How a Pandemic-Era Surge in Tax Collections Drove a Revenue Wave—and What It Means for Future State Budgets

Revenue growth over three years outpaced earlier trends and fueled new spending, but has since pulled back

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Overview

When the COVID-19 pandemic ground the economy to a near-halt in spring 2020, states scrambled to adjust to an anticipated multiyear decline with drastic spending cuts and revised revenue projections. But fears of a debilitating recession were short-lived thanks, in part, to billions of dollars in aid from the federal government. Instead of extended shortfalls, from

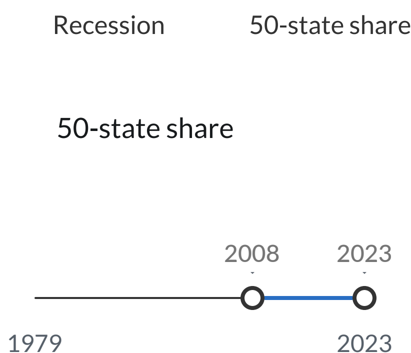
mid-2020 through the end of 2022, states experienced an unprecedented revenue wave. Collections recovered faster and at a sharper rate than states had projected in 2020 and continued to grow at historic rates, and lawmakers in many states have used the new revenue to boost reserves, pay down debt, and implement tax cuts and spending initiatives.[1]

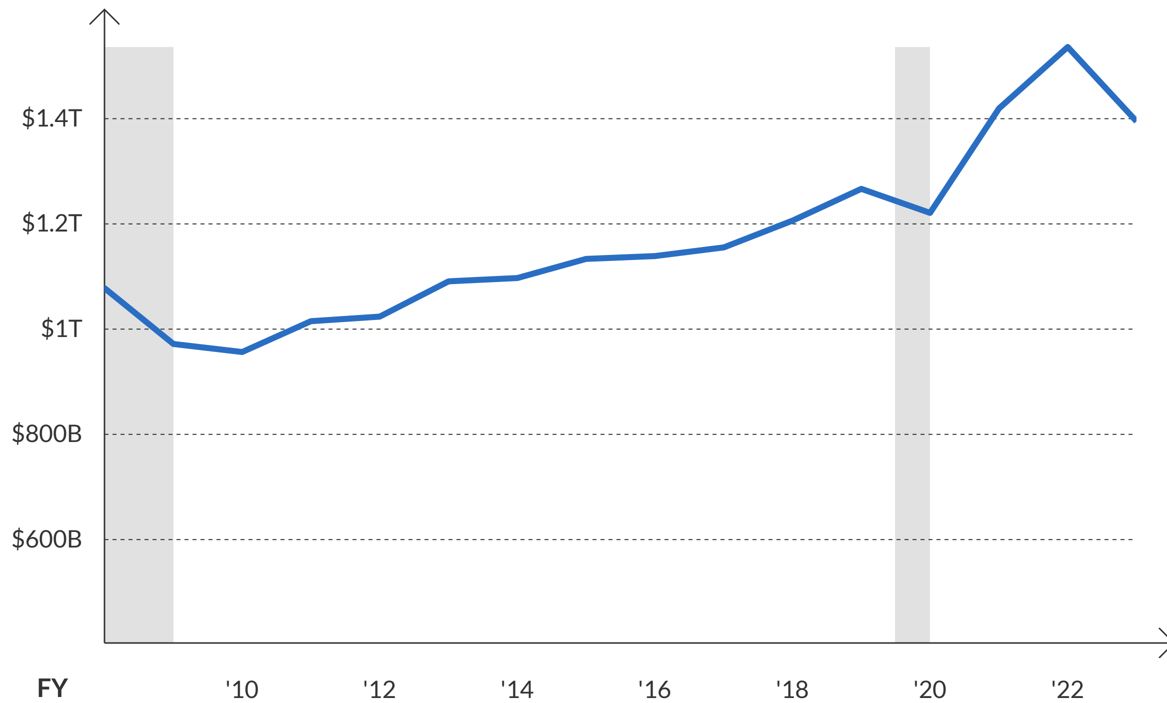
However, the surge in collections did not last. Annual inflation-adjusted state tax revenue fell in fiscal year 2023 from the prior year—the only time in at least 40 years that real revenue has declined outside of a recession. More than three dozen states saw their revenue shrink, including a steep decline in California that drove the breaking of the wave, and in fiscal 2024, at least five states reported shortfalls.[2] Although policymakers prepared for these declines by prioritizing nonrecurring expenditures and one-time tax cuts over long-term commitments, they still need to better understand what portion of pandemic-era growth was transient or may now be in jeopardy amid these downward trends.

The Pew Charitable Trusts set out to provide better clarity on this issue by examining the magnitude of the revenue wave states experienced. Pew looked at above-trend tax revenue collections nationally and in each state, as well as how states allocated the increased resources and how policymakers considered the long-term sustainability of revenue conditions. For this analysis, researchers compared tax revenue collected from 2020 through the third quarter of 2023 with pre-pandemic trends in each state and conducted interviews with a variety of state fiscal officials throughout the country.

After 2 Years of Historic Growth, State Tax Revenue Fell by More Than 9% in 2023—the Only Nonrecession Drop in 40 Years

State tax revenue collections, 1979-2023





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Note: Tax revenue data represents annual fiscal year collections and is adjusted for inflation to 2023 dollars. Gray areas denote recessionary periods.

Sources: Pew analysis of data from the Urban Institute and U.S. Census Bureau

Key findings

This analysis contextualizes recent revenue growth patterns within historic trends and is intended to complement more common approaches that states use to consider whether revenue collections are sustainable, such as the forward-looking analyses that typically underpin long-term budget assessments and budget stress tests. Pew's analysis also adds a long-term lens to the picture and demonstrates ways states can better understand and manage revenue growth spurts in this context. See Appendix for detailed methodology.

