Pension Debt Challenges for Equity in Education:

The Effect of Teacher Unfunded Liability Costs on
K–12 Education Funding in Texas

January 2023

ANTHONY RANDAZZO, JONATHAN MOODY, MAX MARCHITELLO, AND PATRICK MURPHY

EQUABLE

OPPORTUNITY
INSTITUTE

Executive Summary

The costs of providing retirement benefits through the Teachers Retirement System of Texas have been rising rapidly — and that is despite the pension plan providing some of the lowest valued benefits in the country and no consistent cost-of-living adjustment for retirees. Back in 2001 total contributions into TRS were $2.6 billion, but in 2022 $8.9 billion was transferred into the system from teachers, districts, and the state. By 2026, annual contributions to TRS are expected to be over $10.5 billion. Without a change to the way the state finances its public school employee retirement benefits, those costs will continue to exacerbate already existing education finance inequities and drain resources necessary to help students.

Finding #1: An increasing share of state and local K–12 education spending has been siphoned off to cover pension costs:

- In 2020, 11.3% of Texas state expenditures on education funding ultimately went to TRS, a 41.5% increase since 2012

- Texas retirement costs for teachers and public school employees as a share of combined state and local K–12 spending have grown 32.9% between 2012 and 2020.

Finding #2: These growing pension costs are effectively education funding cuts. Moreover, these cuts disproportionately harm low-income communities in three ways:

- **Low-income communities rely more heavily on state aid.** State funding comprises a disproportionate share of K–12 budgets in low-wealth communities. As such, pension costs consuming a greater share of state education spending more severely harms low-income districts since they rely most heavily on state funding.

- **Low-income communities have fewer resources to pay growing pension costs.** Low-wealth districts can only generate limited resources from local property taxes. Given these limited resources, even a slight increase in pension costs can have a much higher marginal cost for low-wealth communities than more affluent ones.

- **The state subsidy for pension costs is regressive.** Low-wealth communities typically pay lower teacher salaries. Since contributions to TRS from the state on-behalf of districts are based on teacher salary, low-wealth communities typically receive less funding from the state to contribute to TRS

Finding #3: Even before the TRS contribution rate ramp-up for the state, districts, and teachers ends in 2026, there is going to be a need for additional contributions into the teacher retirement system. Previous efforts in 2013 and 2019 to provide TRS with financial stability were based on unrealistically high investment assumptions, and if Texas TRS trustees adopt more reasonable, lower investment forecasts there will be a need to provide adequate funding.

Prologue: Why Teacher Pension Debt Costs Matter for Students

When you look at the billions of dollars that are being used to service debt on our retirement obligations, it's just sad. It's like such a waste that it's been mismanaged. I'd love to hire a dozen interventionists at my school and create more small groups so that kids can make faster gains. That's what would be fair to them. But we can't do that. We don't have the budget.
— Mark Rogers (Austin, TX)

There is some $3 billion being spent this year by the State of Texas on teacher "pension debt payments." Meanwhile, there are students across the state in desperate need of interventionist support to catch up on lost learning during the pandemic — and districts don't have the money to provide all that is necessary.

This is just one way in which the increased costs of teacher pensions in Texas have implications on education across the state. Years of underperforming investments and legislative funding failures have translated into a funding shortfall of roughly $60 billion. Dealing with this challenge has required dollars from the state that could have otherwise been used to help kids.

Recently, school districts in Texas have been struggling to make hires and investments that better support teachers and students as the pandemic continues. In theory, the American Rescue Plan (ARP) could have helped with these challenges. But as Austin Achieve Public Schools' veteran teacher Mark Rogers tells us, the ARP money isn't coming close to filling in the gaps. "That money is being used to buy PPE, to update air filtration equipment and fund virtual learning environments."

What's more, Rogers says whatever funds are leftover are being safeguarded because of restrictive hold-harmless laws, which are state funding provisions for schools based on student attendance.

With many districts facing attendance downturns due to Covid-19 — whether kids were sick, in quarantine, or simply pulled from school — Rogers says ARP money is now being used to think about future budgets rather than what kids and teachers need right now.

"They're safeguarding cash from the American Rescue Plan that was meant to help teachers and kids weather this storm. It's just an absolute mess. That's an interesting little caveat that few people know about but could also be helped if we weren't blowing money to pay down our teacher retirement debt debacle."

So, what does Rogers think students and teachers need right now? More hands on deck. He says more teachers would mean smaller class sizes, which would help teachers like him allocate extra time to students who need it. He says the lack of support presents such a dire problem that 15% of the staff at his school had already quit within a month of the 2021-22 year starting.

"Resources are nice, right? Printing paper, crayons. But what's driving teachers out of the profession is not crayons or paper or textbooks, or lack thereof. It's time. We're being compressed because there aren't enough resources in the system and we're trying to make up two years' worth of standards in one year without adequate support. Like I have to be careful about how much water I drink because there's not enough time and there are not enough people to cover my class. That's not right. We should have an adequate funding level to make sure that there's enough coverage for teachers to get something as simple as a break."

Another major form of support that Rogers says the school system isn't investing in right now is the hiring of interventionists — teachers that spend extra time with students to fill in the gaps and get kids up to speed after two years of remote learning.

"The kids who need this most, it's typically along economic lines. Like, families that are more well off could provide better enrichment services during the times when schools were shut. And so kids who didn't have access to that, we're seeing skills gaps, and we need to hire interventionists... When you look at the billions of dollars that are being used to service debt on our retirement obligations, it's just sad," Rogers admits. "It's like such a waste that it's been mismanaged. I'd love to hire a dozen interventionists at my school and pull more small groups so that kids can make faster gains. That's what would be fair to them. But we can't do that. We don't have the budget."

TABLE OF CONTENTS

Snapshot of Retirement Benefits: Teachers Retirement System of Texas

TRS FINANCES, FY2022

Total Pension Liability (TPL)	$243,553,045,455
Fiduciary Net Position (FNP)	$184,185,617,196
Net Pension Liability (NPL)	$59,367,428,259
GASB-Funded Ratio	75.62%
Actuarially Accrued Liability (AAL)	$245,560,966,350
Actuarially Value of Assets (AVA)	$193,908,589,662
Unfunded Actuarially Accrued Liabilities (UAAL)	$51,652,376,688
AVA-Funded Ratio	78.97%
Years until Full Funding (TRS Estimate)	23 years

ASSET ALLOCATION, FY2022

Alternatives, 50.7%

Public Equities, 36.1%

Fixed Income, 13.3%
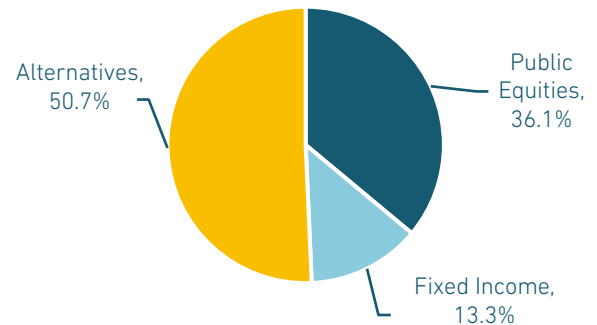
NOTE: Definition of terms on the next page

PENSION CONTRIBUTIONS, FY2022

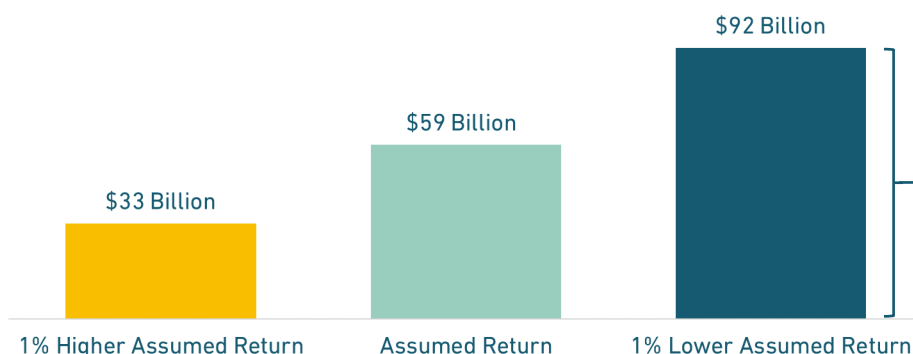| PENSION PLAN	
State Contribution	7.50% payroll
Employer Contribution	1.60% payroll
Member Contribution	8.00% payroll
Total Contributions	$8,889,653,121
Total Benefit Payments	$13,125,893,718

The larger the gap between contributions (inflows) and benefit payments (outflows), the more reliant a pension system is on generating large investment returns.

19 ISDs, including San Antonio and Austin, do participate for all employees. Another 36 small districts enroll their non-teacher, non-administrator staff.

FEATURES OF TRS

Multiplier	2.30%
Vesting	5 years
Cost-of-Living Adjustment	Ad hoc
Normal Retirement	65 with 5 years of service; or various Rule of 80 criteria based on hire date
Social Security	Most members are not enrolled

	K–12 MEMBERS	UNIVERSITY PLAN MEMBERS
Retirement Plan Options	No choices	Optional Defined Contribution Plan

	TEXAS TRS	NATIONAL AVERAGE
Assumed Rate of Return	7.00%	6.90%
Inflation Assumption	2.30%	2.50%
Member-to-Retiree Ratio	1.95	1.23

The national average assumed rate of return has been falling every year for the past decade. CalPERS recently shifted below the national average to 6.8% and has signaled it will likely move toward 6% in the coming years. The third largest retirement system by assets, New York Common Fund, announced in the summer of 2021 that it was shifting to a 5.9% investment assumption.

ALTERNATIVE MEASURES OF TRS 2022 UNFUNDED LIABILITY BASED ON DIFFERENT INVESTMENT RETURN ASSUMPTIONS

$33 Billion — 1% Higher Assumed Return

$59 Billion — Assumed Return

$92 Billion — 1% Lower Assumed Return

Source: Figures formally reflect the sensitivity of the net pension liabilities to different discount rates. Data are taken from GASB sensitivity reported by TRS.

Changing the investment assumption also changes the "discount rate" that TRS uses to measure the value of liabilities. Reducing discount rates increases in the net present value of liabilities (TPL or AAL), and vice versa. Looking at TRS's figures in this context gives perspective on how much larger the unfunded liabilities of TRS might actually be in the future when the assumed rate of return is reduced again.

Teacher Retirement System of Texas Benefits Analysis

FEATURES OF TRS

	Tiers 1 & 2		Tiers 3 & 4		Tiers 5 & 6	
Multiplier	2.30%		2.30%		2.30%	
Vesting	5 years		5 years		5 years	
COLA	Ad hoc		Ad hoc		Ad hoc	
Normal Retirement	Age 65 + 5 Service Years Rule of 80		Age 65 + 5 Service Years Age 60/5 YOS + Rule of 80		Age 65 + 5 Service Years Age 62/5 YOS + Rule of 80	
Highest Average Salary	High 3*	High 5	High 5	High 3*	High 5	High 3*
Eligibility by Hire Date*	• Hired on/pre 9/1/07 • Vested before 8/31/14		• Hired between 9/1/07 and 8/31/14, or • Vested before 8/31/14		• Hired on/after 9/1/14 • Not vested 8/31/14	

* Members can also join Tiers 1, 4, or 6 under a "Grandfathered" clause: hired before 8/31/05 + Age 50 or Rule of 70 or 25 Service Years

Texas TRS offers retirement benefits that vary largely based on the school year hired, in particular prior to September 2005, between 2005 and 2007, between 2007 and 2014, or on/after September 2014. The major difference within these groups is the age of normal retirement eligibility (which is outlined in the table above). For an individual hired at age 25, those retirement eligibility rules influence when pension checks can first be drawn, and the lifetime expected value of those benefits (which is shown in the figure below). There is also a "grandfather" clause for select individuals within each group by hire date that allows allows benefits to be calculated on a "highest three years of salary" basis.

There is a reasonable argument for increasing retirement eligibility age; however, those changes have been significant benefit reductions when considering the lack of Social Security coverage or inflation protection of pension benefits offered in Texas.

COMPARING THE EXPECTED LIFETIME VALUE OF VARIOUS TIERS OF TRS BENEFITS BASED ON YEARS OF SERVICE AND HIRE DATE
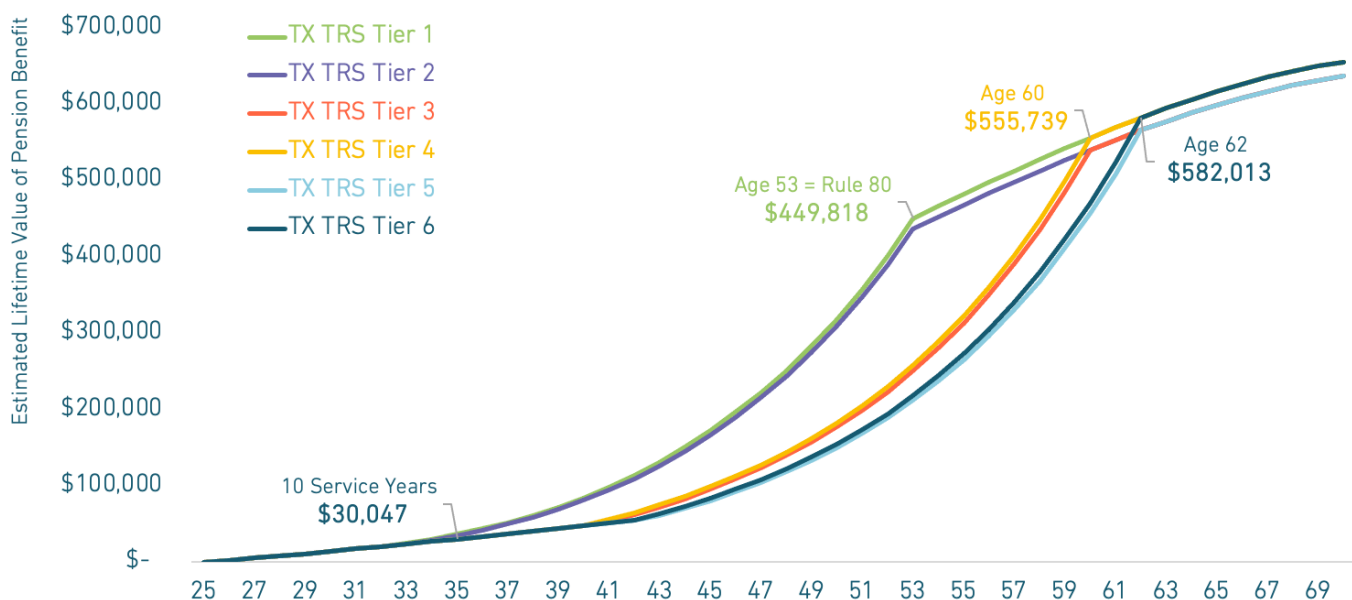
Intro: Teacher Pension Debt is Creating Challenges for Education Resource Equity

Rising teacher pension costs are squeezing K–12 education budgets in Texas. Without a change to the way the state finances its public school employee retirement benefits, those costs will continue to exacerbate already existing education finance inequities and drain away resources necessary to help students.

Contributions into the Teacher Retirement System (TRS) of Texas grew by 236.3% from 2001 to 2022. By 2026, the state and local school districts plus active members are projected to spend $10.6 billion on teacher pensions — the majority of which is to finance a nearly $60 billion funding shortfall for the pension plan. To put this in perspective, the projected 2026 pension bill amounts are more than seven times the federal funding amounts Texas received to support economically disadvantaged students in 2021.[1]

Large pension costs are not inherently a problem, but what *is a problem* is pension costs that are rising faster generally than K–12 funding. From 2001 to 2020, even after adjusting for inflation, total pension spending increased an average of 5.42 percentage points per year, while state and local K–12 funding only rose at 3.31 percentage points per year. The net effect is that an increasing share of state and local K–12 education spending has been siphoned off to cover pension costs. For example, in 2020, 11.3% of state education funding went to TRS, a 41.5% increase since 2012 even after accounting for inflation.

The primary reason for these additional costs is growth in unfunded liabilities, a shortfall in money that should be in the pension fund today, accumulating investment interest, so that benefits can be paid in the future. And the main factors causing that unfunded liability growth have been underperforming investments and a state legislative policy hasn't historically allocated sufficient money for pension benefits.

The net result has been growing pension costs, which are effectively education funding cuts. And these cuts disproportionately harm low-income communities in three ways:

- **Low-income communities rely more heavily on state aid.** State funding comprises a disproportionate share of K–12 budgets in low-wealth communities. As such, pension costs consuming a greater share of state education spending more severely harms low-income districts since they rely most heavily on state funding.

- **Low-income communities have fewer resources to pay growing pension costs.** Low-wealth districts can only generate limited resources from local property taxes. Given these limited resources, even a slight increase in pension costs can have a much higher marginal cost for low-wealth communities than more affluent ones.

