

Texas Public School Funding

TRENDS AND RISK ANALYSIS

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SQL Case Study

Agenda

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Project Overview

In this project, I analyzed Texas district-level finance and enrollment data from 2008–2024 to track funding trends and signs of budget pressure. I built a reproducible SQL workflow to clean the data, calculate operating margin measures, and export analysis-ready tables for visualization. The results show how statewide funding composition has shifted and which districts display persistent deficits and worsening financial momentum. I conclude with a conservative watchlist that ranks districts to monitor next year using a guardrailed continuation of recent trends.

Data Source

Texas PEIMS district finance + enrollment exports (district-level, yearly)

Variables Used

- **Revenue:** local, state, federal, total
- **Spending:** total operating expenses
- **Enrollment:** Fall enrollment counts
- **Metric:** Operating Margin (revenue vs spending)

Time Period

2008-2024 (17 years)

Focusing On

- Statewide trends (funding over time)
- When spending grows faster than revenue
- Any district-level risk signals
- Top 10 Worsening Districts for the future (prediction)

Scale

1,313 districts, 20,612 district year rows (funding +enrollment)

Keep in Mind

- This is a screening for trend analysis, no direct claims
- Raw files kept local; cleaning import file used to load SQLite database; outputs exported to CSV

How I Built the Dataset

01

Create Database Tables

Adding folders where the data will be stored

04

Create Metrics for Analysis

Built reusable summaries that automatically calculate key measures and trends

02

Prepare Staging Tables

Area to bring the cleaned spreadsheet data into the database

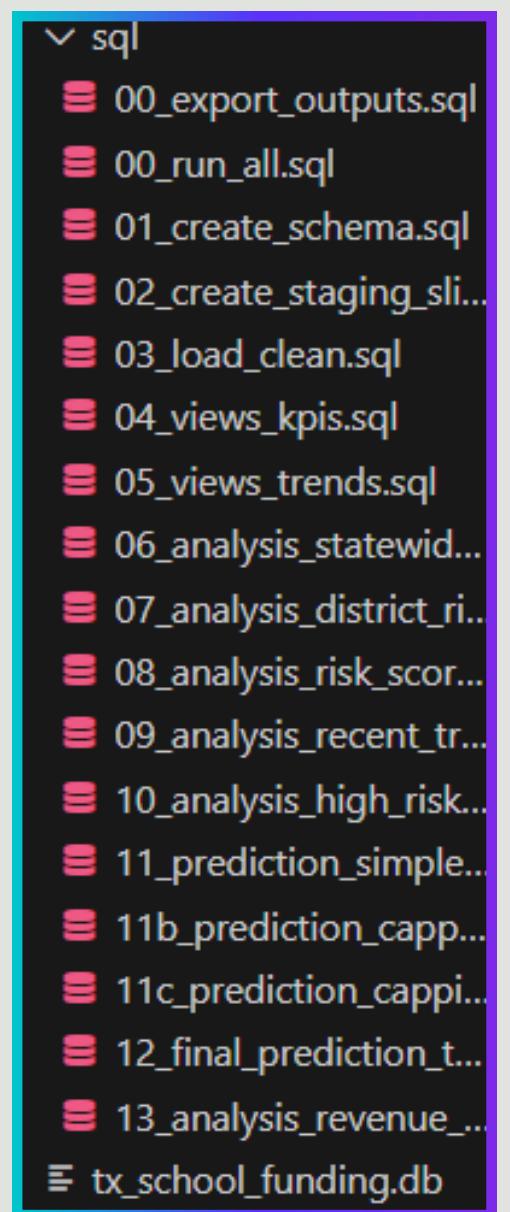
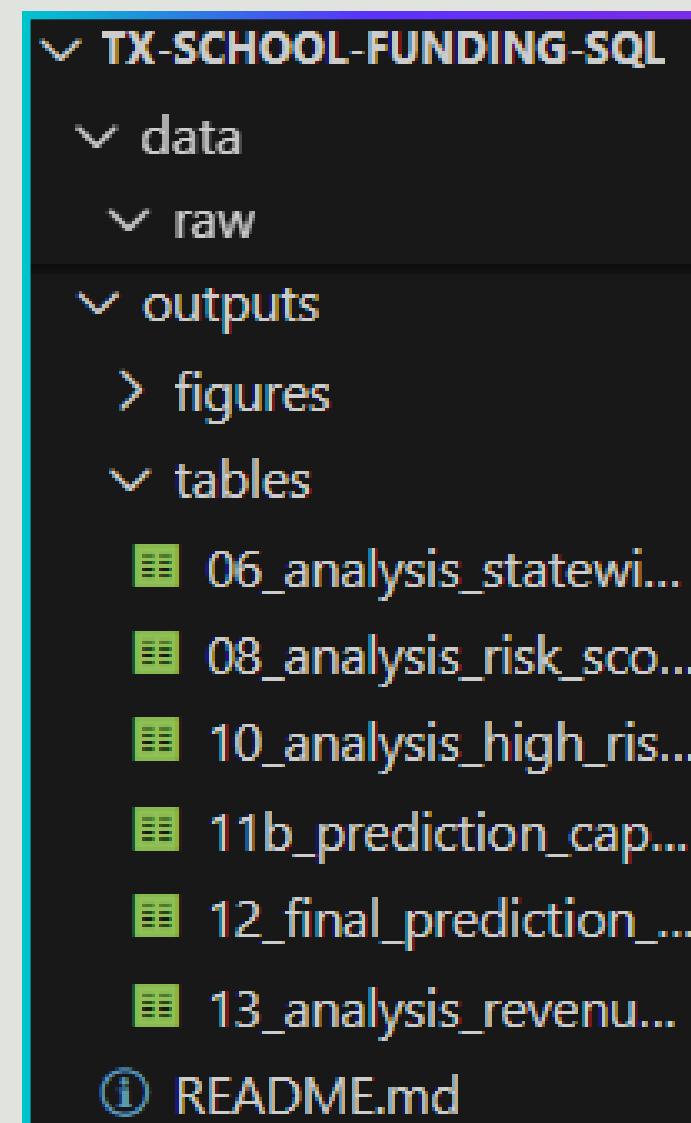
05