Pew's examination of the revenue wave found that:

- **Approximately 38% of tax revenue growth over three years—or $152 billion—exceeded pre-pandemic growth trends and may have been temporary in nature.** From calendar year 2020 through 2022, 35 states collected more tax revenue than they were on pace for based on pre-pandemic growth trends. The portion of new growth that was above trend varied widely across states, ranging from more than 90% in Mississippi and New Mexico to less than 20% in Pennsylvania and Virginia. States with a higher portion

of above-trend revenue benefited from having a greater influx of new funds, but they also deviated more from their pre-pandemic trends and thus had a higher risk of seeing those new funds disappear.

- **Cumulative collections in 15 states performed below their pre-pandemic trend line during the revenue wave, though most of them still had positive revenue gains after the brief recession.** The states that underperformed compared with their pre-COVID-19 growth trends did so for a variety of reasons, and they should consider the possibility that inflation may have masked relatively tepid revenue growth. The breaking of the revenue wave may signal future fiscal strain for these states.
- **Infusions of federal aid during the pandemic and new state-level tax cuts complicated states' efforts to identify temporary tax revenue.** States received more than $800 billion from the federal government to help combat the pandemic's negative economic impacts.[3] Individuals also received stimulus funds that temporarily bolstered consumer spending and associated sales tax revenue. As the increased aid helped lift the economy, 48 states passed tax cuts or one-time rebates.[4] Both the record-setting level of federal aid and the sheer volume of tax relief ultimately hindered states' ability to identify the full scope of the revenue wave.
- **The new pace of growth was not sustainable and revenue collections have subsided.** In early 2023, the revenue wave crested. Now, in fiscal 2025 and looking ahead, budget pressures are increasing as revenue begins to dip below pre-pandemic trends. If states do not have a way to identify how much of their tax revenue is temporary, fissures created during the pandemic will continue to grow.
- **Although policymakers understood that the revenue wave was temporary, states' practices for measuring potentially one-time revenue vary and formal adoption of leading practices is limited.** States can better understand revenue swings by creating formal definitions of above-trend revenue and recording what portion of revenue may be temporary versus ongoing in official estimates and budget documents. Forward-looking analytical tools such as long-term budget assessments also allow states to estimate the revenue outlook and can help them determine what level of collections are sustainable for the future.[5]

What was the revenue wave?

Back-to-back years of historic growth in fiscal 2021 and 2022 brought state tax revenue to record highs and—more significantly—pushed collections well above their pre-pandemic trajectory. This surge, combined with unprecedented federal assistance, was central to a brief but extraordinary chapter in state finances defined by widespread budget surpluses and

record growth in reserve levels.[6] In response, state leaders jumped at the opportunity to deploy their windfalls for long-deferred priorities, such as phased-in tax cuts, taxpayer rebates, increased spending on children and families, and higher worker wages.[7]

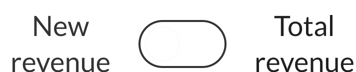
Despite the enthusiasm, no one expected the revenue wave to last forever. The federal pandemic stimulus had explicit start and end dates, as well as limitations on its use, and the double-digit boost in state tax collections was built largely on temporary factors, including the indirect effects of federal aid to businesses and unemployed workers, federal stimulus payments to individuals, a shift in consumer spending patterns, and record-breaking stock market gains.[8] For some state officials whom Pew interviewed, the experience brought to mind the financial crisis that triggered the 2007-09 Great Recession and the difficult budgeting years that followed. And some described a looming sense that the pandemic-era growth was not sustainable and that gains would eventually normalize, but with little consensus around when that normalization was likely to occur.