- **The state subsidy for pension costs is regressive.** Low-wealth communities typically pay lower teacher salaries. Since contributions to TRS from the state on-behalf of districts are based on teacher salary, low-wealth communities typically receive less funding from the state to contribute to TRS.

---

[1] U.S. Department of Education, "Estimated ESEA Title I LEA Allocations — FY 2020."

"PENSION DEBT" IS THE PROBLEM

Skyrocketing unfunded liabilities — sometimes called pension debt or a funding shortfall — are the main factor driving the rising costs. TRS's unfunded liability — the difference between its assets and the benefits it owes its members — has exploded over the past two decades. In 2001, the fund held a small surplus. But in 2022, TRS reported its unfunded liability at around $60 billion (based on market valued assets).

This funding shortfall means teacher pensions are more costly for educators and employers. With greater levels of pension debt, the legislature has increased annual contribution rates for teachers, districts, and the state. The most recent change will steadily increase rates over the next five years until educators themselves are contributing 8.25% of salary, school districts up to 2% of salary, and the state, another 8.25% of salary. Altogether, rising pension costs eat away at teachers' take-home pay and crowd out other education spending.

In general, these additional contributions are good for Texas TRS funding, but the policy has been insufficient to ensure costs don't continue to build and exacerbate inequities.

Looking forward, the odds are that further contribution rate increases to Texas TRS are coming even after the current process of ramping up costs is complete in 2025-26. And if contribution rates continue to increase as a requirement to cover unfunded liabilities, fiscal pressure on state education funding and school district budgets is only going to get worse, especially for districts serving low-income students.[2]

PAPER OUTLINE

This paper systematically lays out how growing teacher retirement costs are creating a challenge to efforts aiming to improve education resource equity in Texas.

Part 1 shows generally *How Teacher Retirement Costs Affect School Finances*.

Part 2 shows specifically that *Pension Spending Has Exacerbated Existing Funding Inequities*.

Part 3 shows how *Underperforming Investments Caused Pension Debt to Grow for Texas School Districts.*

Part 4 asks *Who Will Pay Pension Costs Increases in the Future?*

A series of appendices provide data on the source of pension debt for Texas TRS, how teacher pension benefits work, and how growing retirement costs are also creating a challenge for the value of those retirement benefits.

---

[2] There is a state constitutional cap on how much the state can contribute to any TRS at 10% of payroll, after which additional contributions presumably must come from district employers and members.

Relieving the pension pressure on school spending in the future will be difficult, but not impossible. Previous legislatures have recognized the need for additional funding, and substantive reforms to the state's Employees' Retirement System in 2021 provide a template for addressing long-term TRS funding challenges. Going forward, the legislature, governor, and the board of trustees for Texas TRS will need to adopt a number of significant changes including:

1. Adjusting how TRS measures and reports unfunded liabilities, including using a more reasonable assumed rate of return,

2. Modifying how the costs of the retirement system are paid for, including using actuarially determined rates to drive bi-annual contribution policy, and;

3. Reversing the de-facto state pension subsidy that is being inequitably distributed.

If ignored, the unfunded liability is only likely to grow with the effect being borne disproportionately by low-wealth communities and the teachers that serve them.

1. How Teacher Retirement Costs Affect School Finances

Spending on teacher pensions is increasing rapidly in Texas. As Figure 1 shows, between 2001 and 2022, nominal contributions into TRS increased 236.3% — from $2.64 billion to $8.89 billion. Even after adjusting for inflation, total pension spending still increased 102%. (We discuss the reasons why in Part 3 below and Appendices A and B.)

FIGURE 1: PENSION CONTRIBUTIONS IN TEXAS HAVE MORE THAN TRIPLED SINCE 2001
*Actual Contributions Paid, 2001–22*
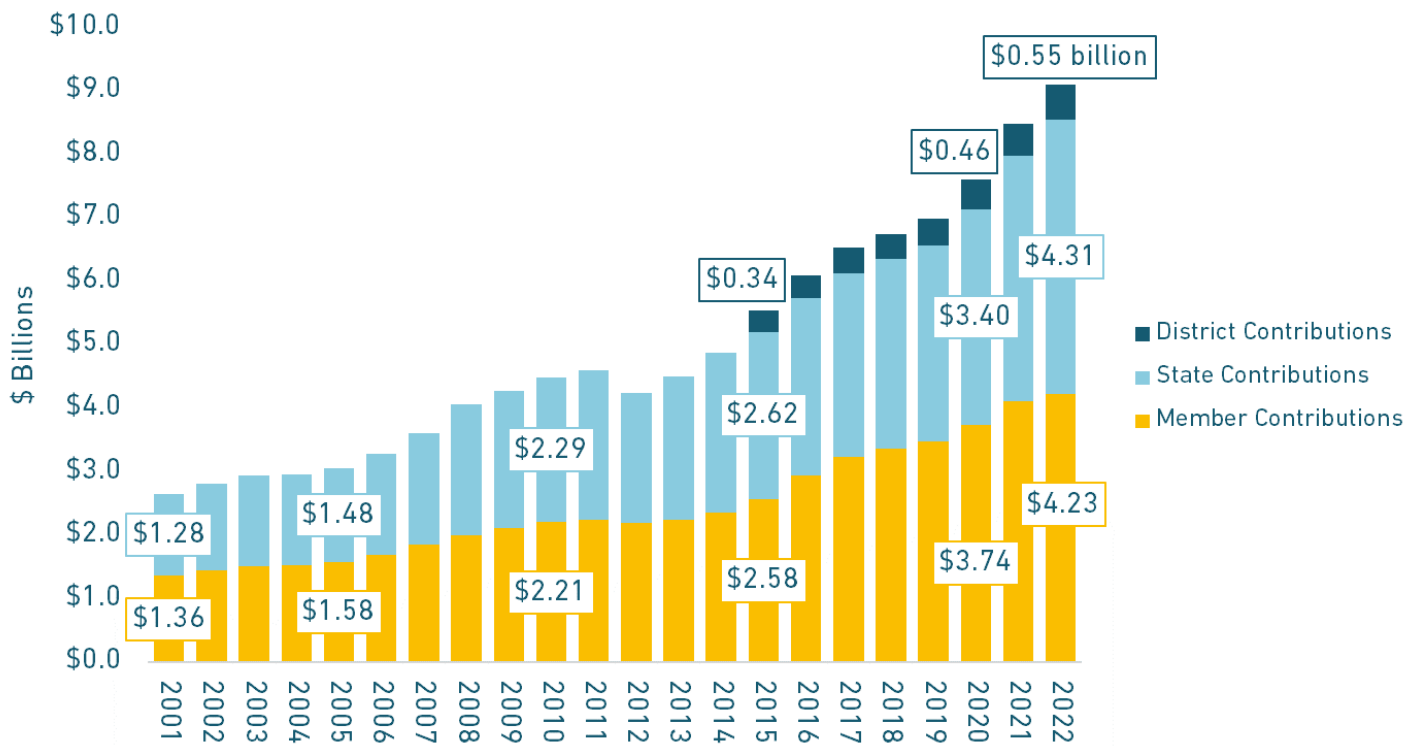
Source: Equable Institute analysis of public plan valuation reports and Annual Comprehensive Financial Reports (ACFRs). Totals are not adjusted for inflation.

And Figure 1 also shows that the costs are only going to grow in the coming years. A scheduled increase in contribution rates authorized in Senate Bill 12 of 2019 (SB12) was important for stabilizing the finances of TRS, but it means the historic cost trend will continue.[3] By 2026, it is expected that TRS will require $10.6 billion in contributions annually.

---

[3] Relating to the Contributions to and Benefits Under the Teacher Retirement System of Texas, SB12, 86th Legislature, 2019.

FIGURE 2: PENSION SPENDING INCREASED AT MORE THAN 1.5 TIMES THE RATE AS K–12 SPENDING
Growth in Total K–12 Expenditures and Actual Employer Contributions Paid, 2001–20
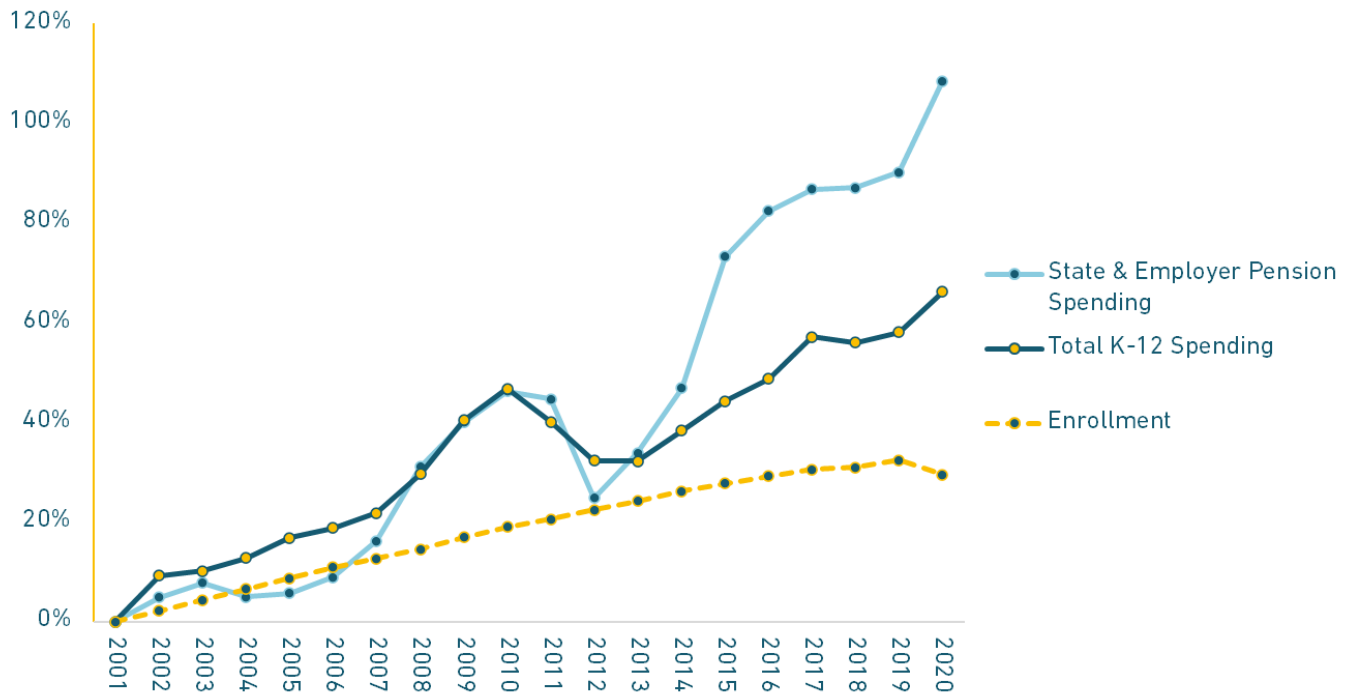
Source: Equable Institute analysis of public plan valuation reports and ACFRs. Student enrollment totals are from the National Center for Education Statistics, public schools, 2019–20, excludes adult education. Financial figures are adjusted for inflation.

The increase in pension costs has been outpacing the growth in K–12 spending across Texas, as shown in Figure 2. State and local employer spending on TRS increased an average of 10.46 percentage points every year between 2012 and 2020.[4] State and local K–12 spending over the same time period increased just 4.24 percentage points a year.

This explosive change stands in sharp contrast to the previous decade, when from 2001 to 2012, the annual rate of change in K–12 spending and pension costs was similar (with all figures adjusted for inflation).[5] In other words, pension spending grew at 2.5 times the rate of spending on K–12 education from 2012 to 2020.

---

[4] Although TRS's 2022 pension spending data are available, the K–12 spending data are drawn from the U.S. Census Bureau Annual Survey of School Systems Finance, which only has data through 2020. To be consistent in this analysis, we compared earlier spending with 2020.
[5] Total K–12 spending includes revenues from state and local sources. It does not include federal revenues.

FIGURE 3: PENSION SPENDING CONSUMES A GREATER SHARE OF EDUCATION SPENDING
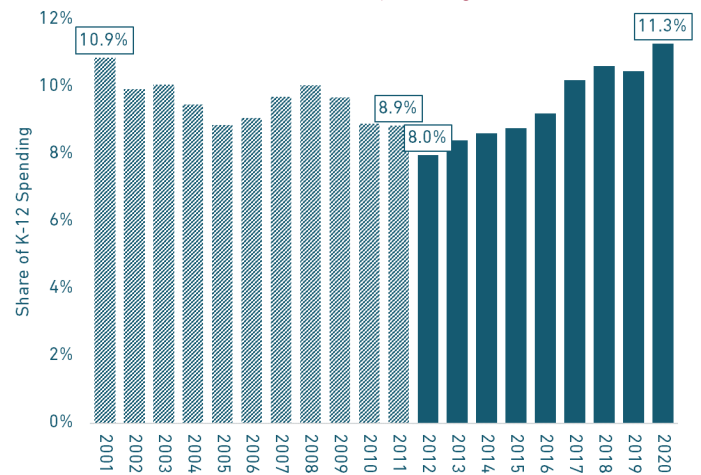*Actual Employer Contributions to TRS as a Share of Total K–12 Spending, 2001–20*
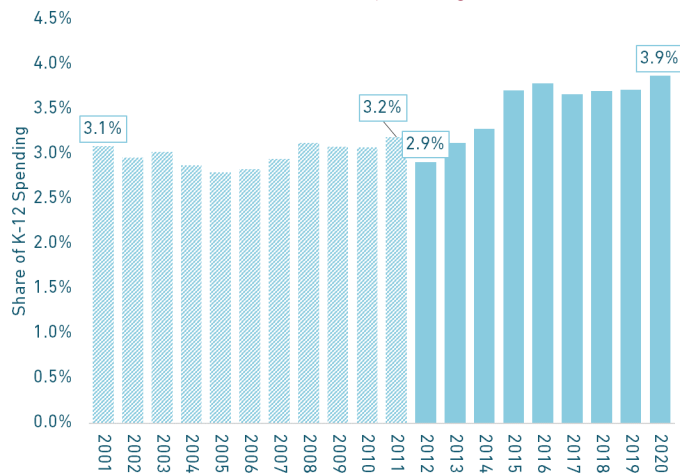
Source: Equable Institute analysis of public plan valuation reports and ACFRs. These figures are based on expenditure data adjusted for inflation.

FIGURE 4: MORE THAN 10% OF EVERY STATE EDUCATION DOLLAR FUNDS PENSIONS
Actual State Contributions to TRS as a Share of State K–12 Spending, 2001–20

Source: Equable Institute analysis of public plan valuation reports and ACFRs. These figures are based on expenditure data adjusted for inflation.

These rising pension costs have eroded other education investments. And there are two ways to look at it.

The first angle is to look at what have those growing costs been as a share of all state and local spending on K–12 (Figure 3). Second, since the state makes the majority of contributions to TRS on-behalf of school districts, what have those growing costs been as a share of the state's spending on K–12 — which is particularly relevant since a portion of the state's money is focused on evening out the distribution of education spending in the first place.

Figure 3 shows that in 2001, after adjusting for inflation, teacher pension spending consumed 3.1% of total state and local K–12 spending, and by 2012 it was less than 3%. However, by 2020 the share of state and local K–12 spending going to pensions grew to 3.9%. That amounts to a 25.4% increase from 2001 to 2020, and a 32.9% increase from 2012 to 2020.

Figure 4 shows that from 2012 to 2020 the share of state education funding going to pensions grew rapidly, from 8% to 11.3%. This is because state investments in K–12 education stalled, growing a mere 3.9% over the seven years from 2012 onward. Conversely, state pension spending increased 47.1% over that same period. Again, this matters as a separate perspective because the state finances more than 90% of the total employer contributions for TRS. Thus, the impact of increased pension spending has a more profound effect on the state K–12 education budget.

Texas has historically not paid actuarially required contributions into TRS (discussed below in Part 3 below), underfunding the teacher pension system. Contribution increases started in 2013 and were accelerated in 2019. For that reason, the change between 2012 to 2019 is the most important to review on these charts. Pension spending should have actually consumed more than 10.5% of the state's education spending in 2019. (In 2020 the state paid nearly the full actuarial bill, showing a positive development.) As the legislature's contribution ramp builds up in the coming years, it is likely that share will grow (unless there is offsetting money added to general education spending).

And again, for 2020 we are talking about almost $3.9 billion from state and local sources being spent on teacher pensions. Preliminary data shows this amount is going to rise past $5 billion in the 2022-2023 fiscal year.

To put the cost of TRS into further perspective, Figure 5 shows what TRS contributions have been each year as a percentage of the Texas General Fund. The figure includes lines for both the actual amount paid and the amount that *should have* been paid each year (if the state had been responsibly funding the pension plan).