Run Analysis SQL Scripts & Export Output

Add CSV output to Google Sheets to create tables/graphs

03

Clean & Load Final Dataset to Database



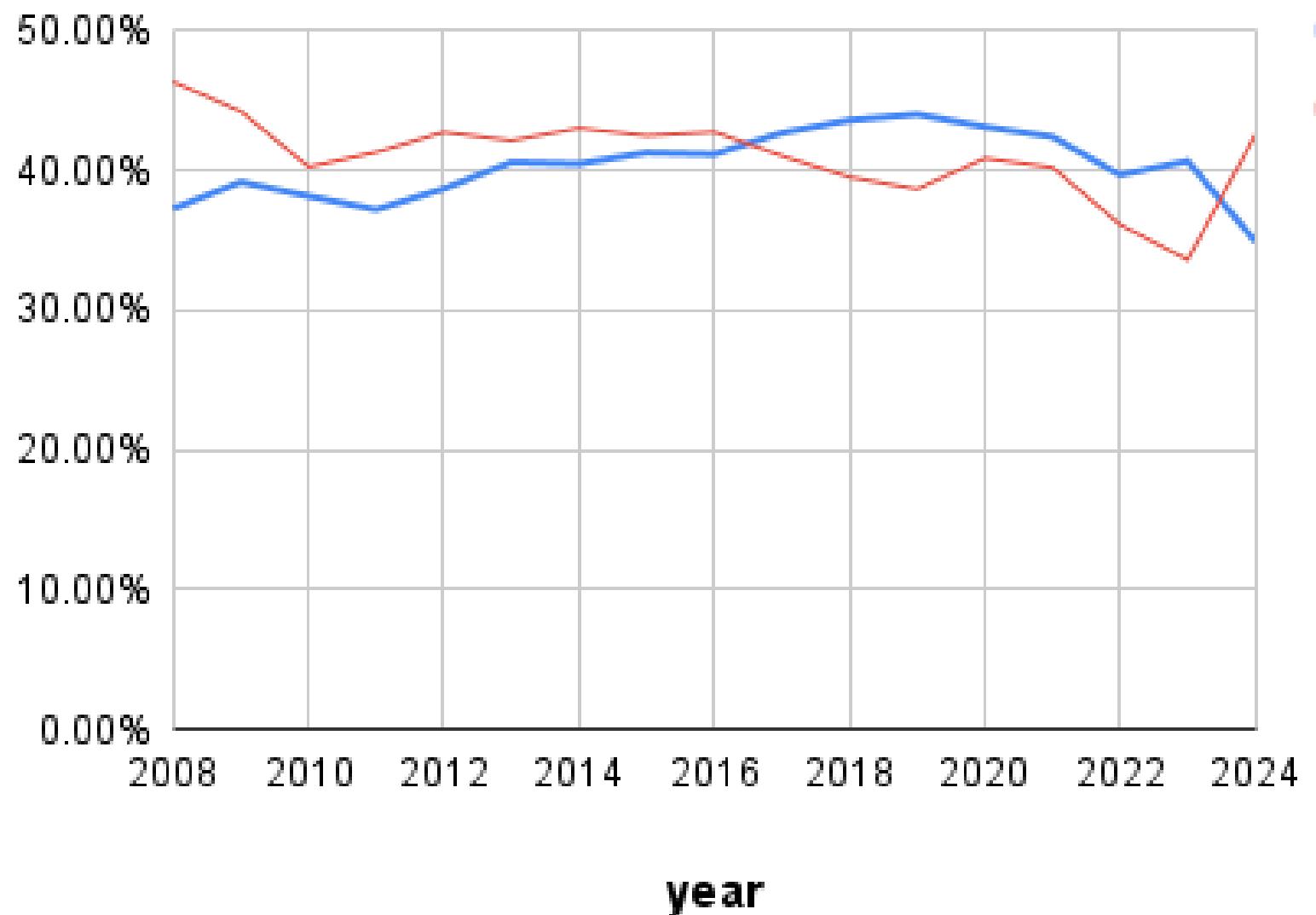
Where does the
money come from
statewide?



