(6) NAIS compensation per teacher
Public spending per pupil (wage-adj.)	0.105*** (0.017) +11.1%	-0.073*** (0.018) -7.0%	0.108*** (0.018) +11.4%	0.052*** (0.012) +5.3%	0.083*** (0.017) +8.7%	0.013 (0.018) +1.3%
Adequacy, all districts (NECM)	0.108*** (0.026) +11.4%	-0.090*** (0.026) -8.6%	0.093*** (0.025) +9.7%	0.039*** (0.015) +4.0%	0.089*** (0.026) +9.3%	0.031 (0.023) +3.1%
Adequacy, highest-poverty quintile	0.047* (0.026) +4.8%	-0.070*** (0.026) -6.8%	0.097*** (0.021) +10.1%	0.046*** (0.014) +4.7%	0.093*** (0.033) +9.7%	0.064** (0.029) +6.6%
NAEP grade 8 math, 2009–24	0.086*** (0.032) +8.9%	-0.027 (0.031) -2.7%	-0.045 (0.028) -4.4%	0.008 (0.018) +0.8%	0.060** (0.026) +6.2%	0.005 (0.024) +0.5%
States (N)	46–49	45–47	46–49	47–50	35–37	35–37

Each cell is a separate regression of the log column outcome on the row measure, standardized ln median household income and ln CWIFT. Columns 1–4: OLS across states (public outcomes, 2023–24; class size 2021). Columns 5–6: WLS weighted by number of matched NAIS filers, states with at least three. Compensation per teacher is wage-adjusted. Robust standard errors in parentheses; blue figures are percentage differences per SD. *** p<.01, ** p<.05, * p<.10.

Public-system strength and staffing in both sectors. Table 8 repeats the state models for staffing and pay. Each SD of public spending is associated with 11% more public teachers per pupil, 7% smaller public classes, 11% higher compensation per teacher and 5% higher teacher wage competitiveness. In NAIS schools, the same SD goes with 9% more teachers per pupil. Statewide adequacy produces nearly identical estimates. NAIS compensation per teacher is unrelated to public spending, except for a positive association with adequacy in high-poverty districts (+7%). NAEP predicts public and NAIS teachers per pupil but not public class size or pay. Stronger public systems buy smaller classes and more competitive pay, and the independent schools in those states match them with more teachers per child (Figure 3).

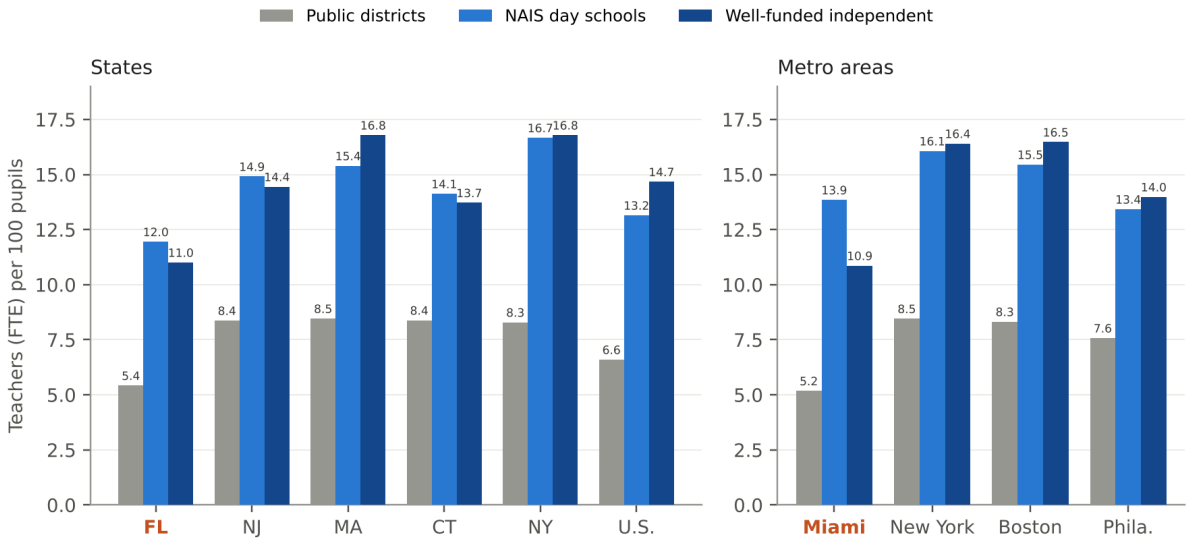


Figure 3. Teachers (FTE) per 100 pupils in public districts, NAIS day schools and well-funded independent day schools. States: public CCD 2023–24; NAIS from the full PSS 2023–24; well-funded independent schools from matched 990 filers. Metro areas: public CCD 2022–23 (all districts in the CBSA); private as for states.

7.4 Robustness

Appendix Table A1 shows the full specification ladder. The public spending estimates change little across specifications; the adequacy estimates shrink by about a quarter when income is added and hardly at all when wages are added. The NAEP estimates are unstable: they fall to near zero when income alone is added, consistent with NAEP's strong correlation with income across states ($r = 0.65$), and partly recover when wages are added.

Table 9 reports alternative estimators and leave-one-state-out sensitivity for the four main outcomes. Negative binomial models give count estimates close to the Poisson results for spending and adequacy, and somewhat larger for NAIS school counts. Dropping any single state leaves the public spending coefficient for well-funded schools between 0.67 and 0.80 (an incidence-rate ratio of 1.95 to 2.23), with $p < .001$ in every case. Unweighted OLS gives similar results for NAIS spending. The staffing result for public spending, however, depends on weighting: without weights, the coefficient on pupils per teacher is near zero, while the adequacy estimates remain significant.