FIGURE 5: REQUIRED SPENDING HAS NEARLY DOUBLED AS A SHARE OF TEXAS'S GENERAL FUND
Required and Actual TRS Contributions as a Share of Texas's General Fund, 2001–21
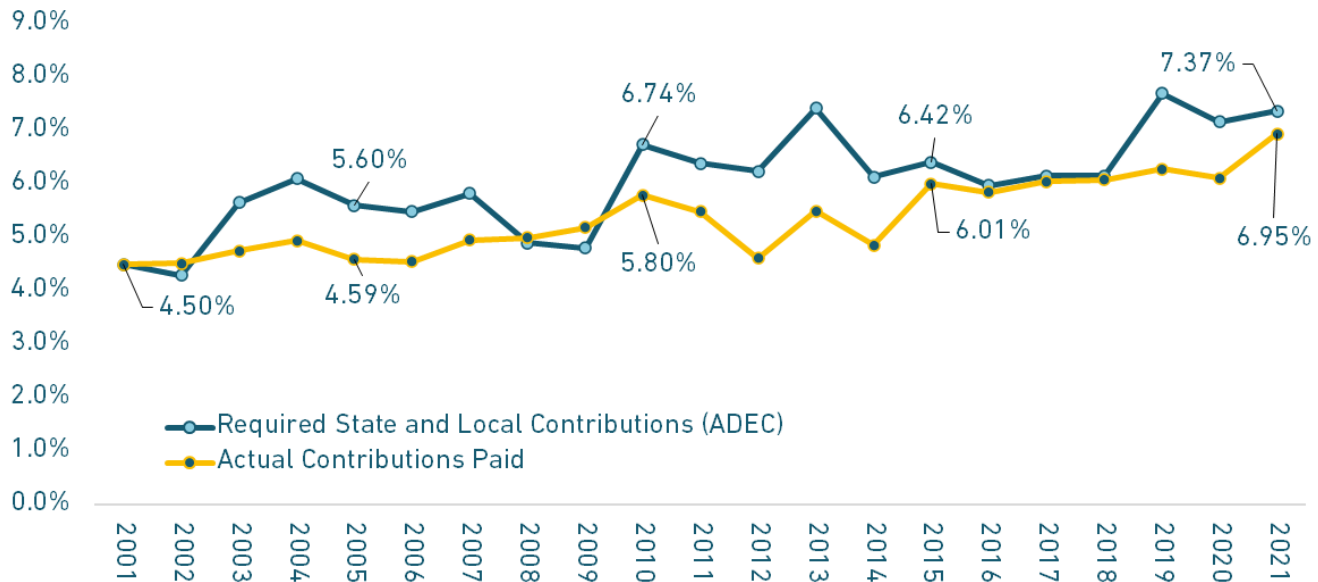
Source: Equable Institute analysis of public plan valuation reports and ACFRs.

The amount of funds actually paid to TRS increased from 4.5% of the general fund's budget in 2001 to 6.95% in 2021. That is an increase of 54.4%. Paying the full bill, which limits future costs, would have cost 7.37% of the general fund budget in 2021 — approaching double the required rate from 2001.

PART 1 SUMMARY

Teacher pension costs in Texas have risen faster than K–12 spending, crowding out other potential investments in education. These rates are set to increase further, which could increase those stress points if the additional pension payments are not budgeted for in a way that holds harmless money destined for classrooms.

2. Pension Spending Has Exacerbated Existing Funding Inequities

When the Texas legislature increased contributions into Texas TRS with legislation in 2013, school districts were, for the first time, required to directly make contributions to the state teacher pension fund. Then 2019 legislation increased the percentage of salary districts were required to transfer to TRS. In principle, there are valid reasons for this funding policy approach — not the least of which that districts do influence pension costs with the salary decisions that they make, and secondarily because there is a state constitutional provision that caps the total amount the state can put into TRS. However, there was no consideration given as to the effects of how these costs were distributed across school districts — and unfortunately low-wealth communities are bearing the brunt of the burden.

The rise in the share of state funding dedicated to teacher pensions adversely affects low-wealth schools and districts in three distinct ways:

(1) Low-income communities have fewer resources to pay growing pension costs.

(2) Low-income districts rely more heavily on state aid and are disproportionately harmed by limits to those resources.

(3) State pension cost financing is regressive and provides a lower subsidy to low-income communities.

LOW-INCOME COMMUNITIES HAVE FEWER RESOURCES TO PAY GROWING PENSION COSTS

The first cost increases on local employers started in in the 2014-2015 year, as directed by the 2013 legislation. Most school districts and independent schools were directed to contribute 1.5% of their minimum payroll schedule. Those costs are gradually being increased to 2% of minimum payroll based on 2019's Senate Bill 12. All schools pay the same rate as a percentage of payroll, irrespective of economic environment.

But while it is theoretically reasonable to have state and school districts share retirement costs (as a form of compensation), increasing districts' pension costs nevertheless disproportionately harms low-wealth districts. **This is because the pension contribution acts as a flat tax and treats the teacher salaries each district in Texas needs to pay as the same regardless of context.**

For a low-wealth district that generates only limited resources from local taxes, spending an increasing amount on pensions — even if just an increase equivalent to 1.5% to 2% of payroll — has a much higher marginal cost than it does in a wealthy district generating considerable local revenues. To use an everyday example, a $100 parking ticket costs a lot more to a minimum wage worker than it does to a corporate executive. In this same way, increasing district pension costs similarly burdens low-wealth communities more than it does affluent ones.

LOW-INCOME DISTRICTS RELY MORE HEAVILY ON STATE AID AND ARE DISPROPORTIONATELY HARMED BY LIMITS TO THOSE RESOURCES

It is a feature (and not a bug), that Texas districts serving higher concentrations of low-income students receive more state aid to fund their schools. However, that reliance on state aid means that any cuts to the Texas general education budget pass down financial stress to vulnerable communities. For these districts, cutting their greatest source of revenue has a disproportionately negative effect.

Since the state is the primary contributor to TRS, growing teacher pension costs pose a direct budgetary threat to the state's willingness to fully fund the school finance formulas developed. And, since rising pension costs are not publicized as a budget cut for districts as a change in the funding formula, it is all the more difficult to prepare for, much less address, the loss of revenue.

STATE PENSION COST FINANCING IS REGRESSIVE AND PROVIDES A LOWER SUBSIDY TO LOW-INCOME COMMUNITIES

Formally, when the state makes contributions to Texas TRS, they do so on behalf of each district and other K–12 employers that participate in the retirement system. This process has profound resource equity implications for lower-income school districts.

Certain districts are able to pay educators more and retain them longer. These individuals build larger pension benefits and represent an outsized share of the liabilities, both in total and unfunded, for TRS. School districts with abundant resources have been able to effectively avoid a considerable share of the growing costs of pension benefits because the state makes these payments.

In a way, this is a "pension subsidy" that is provided by the state to each school district. They don't receive the money directly, but the district-level salary decisions are passing a share of overall compensation costs up to the state, which provides the subsidy via an "on-behalf" payment to TRS. This effective subsidy is not factored into how the state otherwise looks to create resource equity.

Table 1 shows how much the state contributed to TRS in FY2022 on behalf of some of the largest districts in the state. The table also shows how these "on-behalf" of district contributions break out on a per student basis.

Contributions to the pension fund, from both teachers and their employers, are based on salary. The higher a teacher's salary, the more she and her employer contribute to the fund. Each year, the districts that pay higher salaries for teachers with the same level of experience receive greater amounts of state pension resources.[6] So the structure of state pension funding acts as a subsidy for wealthier communities.[7]

TABLE 1: HIGHER STATE PENSION COSTS MEAN MILLIONS THAT COULD BE BETTER SPENT BY DISTRICTS
State Pension Contributions on Behalf of Districts ("On-Behalf"), FY2021

	STATE "ON-BEHALF" CONTRIBUTIONS	ENROLLMENT	PER STUDENT STATE PENSION SUBSIDY
Houston ISD	$65,015,929	196,943	$330.13
Dallas ISD	$55,785,686	145,113	$384.43
Cypress-Fairbanks ISD	$45,224,259	114,881	$393.66
Northside ISD	$38,983,520	103,151	$377.93
Fort Worth ISD	$30,991,905	76,858	$403.24
Katy ISD	$33,651,320	84,176	$399.77
Fort Bend ISD	$30,207,483	76,735	$393.66
Austin ISD	$33,069,943	74,871	$441.69

Note: ISD = Independent School District
Source: GASB 68 Allocation of Non-Employer Contributing Entity On-Behalf Payments, Fiscal Year 2021. Student enrollment totals are from the National Center for Education Statistics, public schools, 2020–21, excludes adult education.

---

[6] Max Marchitello, "Problems with Pay: How Teacher Pensions Exacerbate Salary Inequities," TeacherPensions.org, July 10, 2019.
[7] Carrie Hahnel, "California's Hidden Pension Gap," The Opportunity Institute, TeacherPensions.org, September 24, 2019.

A notable finding in Table 1 is how much larger the per student pension subsidy is for Fort Bend ISD than Houston ISD — a roughly 20% larger subsidy. Fort Bend County is among the wealthiest in Texas, among the top 10 in per capita income and top three in median household income, and theoretically has the ability to pay teachers relatively more than in other parts of the state.[8] And the net effect of this is that the state's contributions into TRS on behalf of Fort Bend ISD wind up supporting higher compensation costs with per student subsidies that could be more equitably allocated to other parts of the state with less resources to pay teachers in the first place.

As a point of comparison, the "Basic Allotment" for the 2021-22 school year is $6,159 per student.[9] So, the base state pension subsidy for these specific districts could have added 5% to 6.5% to the base per student spending.

Given that more experienced educators earn higher salaries, the status quo structure is designed to reward teachers who remain in the profession for their entire career. And that kind of policy is logical and honors educators for their service. An unintentional consequence of that policy, however, is low-wealth districts increasingly cannot afford to pay higher teacher salaries if they effectively receive less in state aid due to pension costs.

This regressive effect is compounded by higher teacher turnover rates in economically disadvantaged districts with higher rates of poverty as well. This is because higher turnover districts have a lower rate of educators vesting in the system, and with more teachers leaving the district or profession, they may also have a lower rate of educators spending their highest earning years in the district. Both workforce trends lead to lower state pension investments in economically disadvantaged districts.[10]

Consider two districts:

- District A is in a wealthy community and has a maximum teacher salary of $100,000, while district B is less wealthy and can only pay a top salary of $90,000. In 2022, the state spent 8.38% of teacher salary to fund TRS.

- For a teacher at the highest salary, that amounts to $8,376 for District A and $7,539 for District B: a gap of $838. In this example, if each educator earning the highest possible salaries in each district taught another 10 years, the state would be making $8,376 more in contributions to TRS for the wealthier district.

While this subsidy is going directly to TRS, in effect the high-wealth district is receiving an additional $8,736 in state aid in the form of indirect compensation to that teacher. And, in reality, the number would be higher, because this example holds contribution rates constant. However, since the state contribution in Texas is set to increase over the next few years, the disparity would be larger than estimated here. When considered across an entire school district, this disparity in total teacher compensation is likely to be considerable.

The inequities created by the structure of Texas's pension finance policy is even worse once a teacher retires:

- In the above example, a $10,000 disparity in salary is mirrored and compounded in retirement through the pension formula. If each teacher in the example above works for 35 years and their final average salary works out to be $100,000 and $90,000, respectively, the teacher in District A qualifies for an annual pension of $80,500, while the teacher in District B earns a yearly benefit of $72,450.

---

[8] U.S. Census Bureau, 2021 American Community Survey 1-Year Estimates."

[9] Texas Education Agency, "2021-2022 Statewide Summary of Finances," June 2021

[10] Max Marchitello, "Problems with Retention: How Teacher Turnover and State Pension Systems Combine to Exacerbate Inequities across Districts," TeacherPensions.org, July 24, 2019.

If they each retire at age 60 and live another 25 years in retirement, the teacher from District A will receive $201,250 more in state funds throughout retirement. The teachers did the same job for the same number of years and both reached the maximum salary their employer pays.

- Yet, due to the way pensions are designed, far fewer state funds are invested in educators who work in economically disadvantaged districts — and by extension this means far fewer state funds are invested in the students of those communities too.

To be clear, inequities in retirement wealth would exist under a Defined Contribution plan. The difference, however, is that the disparity would not be compounded throughout retirement. This example likely understates the problem as the salary disparity between the highest- and lowest-wealth districts will be far larger than just $10,000. Nevertheless, the total cost of a teacher pension goes beyond the contribution rate in a given year and in practice exacerbates existing school finance inequities between high- and low-poverty communities.

THE DISTRIBUTION OF STATE PENSION SUBSIDY DOLLARS

Had the pension system been managed more effectively and costs remained closer to previous levels, these millions of dollars could have been invested in other education endeavors.[11] To put this into context, after adjusting for inflation, state pension spending increased by 19.9% from 2015 to 2020. Cutting that rate in half would have freed up more than $6.1 million in funding for Houston Independent School District (ISD) alone in 2020.

We don't know exactly how school districts would have otherwise spent these hypothetical increased distributions. But research from California — where school board members were surveyed about what they had to cut when they were required to annually increase pension payments — suggests that in the absence of these funds, schools could be cutting back on much-needed building repairs or technology updates (a particularly vexing problem during Covid-19), avoiding short-term debt, or limiting some enrichment or extracurricular activities.[12]

There is also an equity implication to these state distributions. Certain school districts can pay educators more and retain them longer. These individuals build larger pension benefits and represent an outsized share of the unfunded liabilities for TRS. School districts with abundant resources effectively have been able to avoid most of the growing costs of pension benefits because the state makes most of the payments. This effective subsidy is not factored into how the state otherwise looks to create resource equity.

PART 2 SUMMARY

The growing pension cost implications are not distributed evenly from district to district. Already facing significant funding challenges and heavily reliant on state aid to fill out their budgets, the students in Texas's low-wealth districts experience the most harm from resource reductions.

[11] The drivers of rising pension costs are discussed in detail in Sections 6 and 7.
[12] Hannah Melnicoe et al. "The Big Squeeze: How Unfunded Pension Costs Threaten Educational Equity," Pivot Learning, April 2019.

3. Underperforming Investments Caused Pension Debt to Grow for Texas School Districts

Unfunded pension liabilities for Texas TRS expanded steadily between 2001 and 2020, and have swung significantly over the last two years. Unfortunately, TRS was not able to leverage the bull market after the financial crisis to reduce its unfunded liabilities — instead, a combination of underperforming investments and the failure of the legislature to properly fund the pension plan meant increasing unfunded liabilities. Figure 7 shows that TRS was roughly fully funded in 2001.[13] But by 2020, the unfunded liability ballooned to $53.6 billion, and after huge returns in 2021 cut that figure in half, the shortfall jumped back up to $59.4 billion.