Structural Shift Between Local vs State

1. Who funds the largest share most years?
2. Is there a shift in reliance?
3. Does one source trend up while the other trends down?

Local vs State Share of Revenue (2008–2024)



Local share rises into the late 2010s and overtakes state around 2016 to 2018

State share tends downward across the same period, then rebounds by 2024

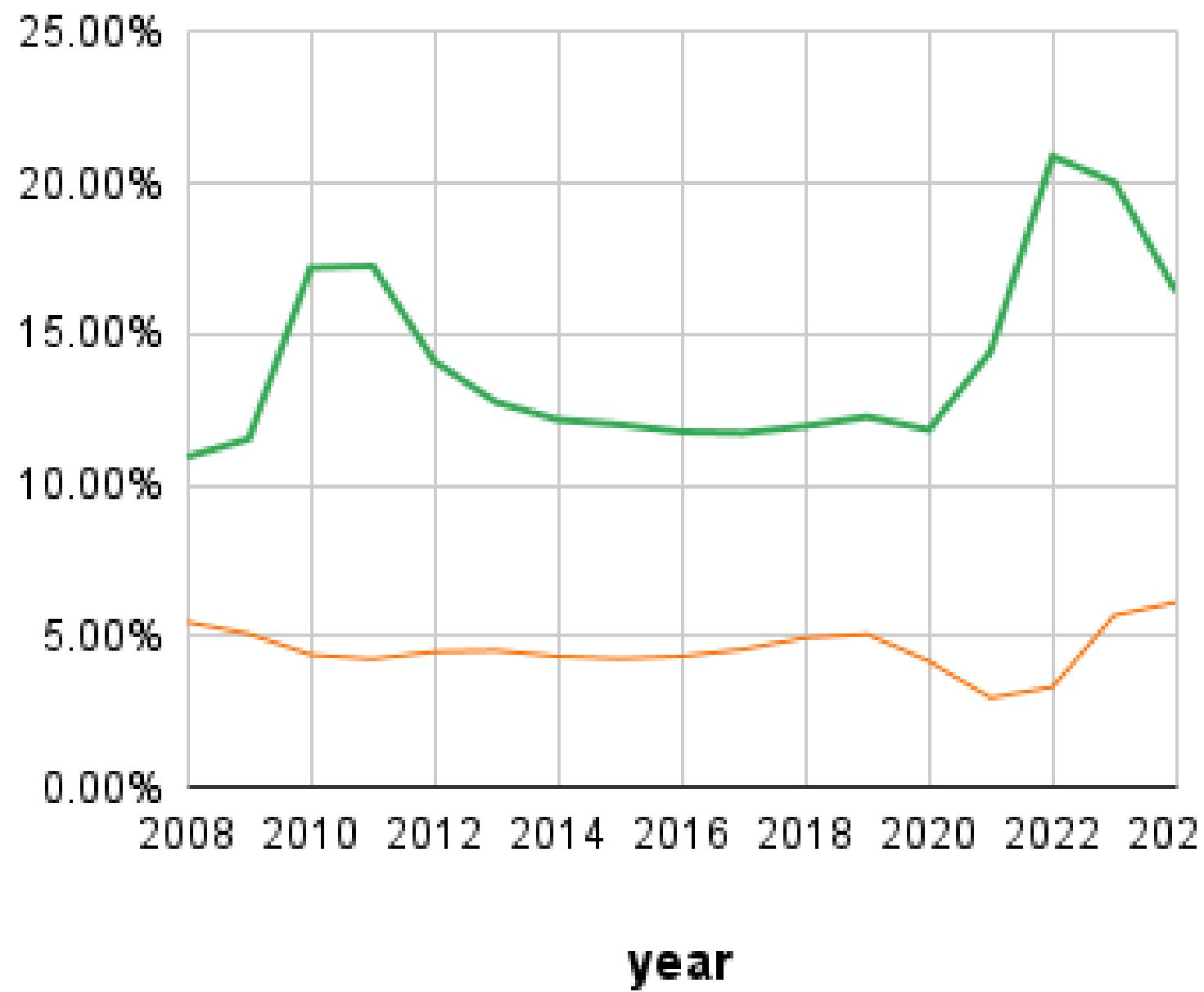


Are there temporary
“shocks” that
change the mix?

Federal Shares

1. Is federal share stable most years?
2. Is there a clear spike (2021–2023)?
3. Does it fade by 2024?
4. Is “other” small and stable?

Federal and Other Share (2008–2024)



Federal share stats stable for most years, then spikes in 2021–2023 and eases in 2024

“Other” remains low throughout, so most mix changes come from local/state/federal dynamics