Table 9. Robustness: alternative estimators and leave-one-state-out sensitivity

Measure	Outcome	Main estimate	Alternative estimator	Leave-one-state-out range	Largest LOO p-value (state dropped)
Public spending per pupil (wage-adj.)	Well-funded independent schools	0.712*** (0.109)	0.759*** (0.134) Neg. binomial	0.669 to 0.802	0.000 (NY)
	NAIS day schools	0.288*** (0.082)	0.495*** (0.115) Neg. binomial	0.250 to 0.363	0.011 (CA)
	ln NAIS spending per pupil	0.113*** (0.021)	0.102*** (0.031) Unweighted OLS	0.103 to 0.124	0.001 (NY)
	ln NAIS pupils per teacher	-0.075*** (0.017)	-0.008 (0.038) Unweighted OLS	-0.082 to -0.050	0.002 (NY)
Adequacy, all districts (NECM)	Well-funded independent schools	0.758*** (0.173)	0.727*** (0.163) Neg. binomial	0.630 to 0.905	0.001 (CA)
	NAIS day schools	0.285*** (0.107)	0.383** (0.155) Neg. binomial	0.220 to 0.336	0.091 (TX)
	ln NAIS spending per pupil	0.143*** (0.032)	0.135** (0.056) Unweighted OLS	0.130 to 0.164	0.001 (NY)
	ln NAIS pupils per teacher	-0.084*** (0.024)	-0.069** (0.033) Unweighted OLS	-0.097 to -0.055	0.002 (TX)
Adequacy, highest-poverty quintile	Well-funded independent schools	0.763*** (0.224)	0.652*** (0.186) Neg. binomial	0.570 to 0.932	0.005 (CA)
	NAIS day schools	0.154 (0.140)	0.190 (0.139) Neg. binomial	0.018 to 0.234	0.884 (TX)
	ln NAIS spending per pupil	0.183*** (0.040)	0.173*** (0.056) Unweighted OLS	0.166 to 0.211	0.000 (NY)
	ln NAIS pupils per teacher	-0.089*** (0.029)	-0.081*** (0.025) Unweighted OLS	-0.110 to -0.055	0.008 (TX)
NAEP grade 8 math, 2009–24	Well-funded independent schools	0.434** (0.195)	0.073 (0.239) Neg. binomial	0.146 to 0.537	0.522 (CA)
	NAIS day schools	0.123 (0.148)	-0.118 (0.165) Neg. binomial	-0.055 to 0.177	0.830 (MA)
	ln NAIS spending per pupil	0.080** (0.031)	0.056 (0.039) Unweighted OLS	0.052 to 0.094	0.177 (MA)
	ln NAIS pupils per teacher	-0.072*** (0.024)	-0.099** (0.040) Unweighted OLS	-0.090 to -0.045	0.072 (CA)

Main estimate: Table 4 specification. Alternative estimator: negative binomial (NB2) for counts; unweighted OLS for spending and staffing. Leave-one-out: range of the main coefficient across 46–50 re-estimates, each dropping one state, and the largest p-value among them with the state dropped. Log points; robust standard errors in parentheses. *** p<.01, ** p<.05, * p<.10.

The most important sensitivity concerns the Northeast. Table 10 re-estimates the main models without the nine Northeastern states (New England, New York, New Jersey and Pennsylvania). Most associations weaken substantially. Public spending still predicts more well-funded independent schools (×1.48, p = .07), and high-poverty adequacy still predicts NAIS spending (+12%, p = .03), but the remaining estimates are not significant. Outside the Northeast, NAEP is

negatively associated with the count of well-funded schools. The Northeast is not an outlier in the sense of a single influential state: it is a region where every dimension of public and private investment is high. The cross-state evidence thus rests on the contrast between that region and the rest of the country, which is also the contrast at issue in policy debates.

Table 10. Excluding the Northeast

Public-system measure (1 SD)	**(1) Well-funded independent day schools (count)**	**(2) NAIS day schools (count)**	**(3) ln NAIS spending per pupil**	**(4) ln NAIS pupils per teacher**	**(5) ln NAIS assets per pupil**
Public spending per pupil (wage-adj.)	0.392* (0.213) ×1.48	0.176 (0.171) ×1.19	0.043 (0.046) +4.4%	-0.037 (0.043) -3.7%	-0.018 (0.083) -1.8%
Adequacy, all districts (NECM)	0.011 (0.292) ×1.01	0.006 (0.204) ×1.01	0.036 (0.051) +3.7%	-0.041 (0.029) -4.0%	-0.107 (0.074) -10.2%
Adequacy, highest-poverty quintile	0.100 (0.328) ×1.10	-0.138 (0.242) ×0.87	0.109** (0.049) +11.5%	-0.028 (0.029) -2.7%	0.061 (0.115) +6.3%
NAEP grade 8 math, 2009–24	-0.646** (0.268) ×0.52	-0.265 (0.163) ×0.77	-0.030 (0.044) -2.9%	-0.012 (0.031) -1.2%	-0.090 (0.089) -8.6%
States (N)	39–41	39–41	27–28	36–37	27–28
Estimator	Poisson	Poisson	WLS	WLS	WLS

As Table 4, excluding Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont. *** p<.01, ** p<.05, * p<.10.

7.5 Florida's independent sector compared with the Northeast

Table 11 compares Florida's NAIS day schools with those of five Northeastern and Mid-Atlantic states. Florida has 2.4 NAIS day schools per 100,000 children, essentially the national rate of 2.5, and more NAIS seats per child than New Jersey. Its problem is depth, not presence. Florida's NAIS schools average 665 students, against 306–392 in Massachusetts, Connecticut, New Jersey and New York; they have 8.4 pupils per teacher against 6.0–7.1; and they spend $34,900 per pupil after wage adjustment, against $52,800 in Massachusetts, $48,300 in Connecticut, $45,400 in New York and $38,900 in New Jersey. They hold about half the assets per pupil of Massachusetts, Connecticut and New York schools. Contributions per pupil are similar to the national average, so the gap does not reflect a lack of donors.