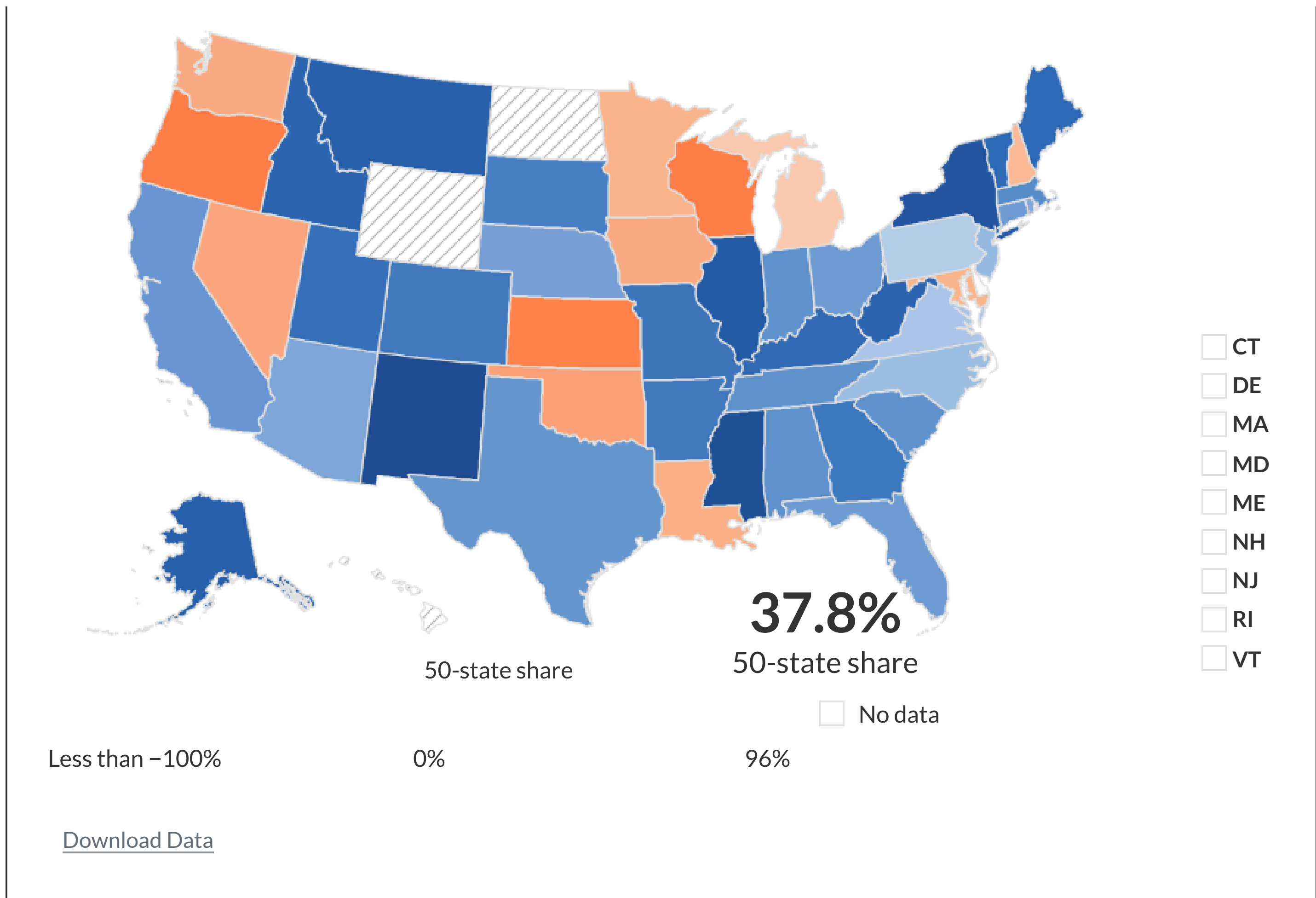
But as of mid-2024, after more than a year of quarterly inflation-adjusted tax revenue declines, the pandemic-era surge had clearly ended. By fall 2023, most states were reporting real revenue declines compared with the prior year, and lawmakers in at least five states had budget shortfalls to close during the 2024 legislative session. As states enter this new chapter, policymakers are facing difficult questions: For how long will revenue drop or stagnate? Do tax cuts or spending increases enacted in recent years rely on growth that may not materialize? What will sustainable growth look like going forward?

Understanding and forecasting revenue growth rates in the current climate is made more difficult by the wind down of federal pandemic aid, inflation and other lingering economic uncertainties, and the ongoing impact of recent tax policy changes. By making a regular practice of distinguishing between temporary and recurring revenue and by taking the long view on the budgeting cycle, state lawmakers can more confidently budget for policy changes even during volatile economic times.

More Than a Third of New Tax Revenue Over 3 Years Exceeded Pre-Pandemic Trends

Difference from trend as a percentage of new revenue, 2020-22





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Note: "Below-trend revenue" refers to the gap between a state's revenue collections and the pre-pandemic trend line, as all revenue that falls below the trend line is inherently "below-trend revenue." Hawaii, North Dakota, and Wyoming are excluded because their revenue collections during the study period fell short of their baselines.

Sources: Pew analysis of data from the Urban Institute and U.S. Census Bureau

The size and impact of the revenue wave

Pew's analysis shows that 35 states collected more in tax revenue from 2020 to 2022 than they would have if their pre-pandemic growth trend had continued.

Nationwide effects

Quarterly 50-state revenue growth slowed at the onset of the pandemic in March 2020 and then plummeted by more than $101 billion during the second quarter of that year as the economy sank into a recession. But following that dive, 50-state revenue growth not only rebounded but proceeded to outpace the five-year pre-pandemic trend line for 10 straight quarters.

Although the shift from the largest quarterly decline in more than 50 years to the biggest increase initially reads as a shocking recovery, the historic volatility between April and September 2020 was actually somewhat artificial, driven mainly by a shift in the federal tax deadline that significantly affected collections. By the time the wave peaked at the end of 2022, states had collected nearly $500 billion more in revenue than they would have had revenue growth remained at the 2019 baseline.

The combination of steep declines followed by rapid increases resulted in total inflation-adjusted state revenue growing by $403.6 billion from the start of 2020 through the fourth quarter of 2022, nearly 40% higher than what states would have collected had they simply maintained their five-year growth rates over that span. In other words, in just three years, states experienced revenue growth that, had pre-pandemic trends held, would have taken five years.

State-level effects

The degree of divergence from pre-pandemic trends varied widely by state. The size and speed of revenue declines and rebounds were influenced by a combination of each state's economic makeup, pre-pandemic growth trends, share of jobs that could be performed remotely, reliance on certain types of tax revenue, tax policy changes, COVID-19 caseloads, and public health restrictions. On one end, nearly all (95%) of New Mexico's new revenue during the wave was above trend, followed by 91% in Mississippi. At the other end, Hawaii saw a cumulative decline in revenue during the period, meaning its collections were not only below trend, but also below the state's 2019 baseline—resulting in a deviation from pre-pandemic trends six times the size of its losses over the time span. (See Table B.1 for additional information.) The only other states with collections more than 100% below trend were Wisconsin (200% lower, or a third of what it was previously on track to collect) and Oregon (103% lower, or just over half of what it had been on track for).

States with a larger percentage of new revenue that was above trend during the wave had a greater influx of tax growth compared with states that cleaved more closely to or fell below their trend lines. But all that growth also comes with added risk. The more above-trend revenue a state collected, the more revenue that state is in danger of losing as collections return to and eventually dip below the trend line.