FIGURE 7: TRS'S UNFUNDED LIABILITY HAS EXPANDED TO NEARLY $60 BILLION
TRS Market Valued Assets and Actuarially Accrued Liability, 2001–22
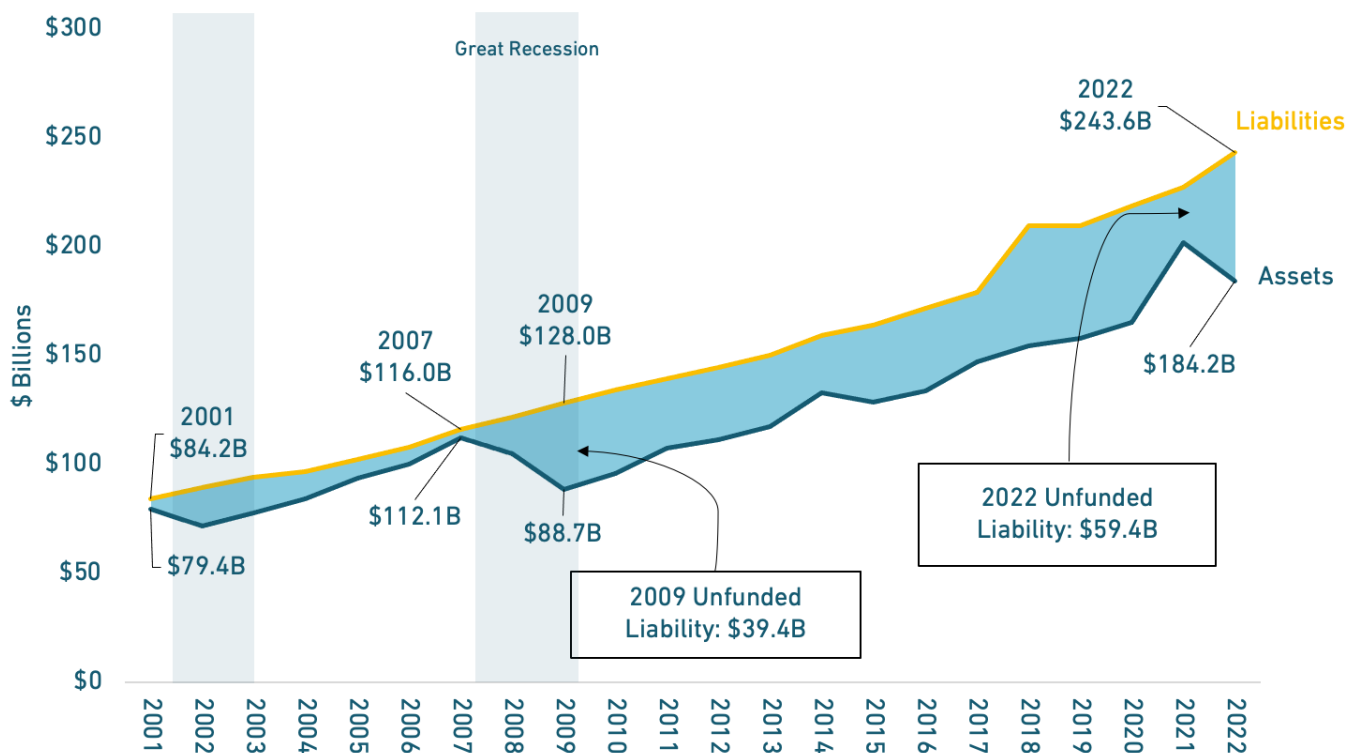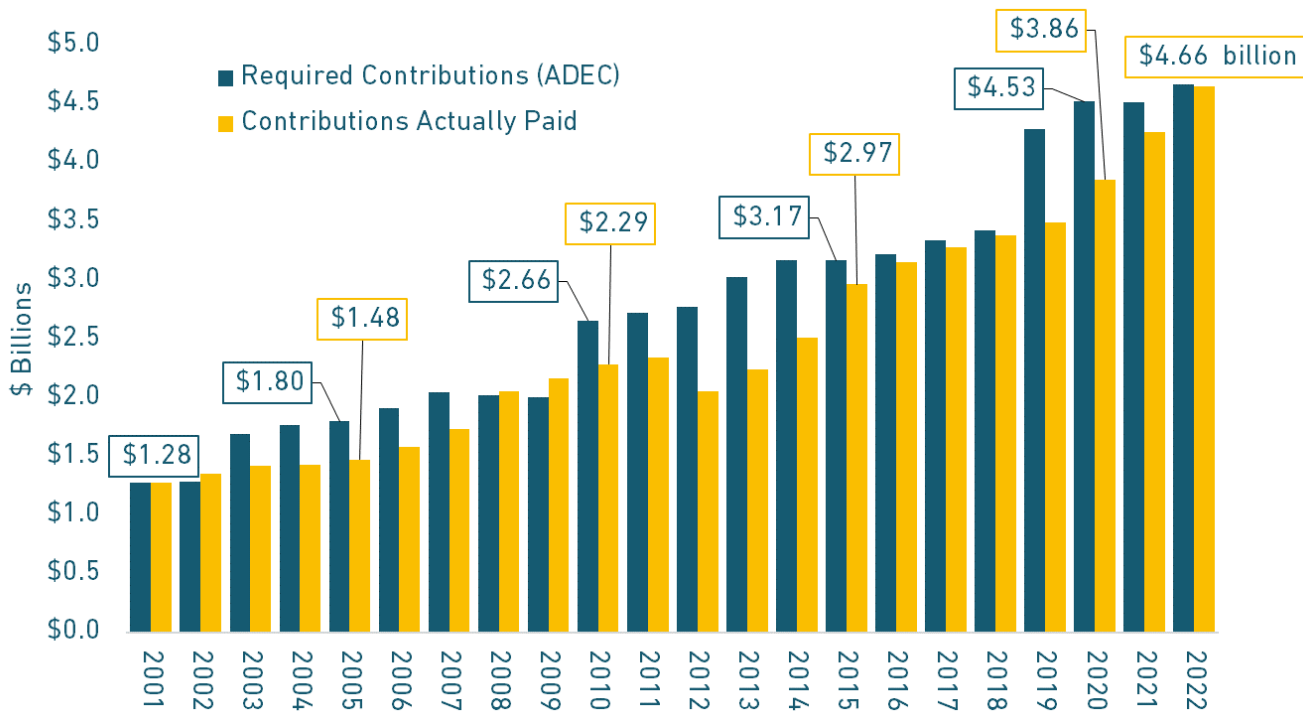

Source: Equable Institute analysis of public plan valuation reports and ACFRs.

Unfortunately, the current reported level of unfunded liabilities is based on an unrealistic 7% investment return assumption. **TRS's own "sensitivity" analysis shows that if they used a more realistic 6% assumed rate of return, their level of unfunded liabilities is actually closer to $92.4 billion as of August 2022.**[14]

---

[13] Using TRS's preferred accounting metric, the actuarial value of assets, TRS in 2001 was over 100% funded. Using a market value of assets — as Figure 6 does — TRS was slightly underfunded with a 94% funded ratio.
[14] Teachers Retirement System of Texas, "Annual Comprehensive Financial Report 2022," November 2022.

FIGURE 8: TEXAS CONSISTENTLY UNDERFUNDED TRS BY HUNDREDS OF MILLIONS OF DOLLARS
Required (ADEC) and Actual Contributions Paid to TRS, 2001–22

Source: Equable Institute analysis of public plan valuation reports and ACFRs.

Over the last two decades, Texas continually failed to fully fund the actuarially determined employer contributions (ADEC). As shown in Figure 8, Texas habitually underfunded TRS by hundreds of millions of dollars.

For example, in 2021, the actuarially required contribution from the state and school districts was $4.52 billion — but only $4.26 billion was paid (under the terms of the SB12 contribution rate ramp). That amounts to a shortfall of $257.75 million. And that was a relatively small amount compared to years like 2014 and 2019.

In fact, Texas fully funded TRS only four times between 2001 and 2022. By contrast, nearly 2/3 of the states have legal requirements to pay actuarially required contributions. The chronic underfunding behavior by the Texas legislature is part of the reason TRS's unfunded liability grew so substantially. Since 2001, shortchanging TRS totals added $6.3 billion to unfunded liabilities.

But, again, these contribution rate figures were based on unrealistic investment assumptions in the first place. For example, in 2018 the state nearly paid the full ADEC with its statutorily-set contribution rates — but only because the state was assuming an 8% investment return. Once the assumed rate of return was brought down to 7.25% in 2019, that exposed how Texas was not really paying its pension bills (and that led to the legislature ramping-up contributions from there forward).

The investment assumption was further lowered to 7% starting in 2022, which almost certainly means the legislature will need to again revisit contribution rate increases in its 2023 or 2025 legislative session.

TRS's unfunded liability can also be thought of on a per-student basis. Table 2 shows the debt distributed across the total K–12 enrollment in Texas from 2001 to 2020. During that period, per pupil spending increased approximately $4,000, from $15,221 in 2001 to $19,537 in 2020. At the same time, a student's "share" of the pension debt jumped from $1,154 in 2001, to nearly $10,000 by 2020.

Put another way, the magnitude of the pension debt is such that the state would need to shut down the K–12 education system for just over six months and funnel all those funds into TRS to completely pay down the debt.

TABLE 2: TRS'S UNFUNDED LIABILITY AMOUNTS TO NEARLY $9,000 PER STUDENT
Per Student Total K–12 Funding and Pension Debt, 2001–20

YEAR	TOTAL K–12 SPENDING PER STUDENT	PER STUDENT SHARE OF PENSION DEBT	PENSION DEBT AS % OF PER STUDENT FUNDING
2001	$15,221	$1,154	7.6%
2002	$16,280	$4,158	25.5%
2003	$16,069	$3,841	23.9%
2004	$16,109	$2,836	17.6%
2005	$16,365	$1,949	11.9%
2006	$16,315	$1,668	10.2%
2007	$16,452	$820	5.0%
2008	$17,219	$3,545	20.6%
2009	$18,276	$8,118	44.4%
2010	$18,780	$7,801	41.5%
2011	$17,688	$6,378	36.1%
2012	$16,453	$6,495	39.5%
2013	$16,197	$6,360	39.3%
2014	$16,695	$5,105	30.6%
2015	$17,189	$6,668	38.8%
2016	$17,525	$7,049	40.2%
2017	$18,327	$5,905	32.2%
2018	$18,129	$10,130	55.9%
2019	$18,159	$9,459	52.1%
2020	$19,537	$9,968	51.0%

Source: Total K–12 education spending data are drawn from U.S. Census Bureau, 2020 Annual Surveys of State and Local Government Finances. Student enrollment totals are from the National Center for Education Statistics, public schools, 2019–20, excludes adult education. Unfunded Liability data are drawn from public plan valuation reports and ACFRs. All spending figures are adjusted for inflation.

Table 3 shows that per-pupil funding gradually eroded from 2001 to 2020 due to rising pension costs outpacing growth in K–12 spending. Per pupil, the state paid the entire $470 employer contribution per student in 2001. That amount increased almost 50% to $667 in 2020. Add in district costs and the per student expense on pension costs total was closer to double at $757 in 2020.

The actual amount of money spent on education per student isn't really the normal amount reported, which is shown in the column "Total K–12 Spending." It is that amount, minus "Total Pension Cost" — the balance of which is shown in the far right column. It is a hidden education funding cut of almost 4% of the total.

And even that doesn't cover the full extent of the growth in per-student pension costs, since, beginning in 2015, districts also began to contribute to TRS. The full employer contribution, accounting for state and district spending, in 2020 is approaching double the 2001 amount. These figures suggest that rising pension debt exacts real costs for students.

TABLE 3: PENSION COSTS PER STUDENT INCREASED MORE THAN 60% BY 2020

Per Student K–12 and Pensions Spending, by Source, 2001–20 (figures rounded)

YEAR	STATE PENSION COST[15]	DISTRICT PENSION COST	TOTAL PENSION COST	STATE K–12 SPENDING	DISTRICT K–12 SPENDING	TOTAL K–12 SPENDING	TOTAL K–12 SPENDING MINUS TOTAL PENSION COST
2001	$470	$0	$470	$4,322	$10,899	$15,221	$14,751
2002	$483	$0	$483	$4,855	$11,424	$16,280	$15,797
2003	$486	$0	$486	$4,820	$11,246	$16,069	$15,583
2004	$464	$0	$464	$4,887	$11,223	$16,109	$15,646
2005	$458	$0	$458	$5,148	$11,217	$16,365	$15,907
2006	$462	$0	$462	$5,086	$11,229	$16,315	$15,853
2007	$485	$0	$485	$4,996	$11,456	$16,452	$15,967
2008	$538	$0	$538	$5,346	$11,873	$17,219	$16,680
2009	$564	$0	$564	$5,815	$12,458	$18,276	$17,712
2010	$578	$0	$578	$6,488	$12,292	$18,780	$18,201
2011	$565	$0	$565	$6,372	$11,316	$17,688	$17,123
2012	$480	$0	$480	$6,014	$10,439	$16,453	$15,973
2013	$507	$0	$507	$6,012	$10,185	$16,197	$15,690
2014	$548	$0	$548	$6,351	$10,341	$16,695	$16,147
2015	$564	$74	$638	$6,408	$10,779	$17,189	$16,551
2016	$587	$77	$664	$6,363	$11,162	$17,525	$16,861
2017	$589	$84	$673	$5,772	$12,557	$18,327	$17,654
2018	$593	$79	$672	$5,580	$12,549	$18,129	$17,457
2019	$597	$79	$676	$5,692	$12,467	$18,159	$17,484
2020	$667	$90	$757	$5,906	$13,631	$19,537	$18,780

Source: Total K–12 education spending data are drawn from U.S. Census Bureau, 2020 Annual Surveys of State and Local Government Finances. Student enrollment totals are from the National Center for Education Statistics, public schools, 2019–20, excludes adult education. Unfunded Liability are drawn from public plan valuation reports and ACFRs. All spending figures are adjusted for inflation.

---

[15] The per student pension cost here is based on total pension costs for the state, not just their share on-behalf of district employers. As a result, the total amount is notably higher than the state subsidy reflected in Table 1.

4. Who Will Pay Pension Cost Increases in the Future?

In response to rising teacher pension costs driven by burgeoning debt, the Texas legislature adopted a set of policy changes to improve funding to TRS in 2013. The policy set out three ways to raise additional funds for TRS. First, school districts and independent schools would be required to contribute to TRS beginning in 2015. Second, teacher contribution rates would increase. Third, the state would increase its own contributions.
Through the collective increases in contributions to the fund, TRS estimated in 2014 that it would be able to chip away gradually at the pension debt and get to 83% funded status with $34.9 billion in unfunded liabilities by 2020 — neither projection was close to accurate.[16] By August 2020 TRS was only 76% funded and carried more than $50 billion in unfunded liabilities.

TRS realized that this problem was coming and asked for additional contributions during the 2019 legislative session. The main reason that TRS estimates were off was that they were based on earning an 8% return on their investments. Despite earning positive returns, the retirement system wasn't able to consistently meet that assumption, which has driven up the debt. The TRS board lowered their investment assumption to 7.25% at the end of 2018, recognized on their books that the funding shortfall was larger than previous reported, and projected that they might run out of money before paying all future promised benefits if the legislature didn't step in.

This spurred the Texas legislature again into action, passing Senate Bill 12 (SB12).[17] The sweeping, bipartisan legislation was designed to address TRS's funding levels through a shared-pain approach, and built on the 2013 model of bumping contribution rates up for everyone.[18] As shown in Figures 9 and 10 (next page), contribution rates are scheduled to increase on a schedule from FY2020 through FY2026.[19]

The problem is that the 2019 reform was also based on an unrealistic assumed rate of return — and Texas TRS has already made the first step in changing that assumption. The 7.25% assumption was better than predicting 8% returns, but even that has turned out to be excessively optimistic. Texas TRS has lowered its assumption again to 7%, as of 2022, and is likely to do so again before the end of the SB12 contribution rate ramp up in FY2026.[20] That means the existing contribution rate is unlikely to be sufficient to fully fund TRS in the future and additional cost hikes are likely coming.

WHO WILL PAY THE NEXT CONTRIBUTION RATE INCREASES?

It is possible that Texas TRS contribution rates will be increased during the 2023 session, but it is more likely that SB12 will run its course and the legislature will address the need for additional money in the 2025 session. Whenever the legislature chooses to address TRS costs, the most critical policy question will be: *who* will pay for the next round of contribution rates and will they just be another papering over the problem, like with legislation in 2013 and 2019?

---

[16] Teacher Retirement System of Texas, "Actuarial Valuation Report for Fiscal Year Ending 2014."

[17] Relating to the Contributions to and Benefits Under the Teacher Retirement System of Texas, SB12, 86th Legislature, 2019.

[18] Disclosure: Equable provided technical assistance on pension funding policy to the members of the state senate and the governor's office during the year prior to this legislature and in the lead-up to the development of SB12.

[19] School districts, including independent schools, will increase their contributions from 1.5% to 2% of payroll between FY2021 and FY2025. These contributions are only paid based on the state's minimum statutory salary thresholds set for various teaching positions.

[20] The most popular survey of capital market forecasts estimates roughly a 40% chance that pension funds will earn a 7% investment return in the coming decade. Other large pension funds have taken note of these projections and adjusted their assumptions accordingly. The largest pension fund in the United States, CalPERS uses an 6.8% investment assumption, and their investment advisors suggest targeting 6%. The New York State Common Fund, one of the best managed in the country, recently dropped their investment assumption to 5.9%.