Table 11. NAIS member day schools: Florida and Northeastern comparison states, 2023–24

	FL	NJ	MA	CT	NY	MD	U.S.
NAIS day schools (PSS)	80	51	105	46	110	63	1,360
per 100,000 children 5–17	2.4	3.4	10.4	8.5	3.7	6.2	2.5
Average enrollment	665	346	306	330	392	439	436
Pupils per teacher	8.4	6.7	6.5	7.1	6.0	7.1	7.6
Teachers per 100 pupils	12.0	14.9	15.4	14.1	16.7	14.2	13.2
Matched 990 filers (% of NAIS enrollment)	29 (39%)	27 (52%)	47 (38%)	24 (48%)	53 (56%)	31 (51%)	629 (48%)
Spending per pupil, nominal	$31.9k	$43.4k	$58.0k	$55.7k	$56.3k	$39.9k	$38.0k
Spending per pupil, wage-adjusted	$34.9k	$38.9k	$52.8k	$48.3k	$45.4k	$37.2k	$35.9k
Same grade span and size, vs. FL	—	+18%	+62%*	+50%*	+29%*	+8%	—
Compensation per teacher, wage-adjusted	$179k	$176k	$180k	$184k	$160k	$153k	$164k
Total assets per pupil	$89k	$104k	$174k	$189k	$178k	$111k	$114k
Contributions per pupil	$6.7k	$5.9k	$8.4k	$9.9k	$7.1k	$4.5k	$6.0k
Program revenue (mostly tuition), % of revenue	79%	83%	80%	75%	82%	81%	80%

Rows 1–4: all NAIS day schools in the PSS, weighted. Remaining rows: matched 990 filers, enrollment-weighted. "Same grade span and size": Appendix Table A2; * p<.05.

Comparing schools of the same grade span and size (Appendix Table A2), Massachusetts NAIS schools spend 62% more per pupil than Florida's, Connecticut's 50% more and New York's 29% more. The New Jersey difference (+18%) is not significant. Florida sits near the national median on this measure: 25 of 46 comparison states are above it. In all-sector comparisons, the exclusion of Orthodox yeshivas matters for New Jersey: with them included, New Jersey private schools looked 15% below Florida's; without them, New Jersey is 7% above (not significant), while Massachusetts (+51%), Connecticut (+63%) and New York (+29%) are well above. Seven Florida independent day schools clear the well-funded threshold, 0.21 per 100,000 children, against 2.88 in Massachusetts, 2.20 in Connecticut, 1.08 in Maryland, 1.02 in New York and 0.66 in New Jersey.

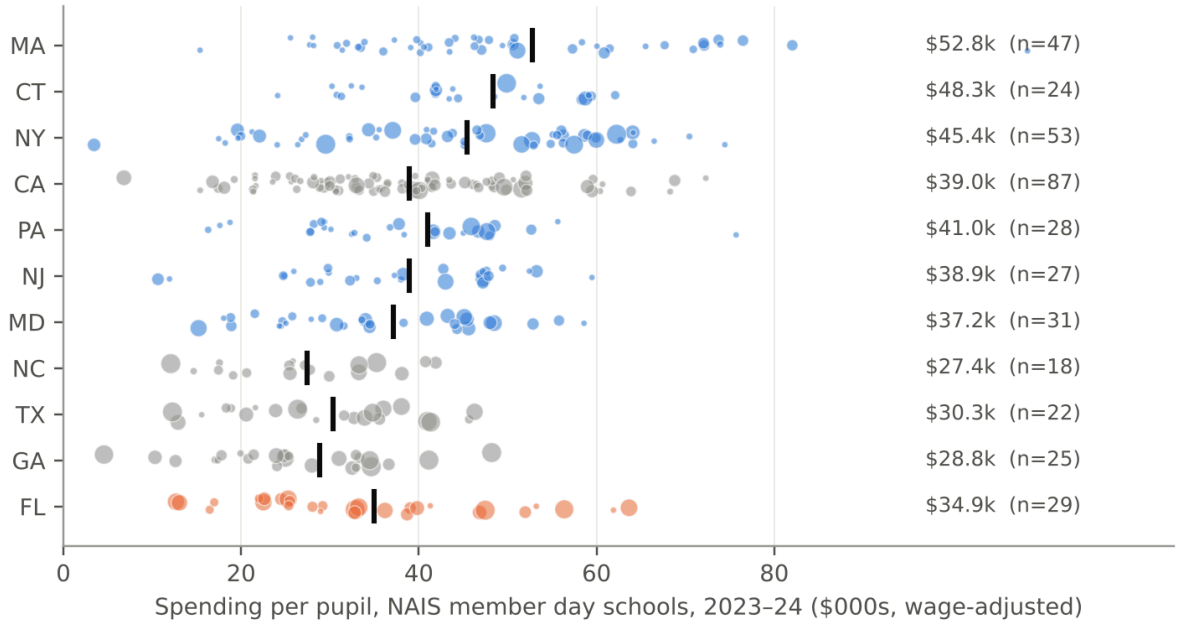


Figure 4. Spending per pupil at individual NAIS day schools, 2023–24 (wage-adjusted). Each dot is a school, sized by enrollment; bars are enrollment-weighted means. Blue: Northeastern and Mid-Atlantic comparison states; grey: other states.