However, the portion of new revenue collected above trend is not the only factor states should consider when assessing the impact of the end of the wave. They also need to account for the strength of their pre-pandemic revenue growth trends. For example, the portions of New Mexico's and Mississippi's new growth that came in above trend during the wave were

similar at 95% and 91%, respectively. But because New Mexico's revenue growth rate before the pandemic was much faster than Mississippi's, the amount of the total collections during the wave that was above trend in New Mexico represents a larger percentage of the state's overall tax revenue—20%—versus just 6% in Mississippi. New Mexico's stronger pre-pandemic position meant that, compared with Mississippi, it was at risk of losing a greater portion of its total collections as the wave receded. Other state highlights:

- 35 states surpassed their pre-pandemic trend lines over the 12 quarters that spanned the early 2020 recession and ensuing revenue wave. In 17 of them—Alaska, Arkansas, Colorado, Georgia, Idaho, Illinois, Kentucky, Maine, Mississippi, Missouri, Montana, New Mexico, New York, North Dakota, Utah, Vermont, and West Virginia—above-trend revenue accounted for more than half of their total growth during that period. Meanwhile, Pennsylvania and Virginia's above-trend collections accounted for less than a fifth of their post-pandemic growth.
    - North Dakota's revenue declined during the three-year period, but its drop was less steep than its pre-pandemic path projected, meaning it still performed above trend. The state was on track to collect $1.57 billion less in revenue than its pre-pandemic baseline over the three years ending in 2022. Instead, it collected $840 million less.
- 15 states performed below their pre-pandemic trend lines during the 12 quarters: Delaware, Hawaii, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Nevada, New Hampshire, Oklahoma, Oregon, Washington, Wisconsin, and Wyoming. Revenue in these states came in below pre-COVID-19 growth trends for a variety of reasons, including tax cuts, weak economic growth, volatile energy prices, and unusually high revenue growth leading up to the pandemic.
    - 13 of these states still had positive revenue gains, just at a weaker rate than their pre-pandemic trend.
    - Hawaii collected $2.8 billion less in total tax revenue over the three years ending 2022 than its pre-pandemic trend suggested.
    - Wyoming's tax revenue growth was already trending downward before the pandemic. State forecasters in 2019 had projected that revenue would fall through 2022, largely because of shrinking severance tax collections.[9] However, Wyoming's revenue declined even more than the pre-pandemic trend line suggested.

A Handful of States Lost Revenue During the Wave

Three states—Hawaii, North Dakota, and Wyoming—stand out for having revenue losses during the studied period, meaning that the total revenue they collected during the three-year period fell short of even their baseline. Hawaii, which relies heavily on tourism and hospitality, had the hardest fall, collecting $1.4 billion less in fiscal 2020 than in fiscal 2019.[10] The following two years saw higher revenue totals compared with the baseline, but not enough to overcome the 2020 loss.

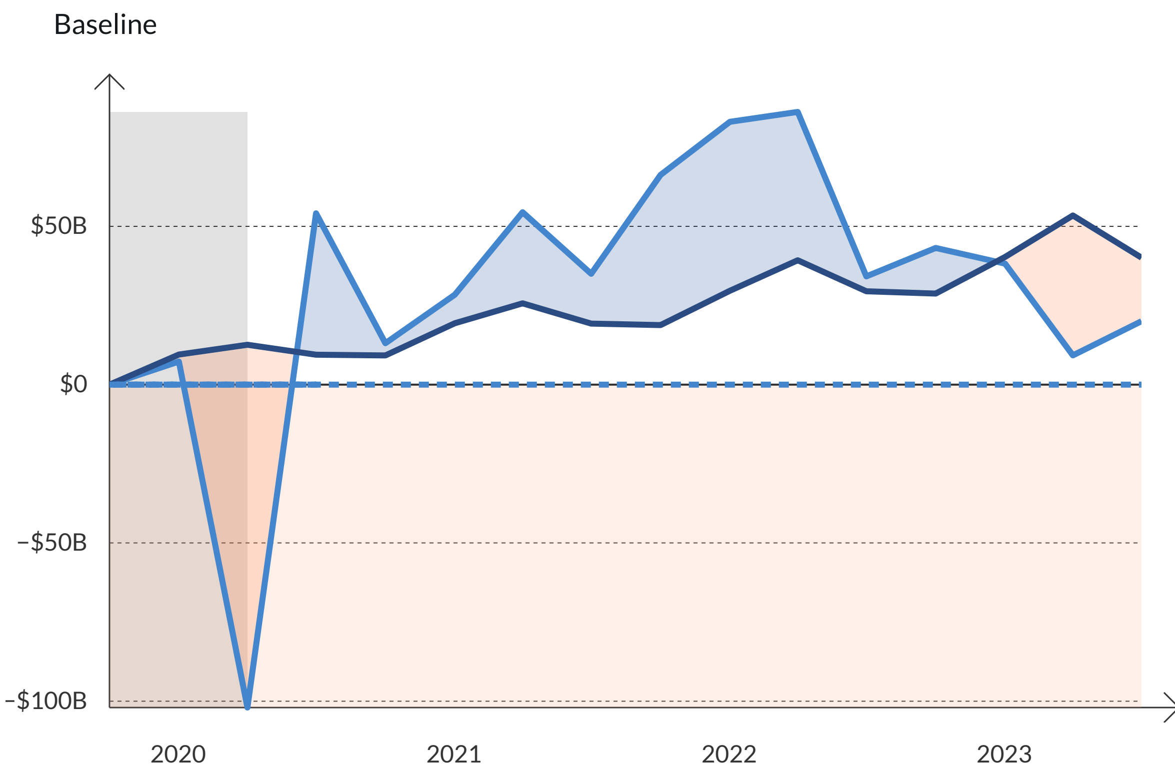
North Dakota collected less in 2020 and 2021 than in 2019, for a total gap of more than $1.7 billion across the two years. Collections grew in 2022, but not enough to make up the entire gap. Wyoming followed a similar path: Its revenue improvement in 2022 (compared with its baseline) was not enough to cover the gap that accumulated over the preceding two years.