FIGURE 9: SB12 SCHEDULED CONTRIBUTION RATE INCREASES, FOR MEMBERS AND EMPLOYERS
Member, Employer, and State Contribution Rates Pre- and Post-SB12
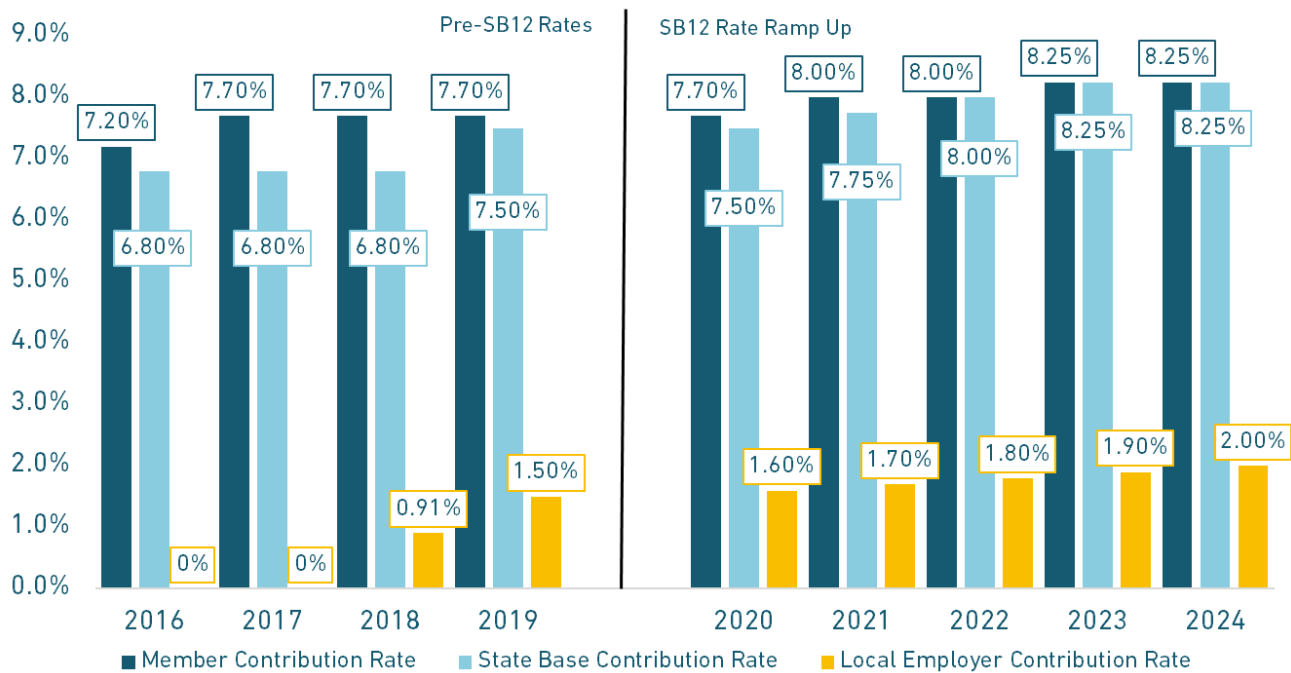
Source: Equable Institute analysis of public plan valuation reports and ACFRs.

FIGURE 10: PENSION CONTRIBUTION HISTORY AND ESTIMATED FUTURE COSTS
Member, Employer, and State Contributions, Actual 2001-2022, Estimated 2023-2026
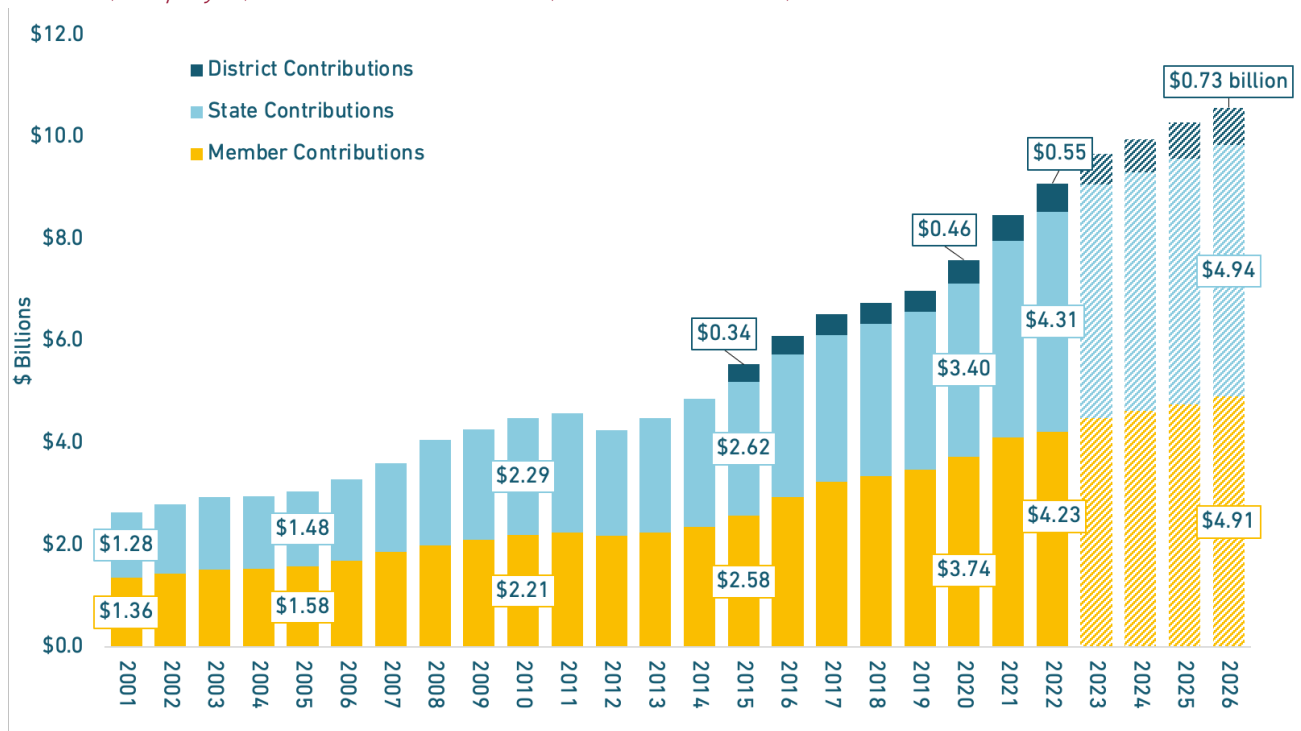
Source: Equable Institute analysis of public plan valuation reports and ACFRs.

Even though the Texas TRS board lowered their assumed rate of return marginally in 2022 — from 7.25% to 7% — it is an unavoidable reality that they will need to do so again. When this happens, there are three critical questions for the Texas legislature to consider related to strategy for TRS:

- Should there be a maximum assumed rate of return for state pension plans? Trustees should be given freedom to set investment assumptions related to the portfolios they manage, but the state could put a cap on the level of risk that needs to be taken with asset allocation by capping the assumed rate of return. Michigan did this with legislation in 2017, setting a maximum 6% assumed rate of return for benefits earned by all future employees (which initiated a gradual reduction in the investment assumption for legacy benefits too).

- Should any future contribution rate ramp up be predicated on no higher than a 6% assumed rate of return, no matter what investment assumption TRS trustees have adopted?

- How should the state distribute additional cost increases among the legislative budget, K–12 employers, and TRS members?

The legislature might also consider whether the current benefits provided to Texas TRS members are adequate to put all members on a path to retirement income security. As demonstrated in Appendices D and E, the current pension plan is not working for most members.

OUR POLICY VIEW

Despite recent reforms and investment performance, Texas faces considerable challenges in funding and improving its TRS. The state will once again need to make important changes in the near future.

Based on the analysis in this paper, our policy view is the following:

- The assumptions for Texas TRS should be reduced to create a better baseline for measuring the contribution rates necessary to get the pension funds back to full funding.

- The legislature should ramp up contribution rates as appropriate to reach an actuarially determined contribution rate based on a realistic assumed rate of return (e.g., something like 6%), and then direct the Legislative Budget Board (LBB) to include in its baseline legislative appropriation requests whatever the actuarially determined contribution rate is projected to be for TRS each budget cycle. The difference between this approach and the status quo would be to avoid having a statutorily set contribution rate as a percentage of payroll provide guidance to the LBB.

- At the same time, the state should review how its process of subsidizing districts is exacerbating inequities. Currently, the state provides on-behalf contributions that are a flat percentage of salary and in effect invest more heavily in affluent communities by providing larger subsidies to districts that have higher paid, longer-tenured teachers relative to districts with lower compensation for educators. The state could solve this by adopting an adjustment to the school funding formula that requires higher-income districts that pay larger salaries to contribute more to TRS. Or the state could directly assume a greater share of contribution rate requirements in lower wealth districts (which would lead to a more equitable distribution of state pension funding).

- Finally, the benefits provided for teachers and staff through Texas TRS also should be improved. The existing pension plan offers some of the lowest valued benefits in the country and does not meet reasonable standards of adequacy, in part because there is no inflation adjustment or purchasing power protection for members of the status quo pension plan. And the one-size-fits-all benefit design currently offered is not optimal for all educators and public school employees. (This is discussed at more length in Appendices D and E.)

Addressing these kinds of issues and, in particular, better integrating teacher pension costs with school finance will involve a number of policy choices and trade-offs. However, ignoring these issues simply means that students lose. The status quo state pension spending is regressive, sending greater amounts of state aid to higher wealth school districts that are able to pay higher teacher salaries. Rising state pension spending contravenes Texas's efforts to promote funding equity through its state school finance system by providing *more* state funding to wealthier communities.

In this regard, the Texas teacher pension system is structured so that it provides an effective subsidy to wealthy communities. Something must be done to implement equitable policy in Texas and lessen the financial burden on low-wealth districts that already struggle to generate sufficient revenue to support their students.

GLOSSARY OF TERMS

Pension plans are designed to collect contributions every year and then invest those funds. The combined assets and investment returns are used to pay promised benefits.

Total Pension Liability (TPL) or Actuarial Accrued Liability (AAL) — The value of those promised benefits measured in today's dollars.

Fiduciary Net Position (FNP) or Actuarial Value of Assets (AVA) — The value of assets on hand being invested to generate returns.

Net Pension Liability (NPL) or Unfunded Actuarial Accrued Liability (UAAL) — When the value of promised benefits (in today's dollars) is greater than the value of assets on hand to be invested, then a pension fund is said to have an "Unfunded Actuarial Liability." Under Government Accounting Standards Board (GASB) methodology, this is defined as the "Net Pension Liability," but colloquially it can be thought of as a "funding shortfall" or as "pension debt" owed by the government that created the pension fund.

Funded Ratio — The percentage of assets on hand compared to promised benefits. Pension funds should target 100% funded ratio, which means that all future pension checks measured in today's dollars are equal to the assets on hand generating investment returns.

Contributions into a pension plan come from three sources: "members," "participating employers," and "non-participating employers."

Member Contributions — Automatically deducted on a pre-tax basis from the paychecks of active employees who work for a public school employer. Some states allow employers to pay this contribution on the members' behalf instead, and usually this "pick up" of member contributions results in lower negotiated salaries than would otherwise be demanded.

Employer Contributions:

Participating — Dollars that flow from a school district, independent school, or public school agency with members enrolled in a retirement system. Generally, we refer to these as "district" contributions to distinguish from money paid in by the state, though some state agencies that serve K–12 public schools are also considered "employers."

Non-Participating — Dollars that flow from the state legislature's budget directly into a retirement system, paid on behalf of participating employers. Generally, this is when the state makes a lump sum payment instead of distributing money out to districts and then having them pay the amount back.

Retirement systems are intended to provide income to their members after retiring from public service. Whether those benefits are sufficient to retire comfortably is typically defined via measures of "benefit adequacy."

Pension Plan Benefit Adequacy — Typically measured by looking at "replacement rates" provided by a pension plan (e.g., the percentage of income earned during a teacher's working years that get paid to a pension plan member during their retirement). Adequate replacement rate targets range from 60% to 80% depending on who you ask.

Defined Contribution Plan Benefit Adequacy — Typically measured based on the value of contribution rates flowing into the plan. Adequate rates typically are 10% to 15% for those also enrolled in Social Security, and 15% to 20% for those without Social Security access.
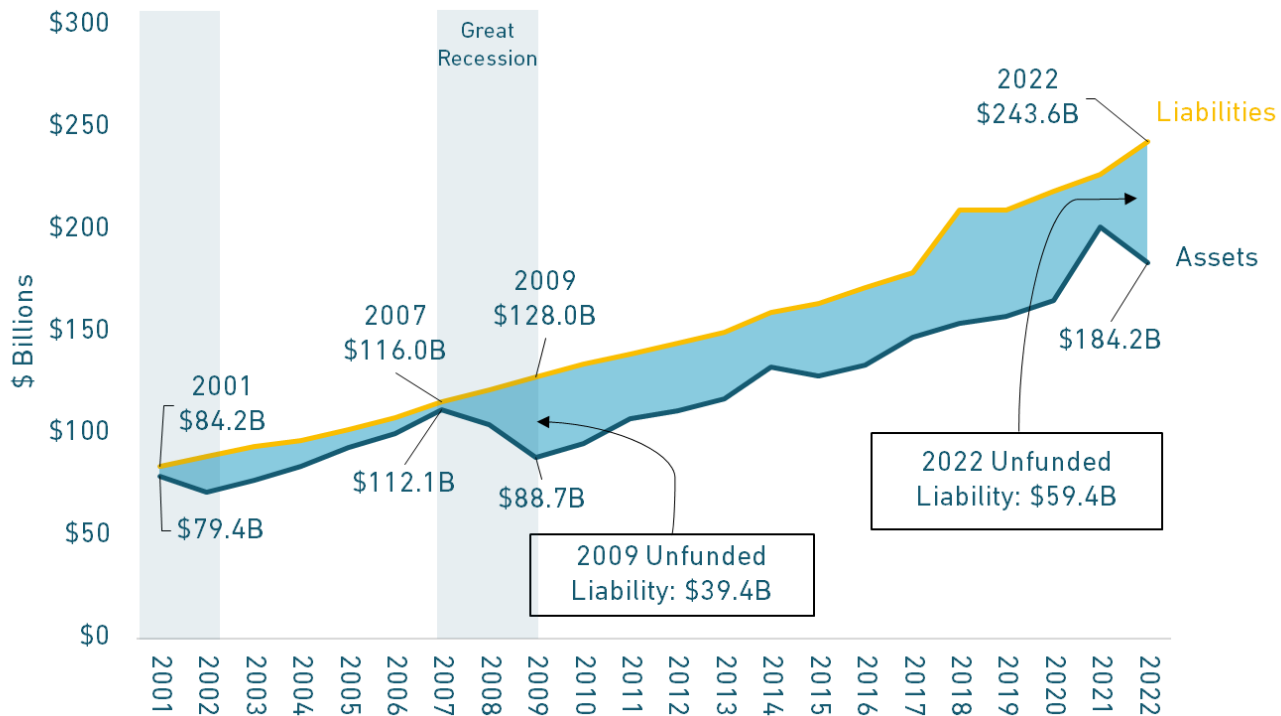
Appendices

Appendix A: What Has Caused Pension Debt Costs to Increase? Growing Unfunded Liabilities

FIGURE A1: TRS'S UNFUNDED LIABILITY HAS EXPANDED TO AT NEARLY $60 BILLION
TRS Market Valued Assets and Actuarially Accrued Liability, 2001–22
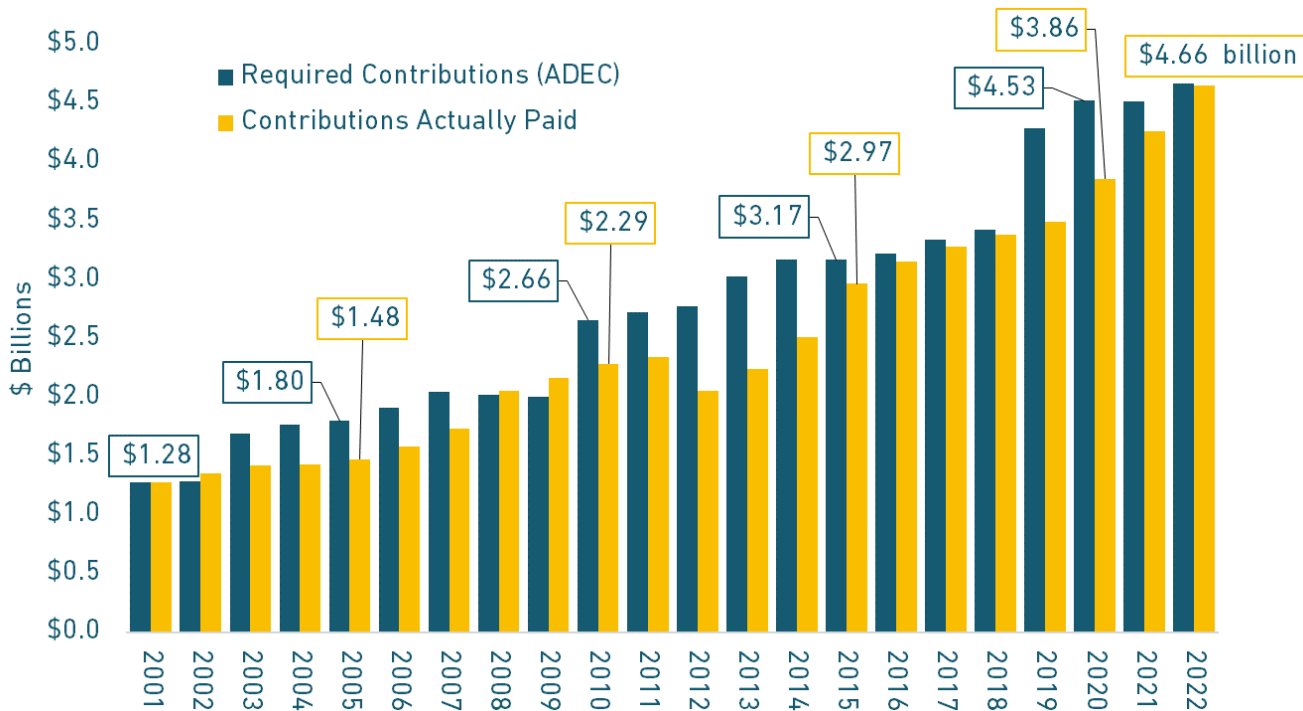

Source: Equable Institute analysis of public plan valuation reports and ACFRs.