7.6 High-quality seats per child

Table 12 counts high-quality public and private seats per 100 children aged 5–17 in Florida, New Jersey, Massachusetts and the nation. The public contrast is very large. Massachusetts and New Jersey offer 73–81 seats per 100 children in adequately funded districts, and 39–46 in districts that are both adequately funded and at or above national-average outcomes. Florida offers 5.5 and 4.7. Only 8 of Florida's 67 county districts reach NECM adequacy; Miami-Dade, Broward, Hillsborough, Orange and Palm Beach fall $1,600–$5,600 per pupil short. Florida has more private seats per child overall, and more NAIS seats per child than New Jersey, but on the well-funded measure Massachusetts has about five times Florida's seats per child. Florida's NAIS seats equal about a quarter of the combined pool of NAIS and high-quality public seats, against 3% in New Jersey and 6% in Massachusetts. In the Northeast, the high-quality market is mainly public; in Florida it is mainly private.

Table 12. High-quality public and private seats per 100 children ages 5–17

	FL	NJ	MA	U.S.
Public (SFID District Cost Database, 2022–23)				
All district seats	85.9	85.2	82.9	82.6
In adequately funded districts (spending ≥ NECM cost)	5.5	80.8	73.1	42.0
In districts spending ≥ national 75th percentile (≥ $18.5k, wage-adj.)	0.3	82.5	55.0	20.7
Adequately funded and at/above U.S.-average outcomes	4.7	39.0	46.4	19.0
Outcomes ≥ 0.25 SD above U.S. average	1.9	28.4	31.6	11.2
Private (PSS and matched 990 filers, 2023–24)				
All private (excl. special ed., early childhood, boarding)	13.7	10.5	9.1	8.6
NAIS member day schools	1.61	1.18	3.18	1.09
Independent day schools spending ≥ $43k (wage-adj.)	0.19	0.26	0.93	0.15
Share				
NAIS seats as % of NAIS + high-quality public seats	26%	3%	6%	5%

Public: district enrollment over state population ages 5–17. Private: PSS weighted K–12 enrollment and matched 990 filers. Well-funded private seats are a lower bound because only 39–52% of NAIS enrollment in these states is matched to a 990.

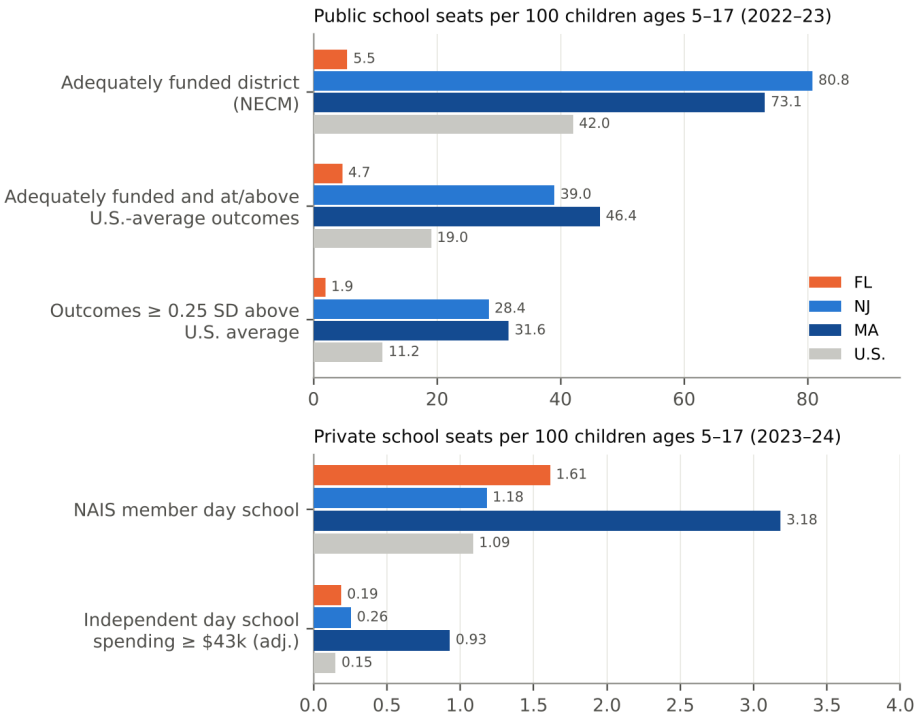


Figure 5. High-quality public seats (2022–23) and private seats (2023–24) per 100 children ages 5–17: Florida, New Jersey, Massachusetts and the United States.

7.7 Metropolitan markets: affluent demand and high-quality supply

State comparisons understate how differently these markets work for the families most likely to buy a well-resourced education. Table 13 compares metro Miami with metro New York, Boston and Philadelphia. In Miami, three countywide districts serve 923,000 school-age children, and none is adequately funded: Miami-Dade is about $1,600 per pupil short of the NECM target, Palm Beach about $3,000 and Broward about $5,600. As a result, not one of the metro's 84,000 families with children earning $200,000 or more lives in a high-quality public district. In the three Northeastern metros, 71–88% of such families do. Families in those metros choose among 177–514 districts, most adequately funded, and pay for access through housing prices.

Table 13. Affluent demand and high-quality supply in four metropolitan areas, 2023–24

	Miami–Ft. Lauderdale–W. Palm Beach	New York–Newark–Jersey City	Boston–Cambridge–Newton	Philadelphia–Camden–Wilmington
Public				
Children 5–17	923,000	3,031,000	702,000	989,000
School districts	3	514	177	178
Seats in adequately funded districts, per 100 children	0.0	77.5	78.8	54.2
Seats adequately funded and at/above U.S.-average outcomes, per 100	0.0	58.6	51.8	32.6
Demand				
Families with children earning $200k+	84,000	559,000	183,000	155,000
% of families with children	14%	29%	36%	24%
% living in a high-quality public district	0%	88%	80%	71%
Families with no high-quality public option	84,000	68,000	37,000	45,000
Private supply				
NAIS day schools	27	114	77	69
NAIS day-school seats	21,900	50,600	25,200	21,900
Well-funded independent seats (≥ $43k adj.)	6,100	17,200	7,500	3,900
Average NAIS enrollment	805	445	327	317
NAIS pupils per teacher	7.2	6.2	6.5	7.4
NAIS spending per pupil, nominal / wage-adj.	$44.8k / $48.8k	$55.5k / $44.6k	$58.3k / $51.7k	$41.9k / $40.7k