In Most States, the Revenue Wave Broke in 2023

State collections compared with their 2019 baselines, Q1 2020 to Q3 2023

Above-trend Actual
Below-trend Trend
Recession Baseline

50 states



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Sources: Pew analysis of data from the Urban Institute and U.S. Census Bureau

State approaches to understanding the revenue surge

The historic and dramatic nature of the revenue growth in 2021 and 2022 made state forecasters' already difficult jobs even harder as they tried to make sense of the surprising numbers. Not only was the growth unprecedented, it continued even as rising inflation stoked worries in 2022 about a possible recession.

Despite the stubbornly strong gains, state budgets during these years remained relatively conservative in their revenue estimates. In fiscal 2021, states' collectively projected revenue would decline 3.5% from the previous year, according to the National Association of State Budget Officers (NASBO).[11] And even when the opposite happened, states still did not anticipate the growth would continue and instead projected a 2.6% drop from 2021's record high total.[12]

As revenue forecasters repeatedly revised their estimates upward during these years, they also communicated to lawmakers the uncertain and potentially temporary nature of at least some of the revenue growth—such as the move among consumers toward buying taxable goods rather than untaxed services during the pandemic—and underscored the need to proceed with caution. "We do not know how long this pandemic-induced shift in consumer spending will last, so it is important to carefully plan a portion of this budget as a one-time 'surge' to address our citizens' most pressing needs today," Ohio Office of Budget and Management director Kimberly Murnieks told the House Finance Committee in February 2021.[13] "In fact, it is necessary for our economic recovery that the shift in consumer spending eventually be reversed as spending on services recovers."

But how much of the surge was truly temporary? Budget officials took varied approaches to understanding the revenue dynamic in their states, though most incorporated state economic drivers and recent revenue trends in their analyses. However, because many states lack formal definitions of "one-time" and "ongoing" revenue and do not routinely distinguish between these categories in budget documents, finance officials often had to make ad hoc judgments about how much revenue was temporary.

Complicating matters further, many states enacted historic tax cuts during this period. These policy changes made it harder for forecasters to identify the baseline revenue because tax

formulas were not consistent from year to year. For example, Arizona lawmakers in 2022 accelerated the full phase-in of a major personal income tax cut after hitting a revenue target one year early. "With the income tax category, there are so many moving parts," said Jack Brown, deputy director of the Arizona Joint Legislative Budget Committee.[14] "At this point, we're just trying to keep an eye on the ball and accurately predict the amount rather than a more sophisticated methodology about what's reoccurring or not because of the policy changes that got layered in." But even after adjusting income tax revenue downward by $2.3 billion for fiscal 2024, Arizona's legislative analysts now say the state is facing a $1.7 billion deficit through fiscal 2025 because income tax revenue is falling more than expected.[15]

Some forecasters and economists compare current revenue with a multiyear trend or rolling average—an approach similar to the one that underpins this analysis. For example, New Mexico's Taxation and Revenue Department uses a 10-year trend line to assess where current revenue falls relative to long-term expectations and to identify recurring revenue. The department's December 2023 update estimated that "General Fund recurring revenues" for fiscal 2024 would total approximately $12.7 billion and $13 billion for the following year.[16]

In Montana, the methods for mid-fiscal year revenue projections vary slightly within the state. The Department of Revenue uses data from the previous five years to project month-to-month collections in a given fiscal year while Legislative Fiscal Division forecasters incorporate revenue collection patterns since 2012 to predict growth. Legislative forecasters said that general fund revenue growth has historically correlated with statewide personal income growth, but in 2021 and 2022, revenue collections dramatically diverted from expectations. At the close of fiscal 2022, the state had collected 47%, or $1.2 billion, more in general fund revenue than forecasters had anticipated. And like most other states, income tax revenue was the primary driver for the surge. "When we talk about withholding like retirement income and wage income and maybe pension income … we generally predict that pretty well," said Sam Schaefer, lead revenue analyst for the Montana Legislature. "But then when you look at interest income, capital gains, partnership, and rental income, that's what's challenging and that's what just blew our forecasts out of the water the last few years."[17]

States also anticipate the timing of revenue shifts in different ways. In 2021, California—which tends to experience economic swings sooner and more dramatically than other states—adjusted its forecasting model. To better anticipate and prepare for potential downturns, forecasters in the Legislative Analyst's Office, who relied heavily on recent revenue data to project growth, added a predictive lens to their model. The resulting "recession indicator" draws on 50 years of data from diverse sectors, such as unemployment, inflation, home sales, and bond markets. In spring 2022, the indicator began sending a recession warning signal, which historically has predicted that a downturn will occur in the state within the next two

years. Despite conflicting with the office's traditional forecasting model, which suggested revenue would continue to rise in fiscal 2023, this signal correctly flagged the changing direction of the state's tax revenue.[18] Before passing the fiscal 2024 budget, California lawmakers needed to close a $32 billion shortfall.[19] A year later, they faced an even bigger gap, resolving a nearly $47 billion deficit in the fiscal 2025 budget.[20]

When projecting revenue, forecasters and economists also consider the cyclical nature of certain sources, particularly income taxes. "It's easy to look at these surpluses and think we can just slash taxes or increase spending," said Bob Buschman, Georgia's state economist.[21] "But we have to consider whether the surge in revenues is sustainable or is due to temporary or cyclical factors." Understanding where revenue growth is trending within the economic cycle promotes a longer-term view of a state's fiscal situation and helps distinguish whether a revenue bump is part of a recurring pattern or an anomaly.