Unfunded pension liabilities for Texas TRS expanded steadily between 2001 and 2020, and have swung significantly over the last two years. Unfortunately, TRS was not able to leverage the bull market after the financial crisis to reduce its unfunded liabilities — instead, a combination of underperforming investments and the failure of the legislature to properly fund the pension plan meant increasing unfunded liabilities. Figure A1 shows that TRS was roughly fully funded in 2001. But by 2020, the unfunded liability ballooned to $53.6 billion, and after huge returns in 2021 cut that figure in half, the shortfall jumped back up to $59.4 billion.

Unfortunately, the current reported level of unfunded liabilities is based on an unrealistic 7% investment return assumption. TRS's own "sensitivity" analysis shows that if they used a more realistic 6% assumed rate of return, their level of unfunded liabilities is actually closer to $92.4 billion as of August 2022.[21]

---

[21] Teachers Retirement System of Texas, "Annual Comprehensive Financial Report 2022," November 2022.

FIGURE A2: TEXAS CONSISTENTLY UNDERFUNDED TRS BY HUNDREDS OF MILLIONS OF DOLLARS
*Required (ADEC) and Actual Contributions Paid to TRS, 2001–22*

Source: Equable Institute analysis of public plan valuation reports and ACFRs.

Over the last two decades, Texas continually failed to fully fund the actuarially determined employer contributions (ADEC). As shown in Figure A2, Texas habitually underfunded TRS by hundreds of millions of dollars.

For example, in 2021, the actuarially required contribution from the state and school districts was $4.52 billion — but only $4.26 billion was paid (under the terms of the SB12 contribution rate ramp). That amounts to a shortfall of $257.75 million. And that was a relatively small amount compared to years like 2014 and 2019.

In fact, Texas fully funded TRS only four times between 2001 and 2021. By contrast, nearly 2/3 of the states do have legal requirements to pay actuarially required contributions. The chronic underfunding behavior by the Texas legislature is part of the reason TRS's unfunded liability grew so substantially. Since 2001, shortchanging TRS totals added $6.3 billion to unfunded liabilities.

FIGURE A3: UNFUNDED LIABILITY COSTS WILL CONSUME 71% OF EMPLOYER CONTRIBUTIONS IN 2047
Contribution Rates (Normal Cost and UAAL Payments) 2001–22, Projected 2022–47
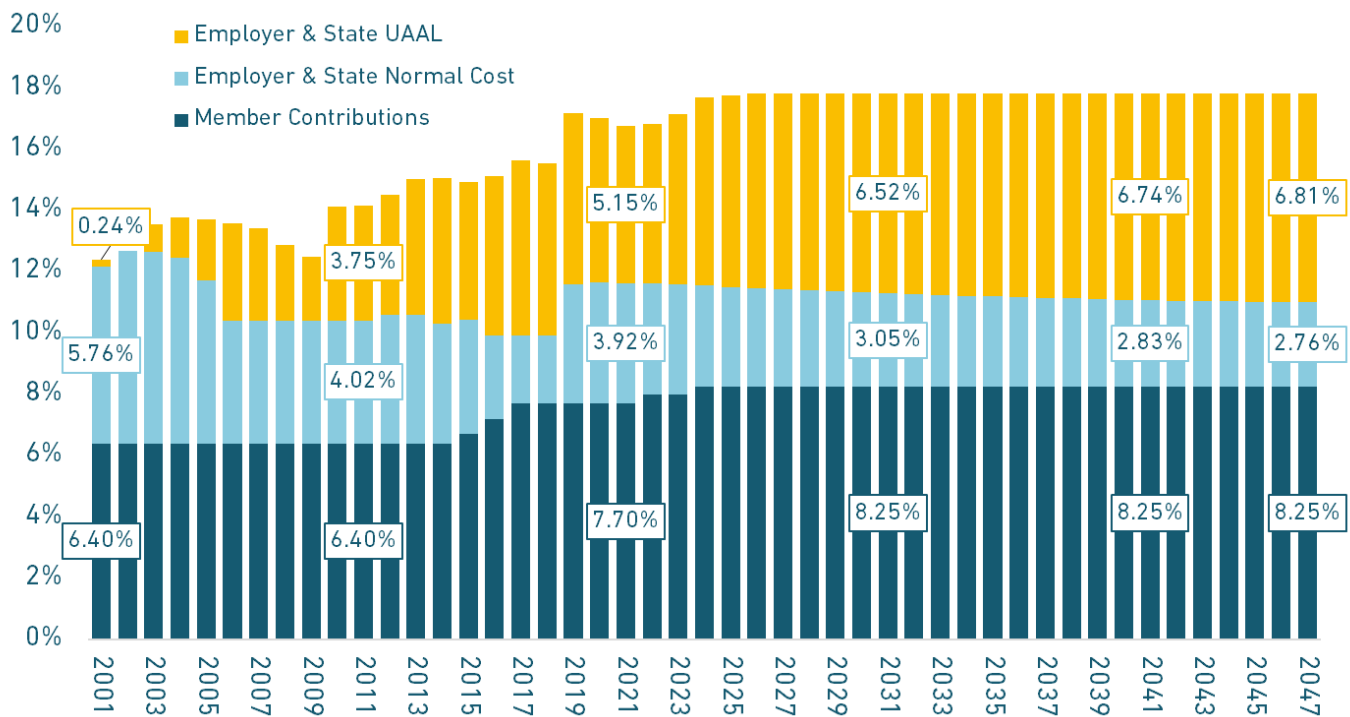
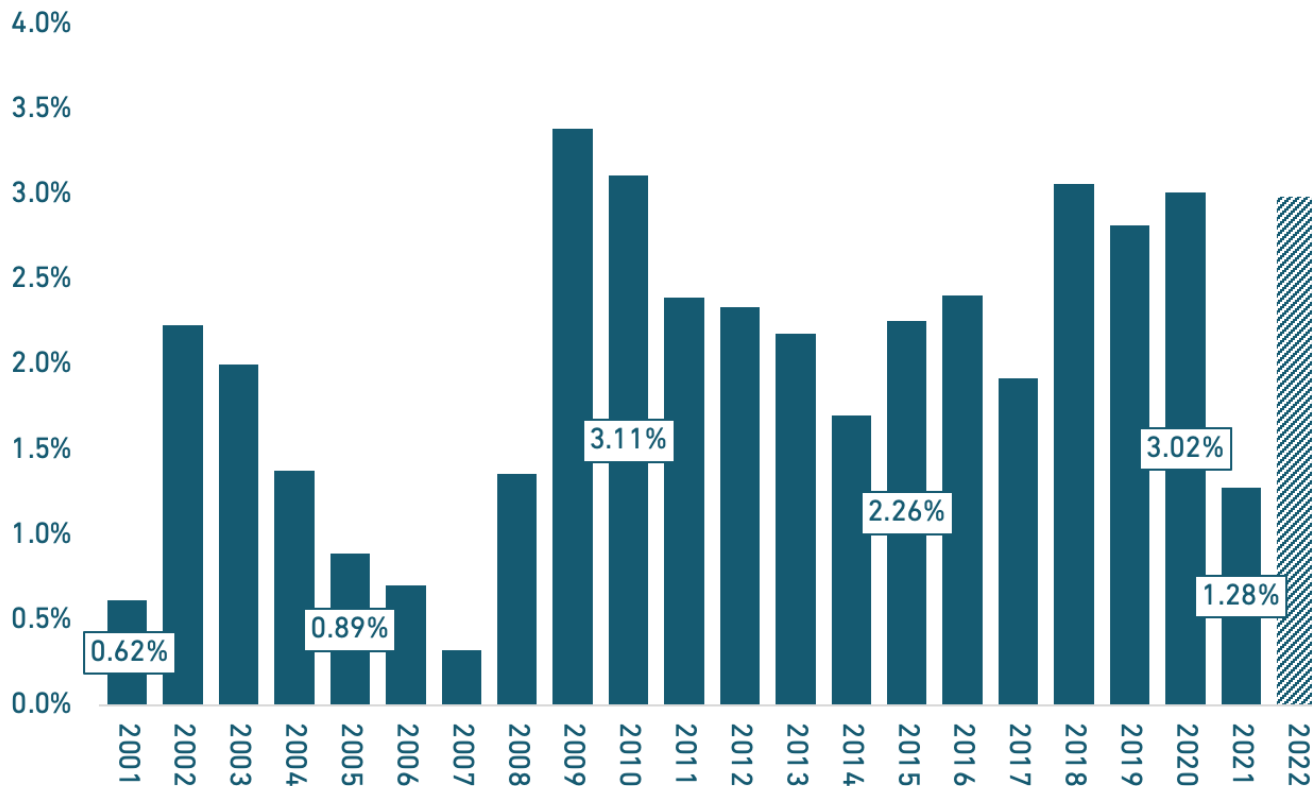Source: Equable Institute analysis of public plan valuation reports and ACFRs.

The increasing unfunded liability prompted higher contribution rates for teachers, school districts and independent schools, as well as for the state. In addition, a greater share of the total employer contribution goes to pay down debts rather than to pay the normal cost of benefits for teachers. As shown in Figure A3, teachers will pay more for the same benefits, while the state and districts pay less and less.

For the fiscal year ending 2022, teachers will contribute 8% of their salaries to fund their retirement benefits while the state and districts will chip in only 3.64%. This is because normal benefit costs are first funded by member dollars, and the member rate will be increasing without a corresponding increase in the value of benefits. The net result is that an increasing share of state and district contributions will go to pay down unfunded liabilities. For example, in 2001 the normal cost of benefits was split fairly evenly between members and employers. But by 2021, teachers paid two-thirds of the normal cost of benefits.

Starting in 2024, teachers will contribute 8.25% of their salary for their pension benefits. Meanwhile, their employers will only pay 3.3% of salary toward the benefits being earned. This trend in employer contributions for benefits will continue to decline through 2047, when teachers will get a mere 2.76% of salary from their employer contributed toward their benefits.

FIGURE A4: TRS'S FUNDING SHORTFALL DROPPED TO LESS THAN 1.5% OF TEXAS'S GDP IN 2021, BUT WILL INCREASE BACK TO NEAR 3.0% IN 2022

Market Valued TRS Unfunded Liability as a Share of Texas GDP, 2001–21

Source: Equable Institute analysis of public plan valuation reports and ACFRs. U.S. Bureau of Economic Analysis, "GDP by State."

TRS's $59.4 billion unfunded liability can feel like a paralyzing amount of debt but considering the sheer size of the state's budget, this number is much less threatening. It can be difficult to understand intuitively if that figure is actually all that large. However, comparing unfunded liabilities to the economic activity in the state gives a helpful sense of scale.

Figure A4 above shows the reported unfunded liabilities each year from 2001 to 2020 as a share of Texas's GDP. Economic data for 2022 aren't available yet, but data from 2021 are helpful as a benchmark.

In 2020, the unfunded teacher pension liability reported by TRS was $53.6 billion, and that was 3.02% of the state's economic output. That reported funding shortfall has dropped considerably due to once-in-a-generation investment returns in 2021, lowering the unfunded liabilities to $25.5 billion, which is only 1.28% of Texas's GDP. However, the investment losses in 2022 resulted in unfunded liabilities climbing back to $59.4 billion, which would be roughly 3% of GDP (using 2021 GDP, the most recent figure available). Then, if we account for using a more realistic investment performance outlook, the real funding shortfall for TRS is valued at around $92.4 billion, which would be around 4.7% of Texas's 2021 economic output.

Fortunately, this percentage is a manageable figure — which means the $59.4 billion unfunded liability should be considered a manageable dollar number. And that means the functional roadblock for fixing Texas's TRS funding is a political issue — does the state want to spend the money necessary to fix the funding shortfall? And to the degree that state leaders want to solve this problem, can they do so in such a way that holds students harmless?
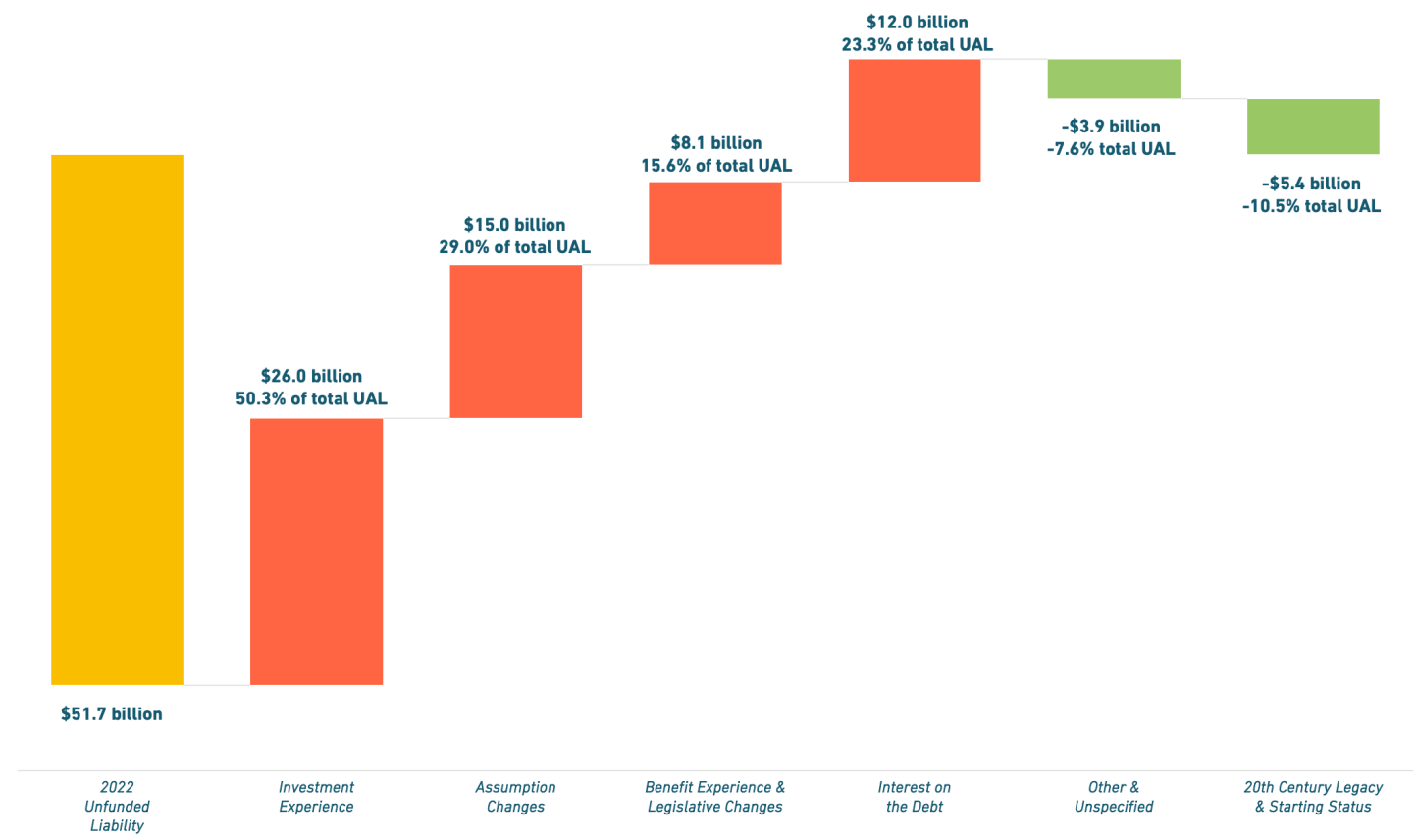
Appendix B: What Has Caused Unfunded Liabilities to Increase? Underperforming Investment Returns.

The main contributor to TRS's unfunded liability over the past few decades has been underperforming assets. This is not to say Texas has experienced large investment losses ever year or even that TRS has made bad investments. While investments have declined in 2022, there were significant gains in 2021. Rather, the actual investment returns *have underperformed* actuarial assumptions. Put another way, the average TRS investment return wasn't good enough to effectively hit the assumed rate of return of 8% that was in place for many years. The underperforming years outweighed to the overperforming years — which eventually led to the TRS board decreasing their investment assumption to 7.25% in 2018.

Figure B1 below breaks out the main factors that contributed to the emergence of unfunded liabilities. TRS reports these data as shares of their "actuarially valued assets" — a metric that accounts for only a portion of asset gains or losses each year. For FY2021, the unfunded actuarial accrued liability was reported at $47.7 billion and this chart shows the various factors to that measurement of the TRS funding shortfall.