	Miami–Ft. Lauderdale–W. Palm Beach	New York–Newark–Jersey City	Boston–Cambridge–Newton	Philadelphia–Camden–Wilmington
NAIS enrollment matched to 990 (%)	35%	56%	38%	30%
Staffing (teachers per 100 pupils)				
Public, all districts (2022–23)	5.2	8.5	8.3	7.6
Public, high-quality districts (2022–23)	—	8.9	8.2	7.7
Public total staff per 100 pupils (2022–23)	10.7	17.1	15.7	15.5
NAIS day schools (PSS)	13.9	16.1	15.5	13.4
Well-funded independent schools	10.9	16.4	16.5	14.0
Well-funded independent: compensation per teacher, wage-adj.	$244k	$188k	$192k	$176k
Coverage				
Well-funded seats per 100 families earning $200k+	7.3	3.1	4.1	2.5
Well-funded seats per 100 families with no public option	7.3	25.1	20.4	8.7
NAIS seats per 100 families with no public option	26.0	74.1	69.0	48.9
Sensitivity: high-quality public = outcomes ≥ 0.25 SD above U.S. average				
Families with no high-quality public option	84,000	285,000	64,000	61,000
Well-funded seats per 100 such families	7.3	6.0	11.7	6.3
NAIS seats per 100 such families	26.0	17.7	39.5	35.8

Full 2023 CBSA delineations. Public: SFID District Cost Database (2022–23) with EDGE district-to-county geocodes; New York City's latest outcome data are for 2014. Families: ACS 2019–23 Table B19131, unified and elementary school districts. Private: PSS 2023–24 and matched 990 filers; boarding schools and Orthodox yeshivas excluded. Well-funded seat counts are floors.

Miami's private sector has responded to this demand. Relative to all affluent families, Miami has more well-funded independent seats (7.3 per 100 families earning $200,000 or more) than New York (3.1), Boston (4.1) or Philadelphia (2.5). After wage adjustment, its NAIS schools spend more per pupil than those in New York or Philadelphia; Ransom Everglades, Miami Country Day, Oxbridge Academy and Fisher Island Day spend $48,000–$58,000 per pupil in nominal terms. The difference lies in how the capacity was built. Miami's 27 NAIS day schools average 805 students, against 317–445 in the Northeast, and Gulliver Preparatory alone enrolls about 2,200. They also

have more pupils per teacher than New York's or Boston's schools. This is prediction P3: absent an adequate public benchmark, the private sector meets demand by scaling up a few large schools.

The staffing rows of Table 13 show what that means for classrooms. Miami's three public districts employ 5.2 teachers and 10.7 total staff per 100 pupils (Broward 4.9, Miami-Dade 5.0, Palm Beach 5.9), against 7.6–8.5 teachers and 15.5–17.1 total staff across the three Northeastern metros, and 7.7–8.9 teachers in their high-quality districts. Miami's NAIS schools employ 13.9 teachers per 100 pupils, against 15.5–16.1 in New York and Boston. The gap is widest at the top. Miami's well-funded independent schools spend nearly as much per pupil as their New York and Boston counterparts after wage adjustment ($52,900 against $54,700–$57,600) but employ 10.9 teachers per 100 pupils, against 16.4–16.5. Their spending goes to compensation per teacher, which is far higher ($244,000 against $188,000–$192,000, wage-adjusted), rather than to more teachers per child. In the Northeast, a family that leaves an adequately funded district with about 8.5 teachers per 100 pupils for an independent school gets roughly twice the staffing. In Miami, the public alternative has about 5 teachers per 100 pupils, and even the best-funded private schools offer about 11.

Measured against the families who actually depend on the private sector, those with no high-quality public option, supply in Miami is thin. Miami offers 7 well-funded independent seats and 26 NAIS seats per 100 such families. New York offers 25 and 74, Boston 20 and 69, and Philadelphia 9 and 49 (Figure 6).

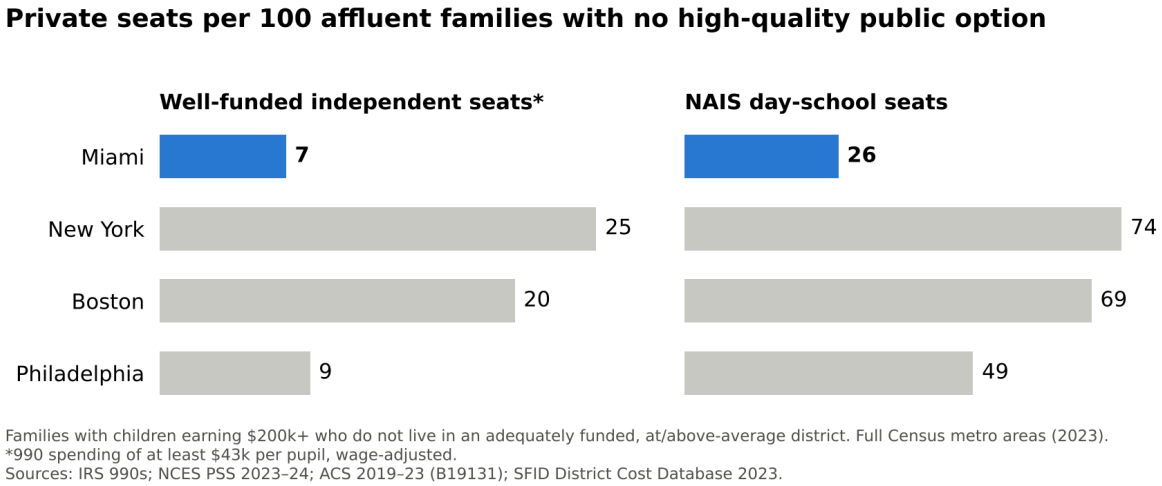


Figure 6. Private seats per 100 affluent families with no high-quality public option, by metropolitan area, 2023–24.