Why Identifying Nonrecurring State Revenue Is Important

Not knowing how much revenue in any given year is due to a one-time event or economic anomaly can make it more difficult for state budget officers to plan ahead. Many budget officials told Pew that after the pandemic, they could readily identify a host of mostly temporary economic factors, including the influx of federal aid to states, that was driving the revenue wave in their states. But the scope and duration of those factors was less clear.

For the federal pandemic aid, the parameters were well defined. States received more than $800 billion between 2020 and 2022 and used the money to replace tax revenue lost because of the lockdowns and to support schools, housing, health care, and transit, among other.[22] Although the infusion of so much federal money posed some management challenges for states, having a sunset date—Dec. 31, 2026—for most of the funds provided clarity on when that revenue would no longer be available.[23]

However, the same cannot be said for the other factors that contributed to the wave. Changes in taxpayer behavior and other economic and policy developments that led to the surge in revenue did not come with a clear timeline for when—or whether—their effects would ebb, making identifying recurring versus nonrecurring sources even more difficult.

These other factors included:

- A pandemic-driven shift in consumer spending patterns from purchases of often-untaxed services to typically taxable goods.
- States' relatively recent authority to collect sales taxes from out-of-state online sellers.
- Quicker-than-anticipated recoveries in the stock market and employment.
- Stability in higher-wage jobs that were able to pivot to remote work.
- Additional federal aid to individuals and businesses.

Because a universal approach to calculating the scope of potentially one-time or temporary tax revenue does not exist, states are left to untangle these factors while making revenue projections that also incorporate economic stressors, such as inflation and the impact of global events on specific revenue streams. If states do not have a clear sense of the staying power of increased tax revenue collections, they risk committing to ongoing tax or spending policies based on funding that has the potential to evaporate. Many policymakers were aware of the temporary nature of the revenue surge, but Pew's interviews and research indicated that the measures they took to ensure that surplus revenue was either saved or spent on one-time expenditures varied from state to state.

How states rode the wave

Most states used the revenue surge to enact a mix of one-time and ongoing budgetary commitments, such as bolstering rainy day funds, historic tax cuts, temporary rate reductions, and spending increases.

Reserves

Since the start of the pandemic, states' reserve levels have grown dramatically. Rainy day fund balances reached an all-time high in fiscal 2022 and again in fiscal 2023 as lawmakers made large deposits using excess revenue collections.[24] When including other reserve accounts, states' collective ending balances increased more than sevenfold, from $33 billion at the end of fiscal 2020 to $237 billion at the end of fiscal 2022.[25]

In addition to such policymaker actions, some states had rules already in place for managing revenue volatility, which dictated how some of the above-trend revenue would be used.[26] These "deposit rules" define "excess" or potentially one-time revenue and require that above-trend collections be deposited into rainy day funds or used for one-time expenditures. Deposit rules take the guesswork out of identifying how much above-trend revenue should be saved by setting specific thresholds for rainy day fund deposits, and they discourage states from relying on revenue that may be temporary for ongoing uses, which would risk raising long-term spending to unsustainable levels.

However, the details of such rules matter for their impact. For example, Connecticut's volatility cap law requires that any revenue from estimated and final personal income tax payments and pass-through tax collections over a set dollar amount (adjusted every year for personal income growth) be transferred to the state's Budget Reserve Fund.[27] Critics have argued that the deposit rule treats some ongoing tax collections as one-time revenue—reducing the dollars that should have been available to pay for key public services.[28] Even so, the policy helped Connecticut increase its rainy day fund balance 13-fold as a percentage of state spending from 2017 to 2023, fundamentally improving the state's savings picture.

In his interview, Buschman, Georgia's chief economist, emphasized the importance of ensuring that states have adequate reserve levels heading into downturns and of rebuilding reserves when times are good. The value of building adequate reserves during a period of surplus is playing out in real time as the end of the wave is already reverberating through state reserve funds nationwide. Ending balances fell and rainy day fund growth stalled in fiscal 2023, then declined in fiscal 2024.[29]

Tax relief

One of—if not the—most prevalent uses for states' above-trend collections was tax relief. Between 2021 and 2023, 48 states passed at least one new tax cut, credit, or one-time rebate, and most enacted more than one.[30] The highest number of tax cuts was passed in 2022 (35) at the height of the wave. More than half of the states (26) permanently cut taxes on personal income, corporate income, or both during this period, with 13 of those states passing more than one cut over the three years.[31] Although tax rebates return revenue to taxpayers on a one-time basis, permanent cuts and credits (unless passed in tandem with decreases in expenditures) presume that over the long term a state will be able to replace the eliminated revenue.

Some states designed tax cuts to phase in based on certain revenue triggers.[32] Arizona, for example, passed a phased-in tax cut in 2021 that would eventually lower the state's income tax to a flat rate of 2.5% over three years. But in September 2022, the state's revenue growth reached the thresholds identified in the bill—well ahead of expectations. In response, then-Governor Doug Ducey (R) directed the Department of Revenue to enact the 2.5% rate for tax year 2023, two years earlier than planned. A quarter later, revenue started to stagnate and then decline.[33]

Phasing in the tax cuts earlier than planned may have obscured the temporary nature of the wave. More than a third of Arizona's revenue growth during the pandemic came in above its pre-pandemic trend levels, indicating it may have been an unsustainable replacement for revenue lost due to the tax cuts—which likely would have been revealed over the course of the original three-year timeline.