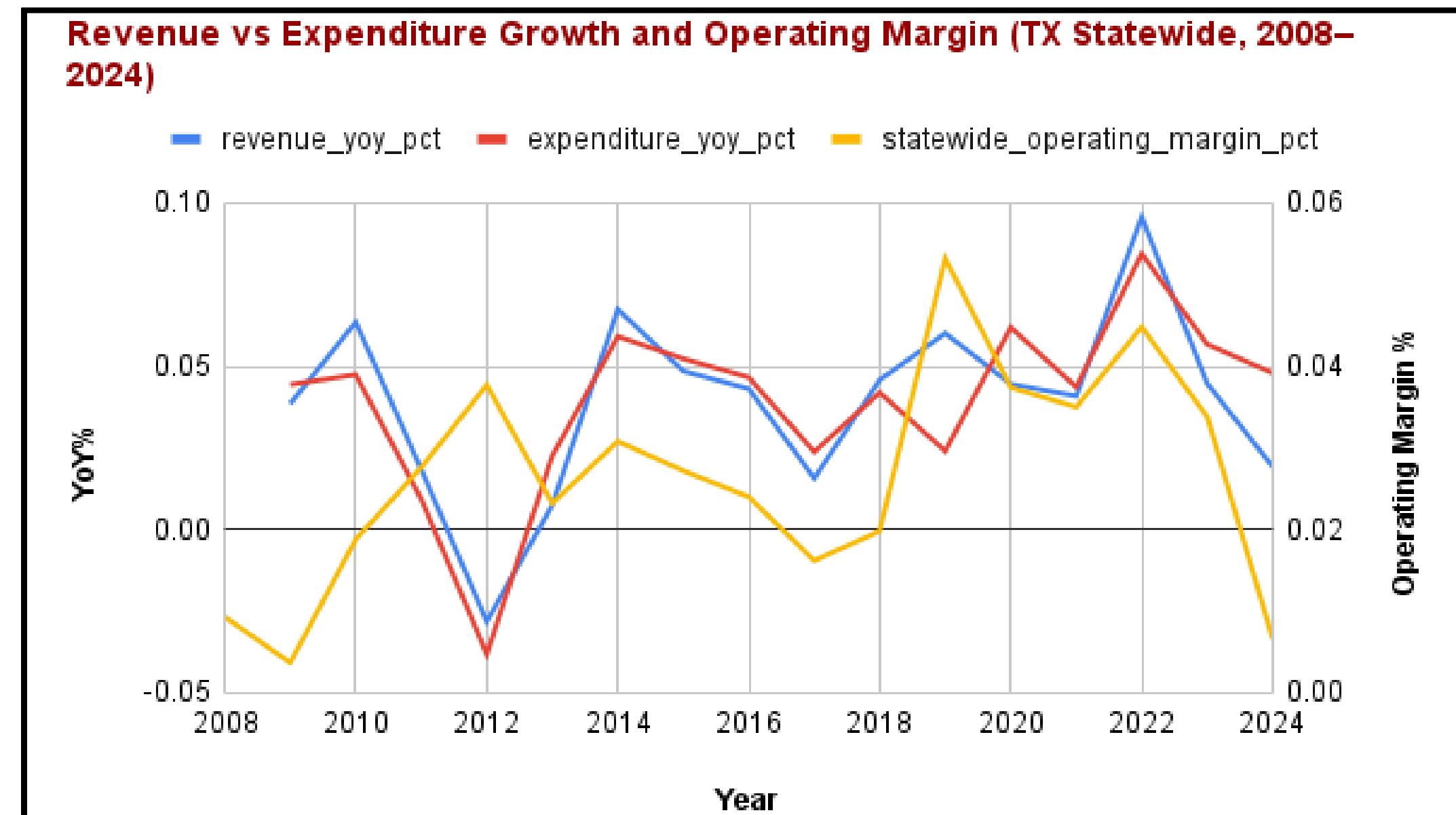


What pressures show up in the finances?

Statewide evidence of margin pressure

When expenditures grow faster than revenue, what does the margin tell us?

- In 2016, statewide expenditure growth (4.66%) exceeded revenue growth (4.31%), while statewide operating margin was ~ (2.4%)
- Same year, operating margin declined by 0.33 percentage points.
- Suggest that margin pressure can show even when revenues are rising, if spending rises faster