Sensitivity. Two definitional choices matter. First, New York City's latest outcome measure in the SFID file (2014) puts it at the national average. If "high-quality public" instead requires outcomes at least 0.25 SD above the national average, New York City drops out of the public option, the residual pool in metro New York grows to about 285,000 families, and coverage falls to 6.0 well-funded and 17.7 NAIS seats per 100. On that stricter test, Miami's well-funded coverage (7.3) is about level with New York's and Philadelphia's (6.0 and 6.3), while Boston's (11.7) is 1.6 times Miami's. Second, $200,000 goes further in Miami than in Boston or New York. Using $150,000 as a cost-of-living equivalent threshold for Miami raises its pool to 137,000 families and lowers coverage to 4.5 well-funded and 16 NAIS seats per 100. Under every definition, no Miami-area district provides a high-quality public option.

7.8 Florida's voucher-era growth

Florida's private K–12 enrollment rose 24% between 2019–20 and 2023–24, the first year of universal eligibility, against 9% nationally (Figure 7). The growth went mostly to unaffiliated nonsectarian schools (+115%) and other religious schools (+32%). Independent schools grew 9%. Universal vouchers expanded the private sector at its least-resourced end. They have not, at least so far, produced the kind of independent sector found in high-spending public-school states.

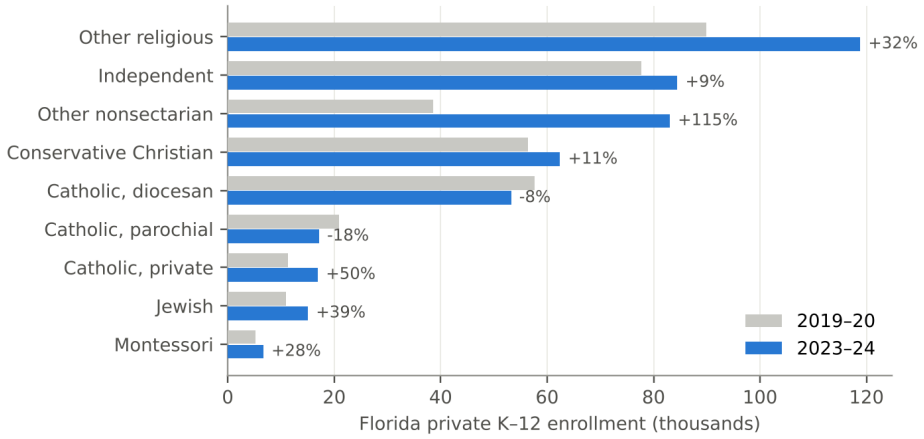


Figure 7. Florida private K–12 enrollment by sector, 2019–20 and 2023–24. NCES Private School Universe Survey, weighted enrollment; excludes special education and early-childhood programs.

8. Discussion

8.1 Interpretation

Across reputational and resource-based measures, states that invest more in public schools, and invest more relative to the cost of adequate outcomes, have deeper and better-resourced independent sectors, with income and regional wages held constant. Public test scores do not add to that explanation. The pattern fits the benchmarking account: where the free public option is well resourced, with more teachers per child, smaller classes and more competitive teacher pay, independent schools must exceed it on visible inputs to attract families, and the sector that results is smaller per affluent family but more richly resourced per pupil. Where the public option is weak, as in Florida and especially metro Miami, the private sector carries a much larger share of the high-quality market, and it does so with larger schools and leaner staffing.

The inputs-over-outputs result deserves emphasis. If parents compared public and private schools on test scores, NAEP should predict independent-sector resources at least as well as public spending. It does not. One interpretation is that affluent parents judge schools by class size, course offerings and facilities, and that independent schools compete on those dimensions. The staffing results support this reading. In the Northeast, independent schools spend their resource advantage over Florida almost entirely on more teachers per child, the input that parents most often say they are choosing. Another is that state NAEP averages are poor proxies for the public schools affluent families actually use. Either way, the result is consistent with the view that resources, not test-score rankings, set the terms of public–private competition at the top of the market.

8.2 Alternative explanations

The principal alternative is a common cause. The same affluent, education-oriented populations may vote for generous public budgets and also patronize, endow and staff well-resourced private schools. Controlling for median household income captures part of this, but median income is a coarse proxy for the income and wealth at the top of the distribution, for educational attainment and for philanthropic capacity. The Northeast, where the results are concentrated, also has an unusually long history of independent schools, many founded before the modern public system existed. These data cannot distinguish an effect of public-system strength from a regional equilibrium in which strong public and private sectors co-evolve. A panel of 990 filings linked to

state school finance reforms and cuts, asking whether changes in public resources precede changes in independent-sector resources, would provide a sharper test.

Reverse causation is possible but less plausible. A strong independent sector could, in principle, reduce support for public spending by drawing affluent families out of the public system; that would bias the estimates toward zero. The income-sorting result in Section 7.1, that public and private families' incomes are closer where public systems are stronger, is consistent with strong public systems retaining affluent families rather than losing them.

8.3 Implications for voucher policy

The results bear on the claim that universal vouchers can substitute for investment in public schools. Florida pairs one of the least adequate public systems in the nation with its largest voucher program. It has an independent sector of roughly national-average density, but a thin top tier of large, lean schools, and new voucher-funded enrollment is flowing mainly to the least-resourced segments of the private market. For professional families weighing a move from a Northeastern suburb to South Florida, the relevant comparison is not tax rates alone. In the Northeast, a well-resourced school comes bundled with housing, and private school is a backstop. In metro Miami, it is a separate, recurring bill of $45,000–$58,000 per pupil at the leading schools, with no adequately funded public alternative if admission falls through. The Florida scholarship, worth about $8,100, is largely irrelevant at that price point.