FIGURE B1: UNDERPERFORMING INVESTMENTS ACCOUNT FOR 49% OF TRS'S UNFUNDED LIABILITY
TRS's Gains and Losses by Source, 2001–22

2022 Unfunded Liability	Investment Experience	Assumption Changes	Benefit Experience & Legislative Changes	Interest on the Debt	Other & Unspecified	20th Century Legacy & Starting Status

$51.7 billion

$26.0 billion / 50.3% of total UAL — Investment Experience
$15.0 billion / 29.0% of total UAL — Assumption Changes
$8.1 billion / 15.6% of total UAL — Benefit Experience & Legislative Changes
$12.0 billion / 23.3% of total UAL — Interest on the Debt
–$3.9 billion / –7.6% total UAL — Other & Unspecified
–$5.4 billion / –10.5% total UAL — 20th Century Legacy & Starting Status

Source: Equable Institute analysis of public plan valuation reports and ACFRs.

Figure B1 shows the composition of TRS unfunded liabilities, reflected in the far-left yellow column. The elements that have built up to that figure are shown from left to right:

1. **Investment Experience:** Between 2001 and 2022, there were good years and bad years of investment returns, but all added together there was enough underperformance to add $26.0 billion to the TRS unfunded liabilities.
2. **Assumption Changes:** There were several changes to actuarial assumptions to adapt to a changing world and improve accuracy, and these have meant recognizing an additional $15 billion in pension debt.
3. **Benefit Experience:** In the early 2000s, the legislature enhanced benefits a few times, which increased unfunded liabilities $8.1 billion.
4. **Interest on the Debt:** And because the state hasn't always paid the actuarially required contribution, there has been $12 billion in interest that's accrued on the pension debt that has yet to be paid down.
5. **Other:** Fortunately, some demographic factors and other elements have helped reduce unfunded liabilities by $3.9 billion. And in 2001, TRS was starting with a surplus of $5.3 billion.

So, the net effect of all these factors works out to $51.7 billion in actuarially valued unfunded liabilities.

Over the next few years, the investment experience share of the unfunded liability will change as additional investment gains in 2021 and investment losses in 2022 are recognized for accounting purposes. Summary data reported by TRS in late 2022 shows that the pension plan underperformed on investments by $2.4 billion and added $200 million in interest on the existing pension debt. Plus, the difference between market valued unfunded liabilities and actuarially valued unfunded liabilities in 2022 is nearly $10 billion, all of which will need be reflected in the gain/loss analysis of Figure B1 over the coming four years.

In an effort to achieve their assumed investment returns, TRS has shifted its investing strategy into riskier asset classes. Figure B2 below shows that since 2001, when TRS was in surplus, the share of the plan's assets allocated to alternatives has increased dramatically from 1.8% to 50.7%. Alternative assets include investments in real estate, private equity, and hedge funds, among other asset classes. These investments are high risk, high reward, but they also come with higher volatility.

FIGURE B2: RISKY AND NONTRANSPARENT ASSET CLASSES (AKA ALTERNATIVES) COMPRISE THE PLURALITY OF TRS INVESTMENTS

Texas TRS's Asset Allocation, 2001–22
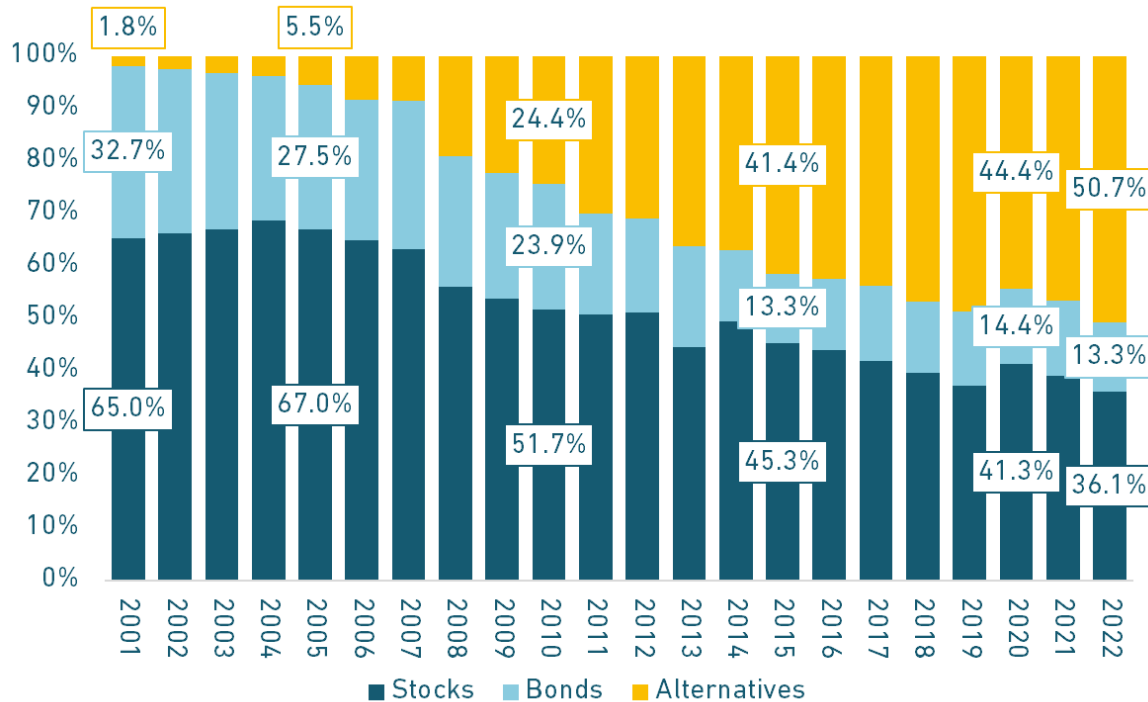
Source: Equable Institute analysis of public plan valuation reports and ACFRs.

The failure of the state legislature to directly invest in TRS and pay down the debt directly is pushing Texas's teacher pension system into making these riskier investments. This strategy makes TRS increasingly susceptible to market volatility. Making riskier investments to pay a larger and larger bill raises the likelihood of another down year, as alternative investments can have higher returns, but can also lead to larger losses. Without a substantial change in state-level fiscal policy, this pattern will likely continue, digging TRS more deeply into debt.

Appendix C: Texas's Hidden Education Funding Cuts, A Detailed State & Local Breakdown

In Texas, teacher pension costs have been increasing steadily over the past two decades, cutting into the funds available for other education spending priorities. In this appendix, we present a breakdown these varying levels showing the different ways to look at hidden education funding cuts.

Figure C1 below shows the costs of TRS retirement benefits growing as a share of state plus local K–12 spending. (Note: since Federal dollars are largely narrowly prescribed and not used for normal staffing uses, they are removed from this analysis.)

FIGURE C1: TEXAS PUBLIC SCHOOL RETIREMENT COSTS ARE CONSUMING A GREATER SHARE OF K–12 EDUCATION SPENDING, ESPECIALLY SINCE 2012

Actual State + Employer TRS Contributions as a Share of Total K–12 Spending, 2001–2020
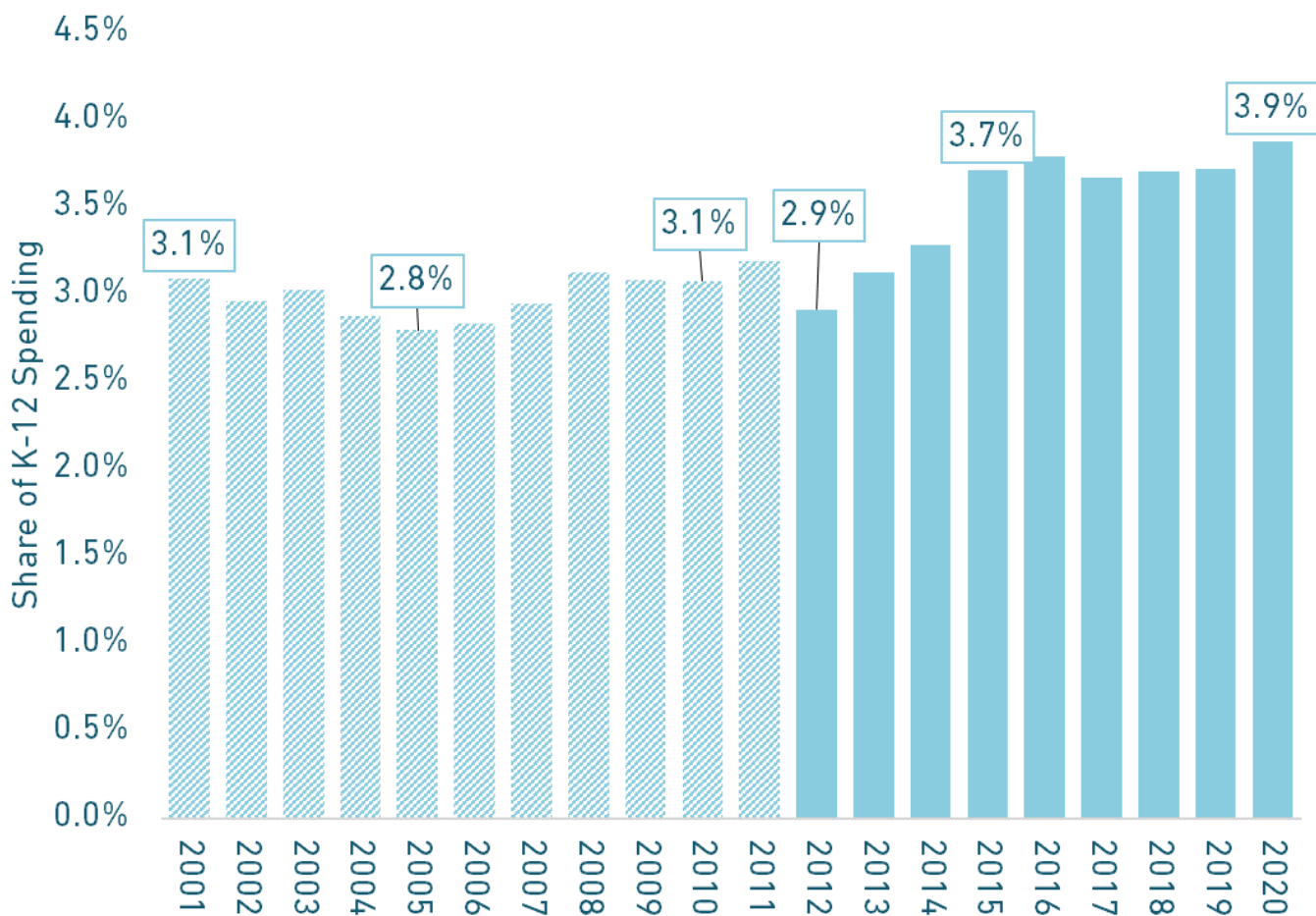
Source: Equable Institute analysis of public plan valuation reports and ACFRs. These figures are based on expenditures data adjusted for inflation. Note: Employer contributions includes both state and employer spending.

FIGURE C2: TEXAS TRS CONSUMES A GREATER SHARE OF <u>STATE</u> EDUCATION SPENDING
Actual State Contributions to TRS
as a Share of State K–12 Spending, 2001–2020

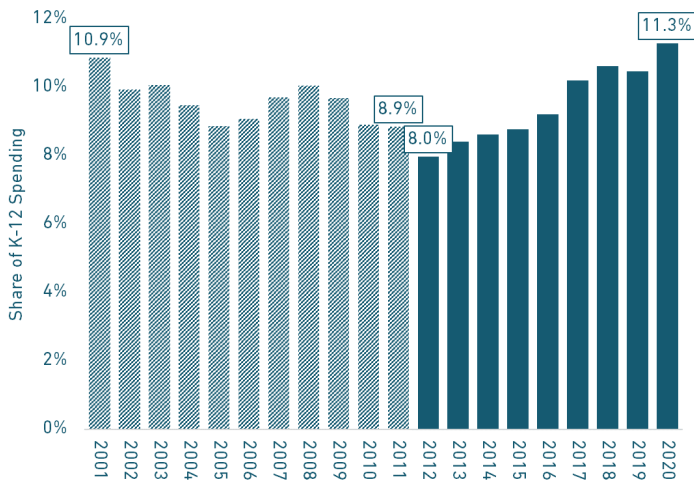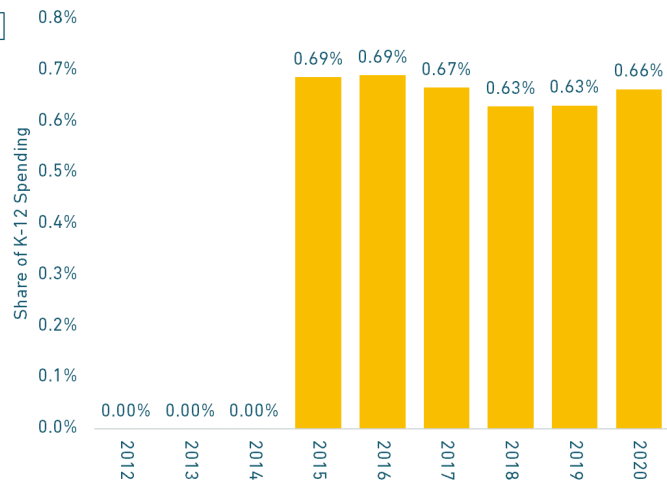## FIGURE C5: TEXAS TRS CONSUMES A GREATER SHARE OF <u>LOCAL</u> EDUCATION SPENDING
Actual State + Local Contributions to TRS
as a Share of State + Local K–12 Spending, 2001–2020

Source: Equable Institute analysis of public plan valuation reports and ACFRs. These figures are based on expenditures data adjusted for inflation. Note: the scale of the Y-axis differs between these two graphs to improve readability.

These figures can be broken down by what share of state education spending is going toward retirement costs, and what share of local employer budgets are being rerouted to TRS too. Figure C2 shows that from 2001, to 2020 the share of state education funding going to pensions only grew slightly overall, increasing from, from 10.9% to 11.3%. However, this increase masks how the share actually declined from 2001 to 2012, when the share was as low as 8.0%. This is because state investments in K–12 education stalled, growing a mere 3.9% over those seven years from 2012 onward. Conversely, state pension spending increased 47.1% over that same period. By 2020, TRS contributions were consuming 11.3% of the state's K–12 spending.

Pension costs are also a larger share of local school employer budgets, too. Figure C3 shows how districts did not contribute to TRS until 2015, at which point they have paid between 0.63% and 0.69% of local education funding each year. Of note, the share of district spending going to TRS actually declined slightly from 2015 to 2020, as local education spending has increased to nearly $69.5 billion (up from $50.2 billion in 2015) while pension contributions have only increased to $485.9 million (up from $392.6 million in 2015).

Appendix D: Teacher Pension Benefit Structure in Texas

It is important to note that the high costs of teacher retirement benefits in Texas are not due to lavish benefit levels. As previously shown in the appendices for this paper, the driving factor for costs are unfunded liability payments. And unfunded liabilities have been primarily caused by underperforming investments.

In fact, the benefits for teachers in Texas are not universally putting educators on a path to retirement income security. Those who work their full career teaching in Texas are likely to end up with a good benefit (albeit one that won't be adjusted for inflation), but that is not the case for most teachers. Less than 50% in TK new educators is expected to vest in retirement benefits, and just 17% are expected to make it all the way to Texas TRS normal retirement age.

In effect, there are two classes of public school employees in Texas — those for whom retirement benefits are working and those for whom they are not. The current system benefits long-term workers, administrators who earn large salaries, and wealth school districts that pay teachers above average salaries. Those who are losing out in the status quo include new teachers (who are enrolled in less valuable benefits and have a lower probability of working a full career than those hired in the 20th century), teachers who will spend less than 20 years teaching in Texas, and teachers who do not vest in Texas TRS.

The following pages break down how TRS benefits are structured. And the following Appendix E provides an evaluation of the quality of benefits relative to a retirement income adequacy benchmark.

Moreover, none of the analysis thus far even accounts for how higher pension costs will have put pressure on some districts to reduce their ability to give teachers raises. Which in turn will mean lower valued retirement benefits earned. Higher pension contribution rates have eaten away at wage growth for teachers—and that's before considering the effects of other rising costs, like health care and special education. The erosion of teacher salaries by rising pension spending is likely felt unevenly across the state. For instance, lower wealth districts may not have been able to raise teacher salaries as much as the average district in Texas. Yet teachers in those districts still must pay the higher teacher pension contribution rates.

PLAN STRUCTURE

Texas TRS is a salary-based Defined Benefit retirement plan, typically called a "pension." As with many states, Texas's teacher pension system has different tiers based on a teacher's hire date.[22] The current tier of TRS applies to those educators hired on or after September 1, 2007. All new hires join this version of the plan.

In 2022, teachers contributed 8.0% of their salary to the pension fund. The employer — both the state and the teacher's school district — contributed another 8.82% of payroll. In total, 16.82% of teacher payroll was contributed to TRS in 2022. This full breakout is shown in Figure D1. Due to increased contributions enacted by SB12 passed in 2019, teachers will pay more for their retirement benefits in the coming years, as detailed in Figure 9 in Section 4.