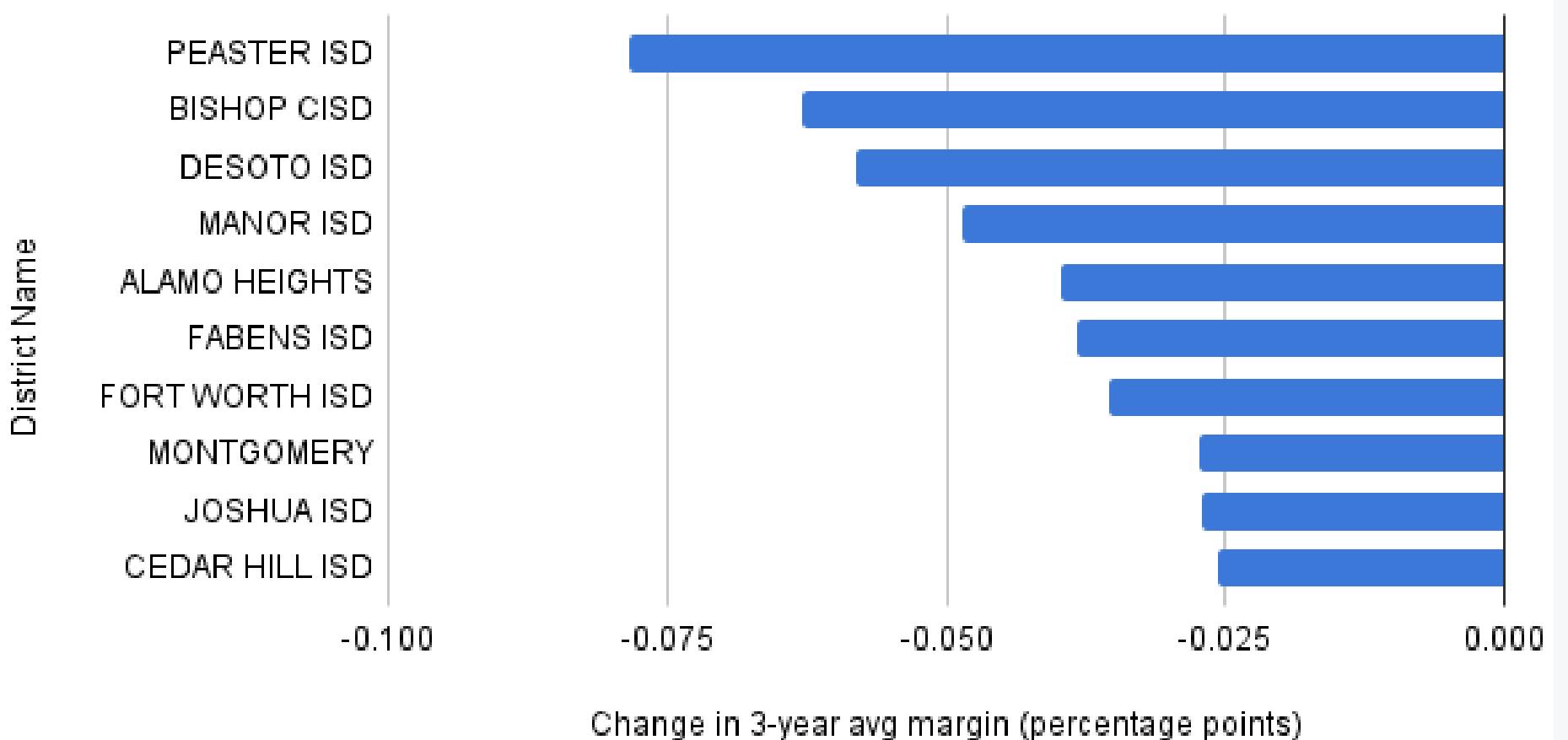
District Risk & Predictions

District	% Deficit frequency (2008–2024)	% 3-yr avg margin	Risk Note
PEASTER ISD	82.4%	-2.6%	High persistence + negative
BISHOP CISD	58.8%	-6.0%	High persistence + negative
DESOTO ISD	76.5%	-4.3%	High persistence + negative
MANOR ISD	58.8%	-5.3%	High persistence + negative
ALAMO HEIGHTS ISD	88.2%	-7.2%	High persistence + negative
FABENS ISD	58.8%	6.3%	Positive baseline, worsening
FORT WORTH ISD	88.2%	-3.4%	High persistence + negative
MONTGOMERY ISD	70.6%	-4.4%	High persistence + negative
JOSHUA ISD	70.6%	-5.7%	High persistence + negative
CEDAR HILL ISD	64.7%	-2.8%	High persistence + negative

Which districts are worsening fastest?

Fastest Worsening Districts (Δ 3-Year Avg Margin)

More negative = margins deteriorating faster (pressure increasing).



Are those districts also persistently in deficit?



Prediction Proxy

District	# years_observed	Deficit frequency (2008–2024)	Trend Direction	3-yr avg margin (baseline)	%	Projected next-year margin (capped)
ALAMO HEIGHTS ISD	17	88.2%	worsening	-7.2%		-11.2%
ROUND ROCK ISD	17	58.8%	worsening	-10.7%		-12.9%
BRENHAM ISD	17	58.8%	worsening	-9.2%		-12.8%
BISHOP CISD	17	58.8%	worsening	-6.0%		-12.3%
HAYS CISD	17	52.9%	worsening	-8.9%		-12.1%
BUSHLAND ISD	17	47.1%	worsening	-13.0%		-22.9%
DENVER CITY ISD	17	47.1%	improving	-19.6%		-16.8%