More generally, the findings suggest that a strong public system and a strong independent sector are complements, not substitutes. Underfunding public schools does not build a richer private market. It shifts the cost of a well-resourced education from the tax bill to the tuition bill, and access to it from residential choice to ability to pay and to win a seat.

8.4 Limitations

- **Coverage.** Matched 990 filers enroll 30–56% of NAIS enrollment in the four metros and 39–56% in the comparison states. Missing church-affiliated and for-profit schools are concentrated in the South; counts of well-funded schools are floors.
- **Spending concept.** 990 total functional expenses include depreciation, interest and some auxiliary activities, while the public comparison uses current spending, so private–public

differences are somewhat overstated. Within-private comparisons are not affected.

- **Staffing and pay measures.** Compensation per teacher divides all-employee compensation by teacher FTE in both sectors, so it combines teacher pay with the number of non-teaching staff per teacher. PSS counts teachers but not other staff, so private total staffing cannot be compared with public total staffing. Public class sizes are modeled estimates for 2021. Teacher counts from the CCD and PSS are self-reported.
- **Classification.** The yeshiva classification uses association membership and names and is approximate. Boarding schools are excluded, which also drops a few largely-day schools with small boarding programs.
- **Units.** States are coarse units, and countywide Florida districts average over magnet programs and affluent attendance zones that would count as high-quality options under school-level measures. District-level counts therefore understate high-quality public seats inside large Florida districts relative to the Northeast.
- **Demand.** Metro coverage ratios count families, not children, and say nothing about admission or financial aid.
- **Reputational data.** Niche's ranking relies on reviews, college outcomes and staffing ratios, and its ordering shifted between page loads; tuition figures are a secondary compilation.

9. Conclusion

Does a strong public system breed elite private schools? Across U.S. states, public school resources and cost-adjusted adequacy are associated with substantially more well-funded independent day schools per child and with better-funded, better-staffed NAIS schools, holding income and regional wages constant. Public test scores are not. Those resources translate into the inputs that matter most for quality and for parents: more teachers per child, smaller classes and, in the public sector, more competitive teacher pay. Where Northeastern independent schools outspend Florida's, they buy smaller classes. The relationships rest heavily on the contrast between the Northeast and the rest of the country, and they cannot rule out a common cause. But they offer no support for the opposite view, that weak public systems give rise to strong private ones. Florida, the leading case for that view, has a private sector that is large but comparatively thin at the top,

and in metro Miami the absence of any adequately funded public district leaves affluent families competing for a limited number of well-resourced private seats. The next step is to move from cross-sections to change: following independent-school finances over time alongside public school finance reforms and cuts, and comparing districts within the same metropolitan labor markets.

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Appendix

Table A1. Specification ladder: public-system measures and independent-sector outcomes

Measure	Controls	(1)	(2)	(3)	(4)	(5)
Public spending per pupil (wage-adj.)	None	0.808***	0.369***	0.145***	-0.081***	0.184***
		(0.114)	(0.086)	(0.025)	(0.015)	(0.051)
	Income	0.736***	0.300***	0.115***	-0.077***	0.131*
		(0.105)	(0.076)	(0.021)	(0.018)	(0.068)
	Income + wage	0.712***	0.288***	0.113***	-0.075***	0.098**
		(0.109)	(0.082)	(0.021)	(0.017)	(0.046)
Adequacy, all districts (NECM)	None	1.016***	0.417***	0.174***	-0.081***	0.222***
		(0.169)	(0.093)	(0.030)	(0.016)	(0.064)
	Income	0.779***	0.307***	0.147***	-0.086***	0.151
		(0.190)	(0.101)	(0.032)	(0.027)	(0.093)
	Income + wage	0.758***	0.285***	0.143***	-0.084***	0.119*
		(0.173)	(0.107)	(0.032)	(0.024)	(0.069)
Adequacy, highest-poverty quintile	None	1.043***	0.370***	0.207***	-0.087***	0.289***
		(0.181)	(0.110)	(0.032)	(0.020)	(0.072)
	Income	0.783***	0.186	0.181***	-0.091***	0.230**
		(0.230)	(0.134)	(0.035)	(0.033)	(0.101)
	Income + wage	0.763***	0.154	0.183***	-0.089***	0.172**
		(0.224)	(0.140)	(0.040)	(0.029)	(0.087)
NAEP grade 8 math, 2009–24	None	0.505	0.166	0.094**	-0.049***	0.066
		(0.329)	(0.166)	(0.043)	(0.014)	(0.080)
	Income	0.144	0.003	0.043	-0.040***	-0.041
		(0.152)	(0.119)	(0.029)	(0.013)	(0.049)
	Income + wage	0.434**	0.123	0.080**	-0.072***	0.053
		(0.195)	(0.148)	(0.031)	(0.024)	(0.060)

Coefficients in log points per SD of the public-system measure, robust standard errors in parentheses. Columns: (1) well-funded independent day schools and (2) NAIS day schools, Poisson with school-age population as exposure; (3) ln NAIS spending per pupil, (4) ln NAIS pupils per teacher and (5) ln NAIS assets per pupil, WLS. Controls are standardized ln median household income and ln CWIFT. *** p<.01, ** p<.05, * p<.10.