New spending

On the spending side, states enacted a similar mix of one-time and ongoing policy changes. On an inflation-adjusted basis, NASBO reports that general fund spending grew 8% in fiscal 2022 and 7% percent in fiscal 2023—the highest rates of growth in more than 40 years.[34] States' one-time expenditures tended to focus on infrastructure or economic development initiatives.[35] In addition to not committing future tax dollars, one-time allocations give

lawmakers flexibility to adjust in the event of a downturn. California lawmakers, for example, balanced the state's fiscal 2023 budget shortfall in part by scaling back planned investments in climate resiliency programs.[36] Among the ongoing expenditure increases states adopted during the wave, pay raises for state employees were among the most common, and many states increased worker pay more than once. In fiscal 2024 alone, 40 states adopted across-the-board pay bumps with a median raise of 5%.[37]

What policies and practices can help states better understand the next wave?

By late 2023, it was clear that the period of soaring revenue was at an end. Thirty-nine states collected less inflation-adjusted tax revenue during fiscal 2023 than in the previous year—the most states with a year-over-year decline since fiscal 2020. The result was that aggregate inflation-adjusted tax revenue growth, which was expected to be modest, fell, marking the only time in at least four decades that a tax revenue decline happened outside of a recession.

And state revenue has continued its downward trajectory, falling an estimated 0.8% in fiscal 2024, as state-enacted permanent tax cuts shaved roughly $8 billion—or nearly half of the total decline—off 50-state general fund revenue, according to NASBO.[38] And despite having set aside a significant majority of above-trend revenue for nonrecurring expenses, including bolstering their reserves, states' preparedness for a revenue squeeze varies.

Although the recent tax cuts and spending increases can cloud the picture for budget forecasters, above-trend revenue collections do not need to be seen only as a risk. By making a regular practice of distinguishing between temporary and recurring revenue trends, states can more confidently commit to one-time and permanent expenditures and tax cuts. One way states can reduce their uncertainty is by conducting long-term budget assessments, analyses that project revenue and spending several years into the future to examine whether budgets are on a sustainable path and why or why not.[39]

Long-term assessments generally incorporate the effects of policy changes into their projections, offering states a way to judge the extent to which the tax cuts and spending increases they adopted in recent years will be affordable as budget conditions normalize. Some states' assessments also distinguish between one-time and ongoing revenue and spending, and that analysis helped those states better recognize the magnitude of the revenue wave and inform budget decisions.

For example, a 2022 long-term budget assessment projected that Maryland's structural surplus would shrink in coming years, even as the state enjoyed substantial excess revenue in

the short term.[40] That finding served as an early warning for the challenges that followed: Structural deficits emerged in Maryland in 2023. Likewise, a 2023 long-term assessment in Florida forecast that the state would continue to enjoy large cash surpluses in the near term—including a $7 billion balance at the end of fiscal 2025.[41] However, because these balances were largely the result of one-time revenue, the analysis warned that even modest additional ongoing spending—anything more than $130 million—would lead to expected deficits. Unfortunately, few states conduct analyses like Florida's or Maryland's. Pew research found that as of November 2023, just 15 states conduct long-term budget assessments and many of those still do not isolate ongoing revenue and spending.[42]

In addition to producing long-term assessments to look at a budget's structural balance, states can conduct budget stress tests to understand how revenue may respond in a recession scenario. Stress tests estimate the size of temporary budget shortfalls that would result from recessions or other economic events and gauge whether states are prepared.[43] California, one of 15 states that have conducted a budget stress test since 2018, also uses its analysis to try to pinpoint when a revenue reversal may occur. Its recession indicator, which complements its Fiscal Outlook report, helped the Legislative Analyst's Office project the state's downturn in 2022, one of the first dips below trend to happen in the country as the wave began to subside.[44]

However, recessions are not the only conditions under which revenue collections can decline, as evidenced by the revenue wave. Stress tests could also extend beyond recession scenarios to examine how a period of weak growth would affect budget balance.

The forward-looking analysis offered by long-term budget assessments and stress tests can serve as a natural complement to efforts that use historic data to define a state's long-term revenue trend and determine what portion of current revenue collections is one-time versus ongoing. Having just experienced a historic revenue event, now is the perfect time for states to assess how well their fiscal management strategies worked—and, for states that lack formal approaches to such analysis, to consider adopting them. More states would benefit not only from processes that identify one-time revenue, but also from policies—such as rainy day fund deposit rules—that establish how windfall revenue should be used. Another event of the magnitude of the revenue wave is unlikely, at least anytime soon, but states regularly experience years where revenue collections are above the long-term trend. Well-considered policies can help policymakers ensure that one year of unusually high revenue does not lead to decisions that put their budgets on an unsustainable path.

Conclusion

The post-pandemic era gave state policymakers significant fiscal flexibility thanks to temporary federal aid programs, new budgetary commitments, and unprecedented revenue growth for states. As federal aid winds down and tax relief and spending measures take effect, policymakers must consider how much of recent tax revenue growth may have been one-time in nature. Some states have forward-looking practices that help anticipate a revenue shortfall before it materializes and inform policymakers about how best to prepare for a downturn. And over the long term, by making a regular practice of distinguishing between temporary and recurring revenue trends, states can minimize risk and more confidently commit to both one-time and permanent expenditures and tax cuts.

Appendix A: Methodology

Pew estimated the size of the tax revenue wave in each state by calculating the cumulative difference between inflation-adjusted tax collections during the 15 quarters from Q1 2020 to Q3 2023, estimating how much each state would have collected during the same period had revenue grown at its pre-pandemic, five-year average annual growth rate, and then comparing those actual and estimated collections with 2019 levels to calculate growth.

Pew chose this specific 15-quarter period because it encompasses the initial pandemic tax revenue declines, the ensuing wave, and the subsequent weakening of collections. Looking at total collections over that span allowed the researchers to identify whether tax revenue over- or underperformed in each state since January 2020, based on pre-pandemic trends.