---

[22] Teacher Retirement System of Texas, TRS Benefits Handbook, January 2018.

FIGURE A1: TEACHERS PAY THE MAJORITY OF THE COST OF THEIR RETIREMENT BENEFITS
*Member and Employer Contribution Rates, 2022*
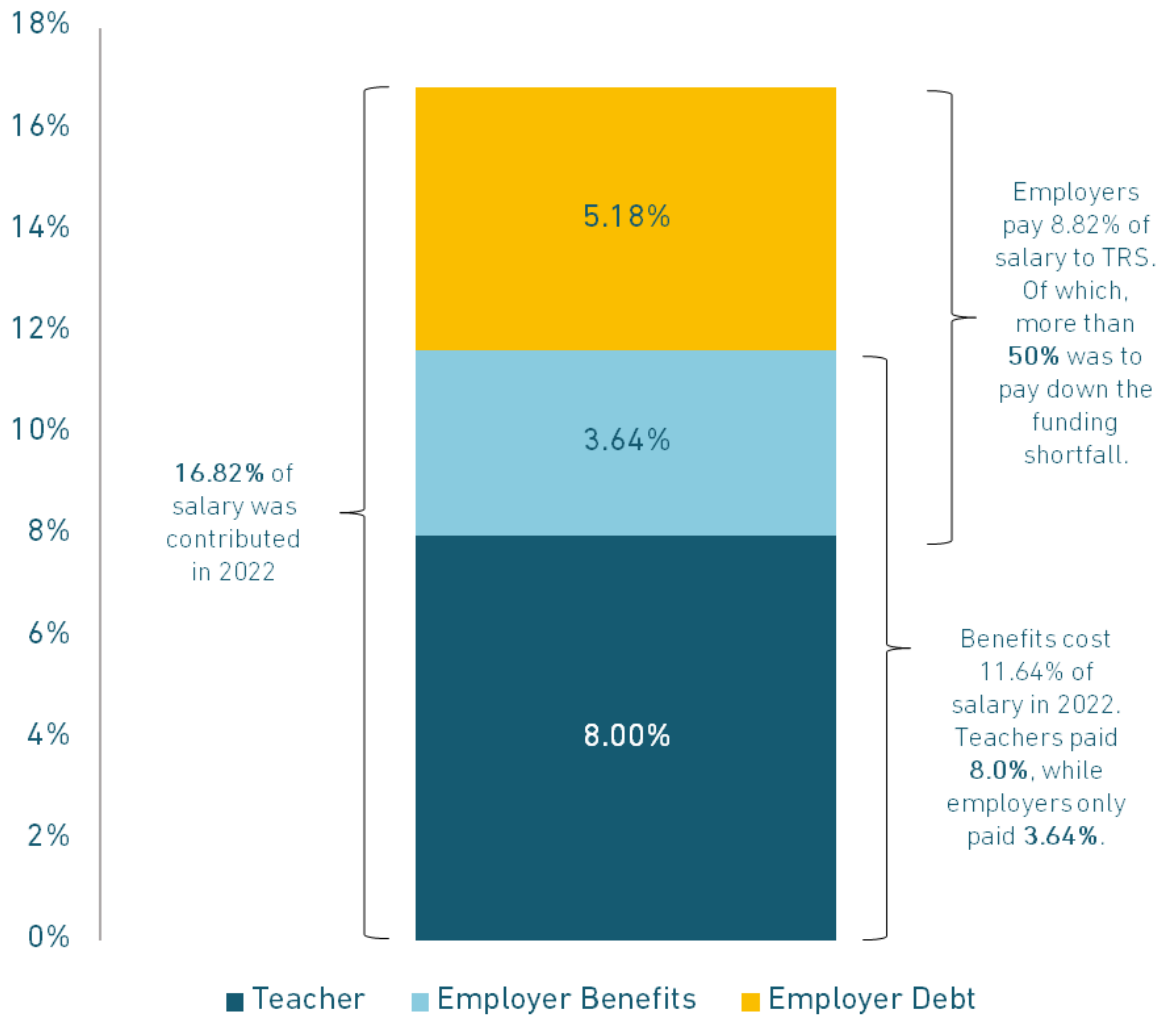
Source: GRS Consulting, "Actuarial Valuation Report," Teacher Retirement System of Texas, August 31, 2021.

A key feature of salary-based Defined Benefit pension is that the retirement income guaranteed to members is based on a formula that considers years of service and average salary. This is unlike many other retirement plan designs where retirement income is related to contributions and investments. While contributions are necessary to provide money to pay out promised benefits, what teachers put in does not directly relate with what they will get out of the system. The formula used to calculate benefits is shown in Figure D2 (next page).

If teachers vest in their benefits (see section on vesting below), their years of service are multiplied by 2.3% (the "multiplier"), and this number is used to measure the percentage of highest average salary (the average of the three highest consecutive years of salary).

FIGURE A2: TRS BENEFIT FORMULA

YOS x **2.3%** x **3 Yr. Ave**

Years of Service | Multiplier, Number in % that the YOS are multiplied by | Highest Average Salary
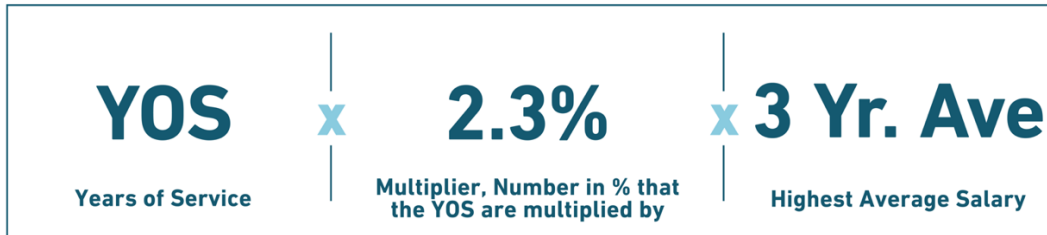
VESTING

Not every teacher in Texas qualifies for a pension. Educators must serve at least five years before they "vest" in the system and are eligible for a pension. Unfortunately, only 54.3% of new teachers are expected to reach that mark according to TRS's own actuarial assumptions.[23] In addition to failing to qualify for a pension, educators who either leave the profession or the state before five years of service are eligible only for their own contributions, plus a 2% crediting interest rate.[24] That is a poor return on their investment. It is far less than even conservative estimates of what a teacher could yield investing in the market. In fact, it is even lower than TRS's assumed annual inflation rate of 2.3%.[25]

NORMAL RETIREMENT

In Texas, a teacher may retire with full benefits at age 65 with at least 5 years of service, or at age 60 with at least 20 years of service. A teacher who worked 25 years and retired with a final average salary of $90,000 would qualify for a pension worth $51,750 per year, or 57.5% of the salary. Unless the individual worked in one of the few Texas schools that participates in Social Security, they would not have additional income from Social Security.

On its own, this replacement rate would be considered inadequate retirement income by almost any financial expert. As a general rule, financial experts recommend final salary replacement rates of 70% or higher.[26] For most people, this replacement rate target includes Social Security income. Additionally, personal savings beyond an employer-sponsored retirement plan can build toward that replacement rate target. In Texas, a new teacher would need to work more than 30 years to cross that threshold and qualify for a pension benefit that will provide sufficient income in retirement.

Unfortunately, the majority of Texan educators do not spend their entire professional life in a Texas classroom. According to TRS's own assumptions, only 19.6% of educators will serve at least 30 years.[27] This means that for 80.4% of teachers, TRS will not provide an adequate retirement benefit.

---

[23] GRS Consulting, "Actuarial Valuation Report," Teacher Retirement System of Texas, August 31, 2020.
[24] Texas State Statute, Chapter 825, Section 307, Subsection (b).
[25] Ibid.
[26] Jonathan Moody and Anthony Randazzo, "Retirement Security Report," Equable Institute, 2021.
[27] Ibid.

COST-OF-LIVING ADJUSTMENTS

TRS does not include an annual, automatic COLA to ensure that benefits keep pace with inflation. Instead, the state offers COLAs on an ad hoc basis. The Texas legislature authorized a "13th check" of $2,400 for TRS members who retired before the end of 2021.[28] Despite this payment (which mirrored a similar provision adopted in 2019), ad hoc COLAs are unreliable and permit a teacher's benefit to be eaten away gradually, year after year by inflation. In fact, since 2001, only one COLA has been authorized to permanently adjust benefit values, an increase adopted in 2013 but was only applicable to those who retired before 2004.

SOCIAL SECURITY

Social Security replaces approximately 40% of a teacher's salary in retirement, depending on how much they earned during their career and outside of public service. Only a small number of school districts in Texas participate in Social Security, though, meaning the majority of Texas TRS members are not enrolled in the federal retirement program. Austin ISD and San Antonio ISD are the two largest districts that participate in Social Security, with a few dozen other small districts that also participate (though some of these only enroll non-classroom employees).

Without Social Security, the vast majority of teachers are wholly dependent on TRS to provide sufficient benefits in retirement — but remember that even TRS does not expect most teachers to remain long enough to earn those benefits.

---

[28] Relating to a One-Time Supplemental Payment of Benefits Under the Teacher Retirement System of Texas, SB7, 87th Legislature, 2021.

Appendix E: Retirement Security Report, Texas TRS Analyses

In Equable Institute's "Retirement Security Report," the benefits provided through TRS are scored across a wide range of variables to determine the quality of the benefit provided though Texas's teacher pension programs.[29] Given that the quality of a retirement benefit varies by employee tenure, we assessed how well TRS works for members at three stages in their career: Short-Term Worker (10 years or less), Medium-Term Worker (10 to 20 years), Full-Career Worker (retires at normal retirement age). We evaluated both the default Defined Contribution plan (known as the Florida Investment Plan) and Defined Benefit Pension Plan.

Figure E1 below details our overall evaluation of the quality of benefits provided by TRS, as well as the caliber of benefits provided to workers based on tenure. Figures E2 to E3 show a forecast of benefit values at different career stages compared to an adequacy threshold target of 70% replacement rate. The graphs model the salary replacement rate of the benefits provided by TRS compared with a minimum standard of 70%. Since the age a teacher enters the system matters for the quality of their benefit, we modeled the replacement rates for a 25-year-old entrant and a 40-year-old entrant.

A complete discussion of how variables are scored is available in the "Retirement Security Report."[30]

---

[29] Jonathan Moody and Anthony Randazzo, "Retirement Security Report," Equable Institute, 2021.
[30] Ibid.

FIGURE E1: DISTRIBUTION OF RETIREMENT SECURITY REPORT SCORES

	AVERAGE FOR ALL WORKERS	SHORT TERM WORKERS >10 YEARS OF SERVICE	MEDIUM TERM 10-20 YEARS OF SERVICE	FULL CAREER <20 YEARS OF SERVICE
TOTAL SCORE	39.5%	30.2%	34.1%	54.2%
WHO IS SERVED	Does not serve all members well	Does not serve all members well	Does not serve all members well	Serves members moderately well

|	SHORT TERM WORKERS >10 YEARS OF SERVICE	MEDIUM TERM 10-20 YEARS OF SERVICE	FULL CAREER <20 YEARS OF SERVICE
Eligibility: Vesting	3 out of 5 points	Not Applicable	Not Applicable
Income Adequacy: Benefit Value – 25 Y/o Entrant	1 out of 15 points	3 out of 15 points	14 out of 25 points
Income Adequacy: Benefit Value – 40 Y/o Entrant	3 out of 15 points	7 out of 15 points	17 out of 25 points
Income Adequacy: COLA Policy	Not Applicable	1 out of 5 points	1 out of 5 points
COLA Policy Terms		Ad Hoc	Ad Hoc
Flexibility & Mobility: Refunding Policy	2 out of 5 points	2 out of 5 points	Not Applicable
Policy Terms	All member contributions refunded with interest	All member contributions refunded with interest	
Flexibility & Mobility: Interest Rate Credited When Leaving Early	2 out of 5 points	2 out of 5 points	Not Applicable
Crediting Rate	2%	2%	

For more details see Texas TRS complete Retirement Security Score for each type of worker available for download at: http://retirementsecurity.report/.

FIGURE E2: TRS BENEFITS FALL SHORT OF REACHING A 70% REPLACEMENT RATE TARGET FOR ADEQUATE RETIREMENT INCOME AT ALL STAGES OF A MEMBER'S CAREER
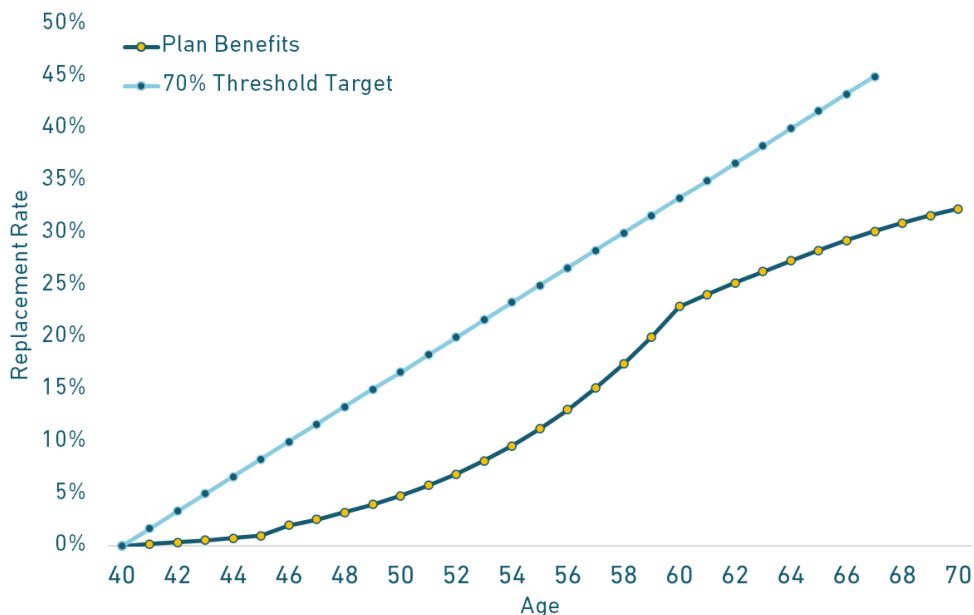
Adequacy of TRS Benefits for a 25-Year-Old Entrant
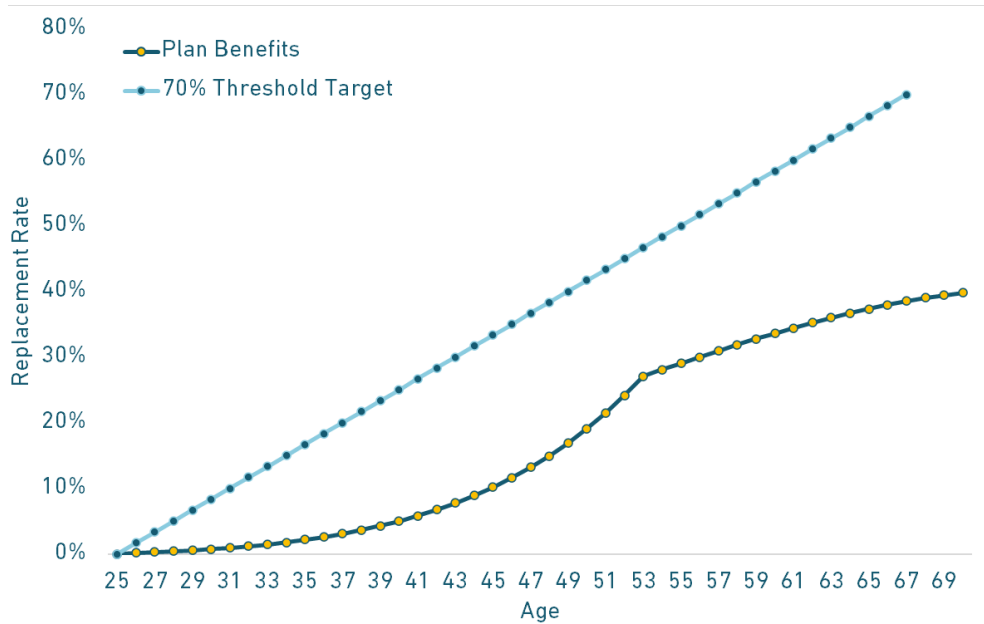
Source: Jonathan Moody and Anthony Randazzo, "Retirement Security Report," Equable Institute, 2021.

FIGURE E3: TRS BENEFITS ARE SLIGHTLY BETTER FOR MID-CAREER ENTRANTS, BUT STILL FALL SHORT OF A 70% REPLACEMENT RATE TARGET AT ALL STAGES OF A MEMBER'S CAREER

Adequacy of TRS Benefits for a 40-Year-Old Entrant

Source: Jonathan Moody and Anthony Randazzo, "Retirement Security Report," Equable Institute, 2021.