Table A2. Spending per pupil compared with Florida, schools of the same grade span and size, 2023–24

State	NAIS day schools: % vs. FL	95% CI	All sectors excl. Orthodox yeshivas: % vs. FL	95% CI
AK	—		-16%	[-54, +56]
AL	-31%	[-48, -10]	-22%	[-33, -10]
AR	-43%	[-68, +3]	-17%	[-34, +3]
AZ	+17%	[-15, +61]	+0%	[-14, +17]
CA	+22%	[+1, +48]	+15%	[+4, +28]
CO	+20%	[-2, +48]	+13%	[-4, +32]
CT	+50%	[+25, +81]	+63%	[+43, +87]

State	NAIS day schools: % vs. FL	95% CI	All sectors excl. Orthodox yeshivas: % vs. FL	95% CI
DC	+31%	[+6, +62]	+53%	[+35, +73]
DE	+22%	[-7, +59]	-1%	[-34, +48]
GA	-22%	[-43, +5]	-10%	[-21, +3]
HI	-6%	[-28, +22]	-9%	[-25, +10]
IA	-19%	[-48, +25]	-8%	[-21, +8]
ID	-26%	[-38, -12]	-40%	[-56, -18]
IL	+18%	[-11, +57]	+5%	[-8, +19]
IN	+10%	[-9, +34]	-7%	[-19, +6]
KS	-18%	[-31, -2]	-2%	[-19, +18]
KY	-37%	[-50, -20]	-16%	[-29, -2]
LA	+5%	[-17, +33]	-17%	[-31, +1]
MA	+62%	[+33, +96]	+51%	[+32, +73]
MD	+8%	[-13, +35]	+15%	[+0, +31]
ME	+16%	[-15, +57]	+0%	[-17, +22]
MI	+23%	[-2, +53]	-5%	[-18, +11]
MN	+23%	[-13, +76]	+9%	[-7, +29]
MO	-2%	[-25, +27]	-9%	[-23, +7]
MS	-36%	[-47, -23]	-33%	[-44, -21]
MT	+69%	[-6, +203]	-8%	[-26, +15]
NC	-18%	[-38, +8]	-10%	[-20, +2]
ND	—		+27%	[-9, +76]
NE	-25%	[-37, -11]	+19%	[-0, +43]
NH	+96%	[+11, +243]	+41%	[-4, +108]
NJ	+18%	[-8, +50]	+7%	[-11, +29]
NM	+9%	[-15, +39]	+29%	[+7, +57]
NV	+29%	[-16, +100]	+35%	[+13, +63]
NY	+29%	[+3, +63]	+29%	[+12, +49]
OH	+7%	[-15, +36]	-2%	[-13, +11]
OK	-24%	[-38, -7]	-5%	[-23, +17]
OR	-16%	[-34, +8]	-8%	[-20, +6]
PA	+23%	[+2, +48]	+10%	[-3, +25]
RI	+26%	[-4, +65]	+30%	[+5, +60]
SC	-38%	[-56, -13]	-35%	[-46, -22]
SD	—		-3%	[-23, +22]
TN	-7%	[-32, +27]	+6%	[-8, +22]
TX	-13%	[-33, +14]	+4%	[-7, +17]
UT	—		+33%	[+4, +71]

State	NAIS day schools: % vs. FL	95% CI	All sectors excl. Orthodox yeshivas: % vs. FL	95% CI
VA	-10%	[-28, +13]	-4%	[-15, +8]
VT	+16%	[-31, +96]	+36%	[+11, +66]
WA	+4%	[-24, +42]	+5%	[-7, +18]
WI	-38%	[-61, -1]	-7%	[-21, +9]
WV	-9%	[-24, +9]	-33%	[-47, -15]
WY	-6%	[-27, +21]	+32%	[-25, +133]

Percentage difference from Florida in wage-adjusted spending per pupil, from enrollment-weighted regressions of log spending per pupil on state indicators, grade level and a quadratic in enrollment. NAIS: 629 NAIS day schools. All sectors: matched 990 filers in all non-Catholic sectors, excluding boarding schools and Orthodox yeshivas. 95% confidence intervals from robust standard errors.

Table A3. Variable definitions

Variable	Definition	Source
Well-funded independent day schools	Non-boarding independent day schools with total functional expenses per pupil ≥ $43,237 after division by county CWIFT (national 90th percentile)	IRS SOI/e-file 990; PSS 2023–24; NCES CWIFT
NAIS day schools	PSS schools reporting NAIS membership, excluding TABS boarding members; weighted counts	PSS 2023–24
NAIS spending, assets per pupil	Enrollment-weighted mean of total functional expenses (assets) per pupil, wage-adjusted, among matched NAIS filers	IRS 990; PSS
NAIS pupils per teacher	Total enrollment over FTE teachers, all NAIS day schools	PSS 2023–24
Public spending per pupil	Current spending per pupil divided by state CWIFT	Census F-33, FY2024
Adequacy (all; highest-poverty quintile)	Actual current spending ÷ NECM predicted cost of national-average outcomes; log ratio in models	SFID State Indicators, 2023
NAEP	Grade 8 mathematics, mean of state averages 2009–2024	NAEP Data Service
High-quality public seat	Enrollment in a district with NECM funding gap ≥ 0 and outcome gap ≥ 0 (national average)	SFID District Cost Database, 2023
Teachers per 100 pupils	Teacher FTE ÷ enrollment × 100 (public: CCD; private: PSS)	CCD 2022–23, 2023–24; PSS 2023–24
Compensation per teacher	Salaries, wages and benefits of all employees ÷ teacher FTE, wage-adjusted	F-33 FY2024; IRS 990 Part IX lines 5–10
Teacher wage competitiveness	Predicted teacher wage ÷ predicted non-teacher wage, age 35	SFID State Indicators, 2023
Class size	Predicted departmentalized and self-contained class size, district at labor-market average poverty	SFID State Indicators, 2021
Affluent families	Families with own children under 18 and income ≥ $200,000	ACS 2019–23 B19131