Pew also calculated the percentage of actual revenue growth that was above or below states' pre-pandemic trend estimates. In rare cases, states' actual collections were lower than their 2019 levels, which, if left unaddressed, produced misleading percentage differences. Pew addressed the issue by dividing the difference between actual revenue growth and its trend level by the absolute value of the actual revenue growth to maintain the correct sign and direction of change.

Pew's methodology provides a general framework for analyzing state tax revenue by applying a historic trend analysis to estimate each state's underlying growth trajectories. To be sure, using a universal methodology for all states has inherent limitations. For instance, this approach may differ from the way states conduct their revenue forecasts, which are tailored to their individual circumstances.[45]

A wide variety of time frames can be chosen for historic trend analyses. (For example, Pew uses a 15-year trend for its tax revenue indicator.[46]) Pew chose pre-pandemic, five-year average growth rates for its trend analysis to capture a period of relative fiscal normalcy and

avoid the economic impacts of the Great Recession. This five-year span smooths annual variation better than shorter periods in the lead-up to the pandemic, providing a balanced view of tax revenue trends.

How Pew calculated its numbers

Example of above-trend growth: Massachusetts

- The baseline: Pew chose calendar year 2019 as the baseline for all states. During this period, Massachusetts collected $37.9 billion in inflation-adjusted tax revenue.
- Actual growth: During calendar year 2020, Massachusetts collected $36.9 billion, meaning the state's revenue that year was $1 billion below the baseline. Massachusetts collected $44.3 billion in CY2021 and $45.2 billion in CY2022, a $6.3 billion increase and a $7.2 billion increase, respectively, from the 2019 baseline. The state's CY2020 decline combined with the state's CY2021 and CY2022 increases resulted in cumulative revenue growth of $12.5 billion.
- Trend growth: Massachusetts' average annual growth rate from CY2015 to CY2019 was 3.1%. If the state had maintained this growth rate throughout the study period, revenue would have increased $1.2 billion in CY2020, $2.4 billion in CY2021, and $3.6 billion in CY2022, resulting in a cumulative increase of $7.2 billion over the three years.
- Above-trend revenue: Pew's estimate for Massachusetts's above-trend revenue from Q1 2020 to Q4 2022 was $5.3 billion, the difference between the state's actual ($12.5 billion) and estimated ($7.2 billion) growth. Above-trend revenue accounted for approximately 42% of Massachusetts' cumulative revenue growth from Q1 2020 through Q4 2022.

Example of below-trend growth: Iowa

- The baseline: During calendar year 2019, Pew's baseline, Iowa collected $11.1 billion in inflation-adjusted tax revenue.
- Actual growth: During calendar year 2020, Iowa collected $10.8 billion, meaning the state's revenue that year was approximately $300 million below the baseline. Iowa collected $11.7 billion in CY2021 and $11.9 billion in CY2022, a $600 million increase and an $800 million increase, respectively, from the 2019 baseline. The state's CY2020 decline combined with the state's CY2021 and CY2022 increases resulted in cumulative revenue growth of approximately $1.2 billion.
- Trend growth: Iowa's average annual growth rate from CY2015 to CY2019 was 2.8%. If the state had maintained this growth rate throughout the study period, revenue would

have increased $309 million in CY2020, $628 million in CY2021, and $955 million in CY2022, resulting in a cumulative increase of $1.9 billion over the three years.

- Above-trend revenue: Pew's estimate for Iowa's above-trend revenue from Q1 2020 to Q4 2022 was negative, as actual growth ($1.2 billion) came in below trend growth ($1.9 billion) by approximately $700 million. Cumulative revenue growth from Q1 2020 through Q4 2022 was below trend by approximately 57%, meaning that missing revenue equated to slightly more than half of Iowa's actual growth.

The Urban Institute adjusts data from the U.S. Census Bureau to account for missing or imputed values. Pew then adjusted those figures for inflation using the U.S. Bureau of Economic Analysis' gross domestic product implicit price deflator. Because of these adjustments, peak and low quarters in this data may not align with high and low points in some states' tax collections in nominal dollars.

In its methodology, the Census Bureau provides the following information outlining what it includes in "tax revenue":

"Government tax authorities report tax revenues by type of tax. Most local governments report only property tax collections and some report significant non-property revenues such as income and sales taxes. State governments report data for more than 25 types of taxes including personal income, sales, corporate income, motor fuel sales, motor vehicle license, and severance taxes. In this survey, 'taxes' are defined as all compulsory contributions exacted by a government for public purposes, except employer and employee assessments for retirement and social insurance purposes, which are classified as insurance trust revenue. Outside the scope of this collection are data on the unemployment compensation 'taxes' imposed by each of the state governments. However, all receipts from licenses and compulsory fees, including those that are imposed for regulatory purposes, as well as those designated to provide revenue are included."[47]

Appendix B: State Revenue Growth at a Glance

Table B.1

States' Revenue Performance Relative to Their 3-Year Trends, Calendar Years 2020-22

Revenue > Trend line Revenue < Trend line

Revenue growth	Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Idaho, Indiana, Kentucky, Maine, Massachusetts, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia	Delaware, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Nevada, New Hampshire, Oklahoma, Oregon, Washington, Wisconsin
Revenue decline	North Dakota	Hawaii, Wyoming

Source: Pew analysis of data from the Urban Institute and U.S. Census Bureau

Expert reviewer

The report benefited from the insights and expertise of external reviewer Brian Sigritz, director of state fiscal studies for the National Association of State Budget Officers. Although he reviewed the brief, neither he nor his organization necessarily endorse its findings or conclusions.

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