HESHBON

Center on Data and Jewish Life
heshbon.org

חשבון
ḥeshbon · ‘reckoning’

METHODOLOGY AND DATA COMPANION

OPEN ACCESS

Deficit Spending in Jewish Day Schools

Methodology and data companion to the working paper

Gavriel Brown, PhD

A full white paper, with the complete introduction, related literature, data and design, results, discussion, limitations, conclusion, and references, is available on request.

At a glance	
Research question	How often do Jewish day schools run a true operating deficit relative to comparison independent schools, how is that gap financed, and does the pattern meet an accounting definition of existential risk?
Data	Financial benchmarking data submitted to NAIS, Prizmah, and SAIS by 887 classified schools from 2022-23 through 2025-26, screened to 2,059 school-years across 721 schools.
Unit of analysis	The school-year, coded as running a deficit when total operating income fell short of total operating expenses.
Statistical method	Logistic regression with standard errors clustered by school, alongside a mixed-effects (multilevel) logistic regression with a random intercept per school.
Headline finding	Orthodox day schools ran an actual deficit in 65.2 percent of school-years, versus 42.6 percent for non-Orthodox and 36.9 percent for comparison schools, with roughly 3 to 4 times the odds after controls.
What it shows	A correlational pattern across a benchmarking panel, bounded by a small Orthodox subsample.

The question behind the paper

In day-school board rooms, the phrase "we are running a deficit" can mean several different things, from the ordinary gap between net tuition and expenses to a chronic shortfall with no reserve behind it. This paper separates those meanings and measures only the strict case, a true bottom-line operating deficit in which total income falls short of total expenses.

It then asks three questions in sequence. How often does each group run such a deficit, how is the gap financed when it occurs, and does the resulting pattern meet an externally anchored definition of existential risk drawn from accounting's going-concern standard.

Where the data come from

Association benchmarking data. The analysis draws on financial and enrollment benchmarking submitted to the National Association of Independent Schools (NAIS), Prizmah: Center for Jewish Day Schools, and the Southern Association of Independent Schools (SAIS), covering 2022-23 through 2025-26; the source file holds 245,075 data points across 923 schools.

The classified roster. A curated classification identifies 887 schools by peer group, 786 comparison independent schools, 83 non-Orthodox Jewish day schools, and 18 Orthodox Jewish day schools, each also coded by Census region. After screening for data-quality outliers, the analytic sample is 2,059 school-years across 721 schools.

Endowment financing. Endowment presence, size, and any operating draw were merged separately for the deficit-running school-years where those voluntarily reported fields were populated, covering 426 comparison, 43 non-Orthodox, and 8 Orthodox deficit-years.

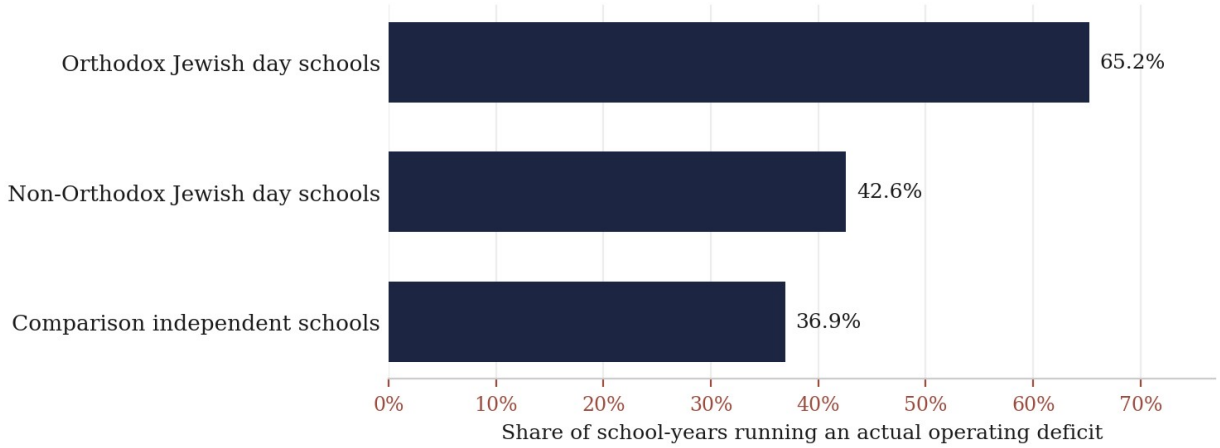
The statistical method, named and explained

The paper models the probability that a school runs a deficit in a given year using logistic regression, with two complementary specifications. The first is a logistic regression with standard errors clustered by school, a population-averaged estimate that lets each school's repeated years be correlated without assuming a distribution for school-level differences. The second is a mixed-effects, or multilevel, logistic regression with a random intercept for each school, which estimates a school-specific baseline propensity to run a deficit alongside the effects of Jewish day-school status, Census region, the natural log of enrollment, and school year. Comparison schools and the South region serve as the reference categories throughout.