CRYSTAL CITY ISD	17	35.3%	worsening	-15.2%		-25.2%
SANTA FE ISD	17	35.3%	worsening	-12.7%		-21.7%
LAKE WORTH ISD	17	35.3%	worsening	-6.0%		-12.7%
BROWNWOOD ISD	17	35.3%	worsening	-5.1%		-10.7%
LIBERTY-EYLAU ISD	17	17.6%	worsening	-32.4%		-33.5%
DALLAS CAN ACADEMY CHARTER	17	17.6%	worsening	-7.2%		-17.0%
SAN MARCOS CISD	17	17.6%	worsening	-4.7%		-12.2%
A W BROWN LEADERSHIP ACADEMY	14	7.1%	worsening	-14.6%		-17.6%

Ranks school districts by how tight their budgets might be next year, based on recent spending vs. revenue patterns, and how often they've run deficits, and whether things are getting better or worse.

Round Rock ISD

(2008-2024)

- Deficit frequency:
58.8% (~6 of 10 years)
- Recent budget cushion: **-10.7%**
- Next-year watchlist estimate: **-12.9%**
- Direction: **Worsening**

What Could This Mean?

- Less flexibility in the budget
- Tradeoffs (hiring, programs, maintenance)
- Staffing pressure is possible (not proven)

Takeaways

The balance of funding scores changed over time (local/state/federal shares)

There were periods when costs rose faster than income, putting pressure on budgets

Budget pressure varies by district; some face ongoing strain while others are more stable

The “watchlist” uses a caution projection (limits one year change +/- 10 points) to decide which districts to review first