The two methods are reported together as a robustness check, and they agree closely in direction and significance, which raises confidence in the substantive result. The mixed-effects model was fit by variational Bayesian approximation rather than exact maximum-likelihood estimation, and the paper recommends an exact-method replication before the finding is treated as final.

Key results from the paper

Figure 1. Share of school-years running an actual operating deficit, by group.



Note. A deficit year is one in which total operating income fell short of total operating expenses.

Table 1. Persistence of deficit spending among schools observed for two or more years.

Group	Schools 2+ yrs	Deficit every year	Never ran a deficit
Comparison independent schools	523	13.2%	34.6%
Jewish day schools (non-Orthodox)	50	18.0%	32.0%
Jewish day schools (Orthodox)	7	42.9%	0.0%

Note. The Orthodox multi-year subsample is small (seven schools) and should be read as a directional signal.

Table 2. How deficits are financed, deficit-running school-years with usable endowment data.

Group	Deficit-years	Draw covered the deficit	Median endowment / expenses
Comparison independent schools	426	17.8%	0.43 yrs (about 5.2 mo.)
Jewish day schools (non-Orthodox)	43	30.2%	0.55 yrs (about 6.6 mo.)
Jewish day schools (Orthodox)	8	0.0%	0.05 yrs (about 19 days)

Note. No Orthodox deficit-year with usable data showed an endowment draw large enough to cover the shortfall.

Table 3. Logistic and mixed-effects estimates of the odds of running a deficit.

Specification	Cluster-robust logit (coef., p)	Odds ratio	Mixed-effects (post. mean)	Odds ratio
Jewish (binary)	0.506 (p=.037)	1.66x	0.804	2.23x
Non-Orthodox (3-level)	0.407 (p=.109)	1.50x	0.659	1.93x
Orthodox (3-level)	1.207 (p=.040)	3.34x	1.398	4.05x
log(enrollment)	-0.494 to -0.500 (p<.001)	n/a	-0.674 to -0.675	n/a

Note. Larger enrollment strongly lowers the odds of a deficit; comparison schools and the South are the reference categories.

How to read the results

Figure 1 and Table 1 together show incidence and chronicity: Orthodox schools ran a deficit in about two of every three school-years and in every year observed for more than 40 percent of the multi-year subsample, several times the comparison rate. Table 2 carries what the paper calls its single most important finding, since comparison and non-Orthodox schools that run deficits typically hold four to almost seven months of expenses in endowment and draw on it in a meaningful share of years, while the median Orthodox deficit school holds about 19 days and shows no covering draw. Table 3 confirms the pattern in a model that controls for region, year, and enrollment, where the Orthodox odds of a deficit run roughly 3 to 4 times those of a comparable independent school.

Read in the going-concern framing, the combination matters more than any single number. A recurring shortfall paired with the absence of a funded reserve is what moves the Orthodox pattern toward structural fragility, whereas the other groups look more like flexible organizations managing an occasional shock.

What the numbers do not claim

The Orthodox results rest on 13 to 18 schools depending on the analysis, so the direction is more secure than the precise magnitude, and the confidence intervals around the Orthodox coefficients are wide. The benchmarking data are voluntary and self-reported, the four-year panel cannot separate a long-running structural pattern from the specific conditions of 2022 to 2026, and the source offers no direct measure of debt or deferred obligations, so the endowment finding is a lower-bound indicator of resilience rather than a full account of how deficits are financed.

Reproducing the analysis

The deficit measure is transparent, total operating income minus total operating expenses per school-year, so it can be rebuilt from the association benchmarking fields with the broadest coverage rather than the sparsely populated surplus/deficit line. The underlying files are named in the paper, and both models can be reproduced in standard statistical software, with the mixed-effects specification available through the same variational-Bayes routine the paper used or, preferably, an exact maximum-likelihood implementation for confirmation.