Demographic Headwinds

The Economic Consequences of Lower Birth Rates and Longer Lives

ASPEN ECONOMIC STRATEGY GROUP
aspen institute

CHAPTER

Implications of Low Fertility and Declining Populations for the Operations of US State and Local Governments

by Jeffrey Clemens

FEBRUARY 2026

Implications of Low Fertility and Declining Populations for the Operations of US State and Local Governments

FEBRUARY 2026

AUTHOR

Jeffrey Clemens*

SUMMARY

Declining fertility and population loss pose significant challenges for state and local governments responsible for providing a range of services to citizens, including education, health care, and infrastructure. Indeed, many areas are already experiencing outright population decline, with roughly half of U.S. counties losing population between 2010 and 2020. This paper examines how shrinking and aging populations affect the operations and fiscal sustainability of state and local governments. Preliminary evidence presented in this paper suggests that scaling down educational services is considerably more difficult than scaling up. The estimated per-enrollee cost increases associated with a 10 percent enrollment decline are four times larger than the cost decreases associated with a 10 percent enrollment increase. Regions with contracting populations will face additional challenges as a smaller working-age population bears the burden of funding pensions and retiree health plans for larger aging cohorts. While lower fertility can create a short run fiscal dividend as local governments serve fewer children, that dividend will only be realized if state and local public officials make efficient retrenchment a priority.

* Professor, Department of Economics, University of California, San Diego

Introduction

Nationwide, the total fertility rate has now been below replacement since 2010, and appreciably so over the last decade. Roughly half of US counties lost population from 2010 to 2020, as documented by Asquith and Mast (2024). This figure is a dramatic increase from earlier decades and, by Asquith and Mast's accounting, is explained almost entirely by declines in fertility rather than changes in migration patterns. This broad trend and its localized variations pose challenges to the efficiency of the state and local public sectors. More specifically, population decline confronts school districts, health systems, public-safety agencies, and transit authorities with the challenges of managing retrenchment.

The remainder of this paper elaborates on the scope and scale of this emerging trend and the nature of the public-sector management problems that come with it. Using data on public school districts, I provide preliminary evidence that scaling back is much harder than scaling up, resulting in large per-pupil cost increases in contracting districts. Difficult decisions surrounding the closure of underutilized schools and other infrastructure pose an important challenge. Scaling back on staff appears difficult as well. Regions with contracting populations face additional challenges from the burdens posed by underfunded pension and retiree health plans, which are borne by a smaller base of constituents as population declines.

The Issue

i. The Phenomenon of Local Population Decline

Over the last two decades, birth rates have fallen substantially across the United States. Paired with immigration policy headwinds (Edelberg et al. 2025), declines in national population could be imminent. The demographic outlook from the Congressional Budget Office (CBO) forecasts that the number of deaths will first exceed the number of births nationwide in 2030. Even while assuming long-run net immigration of 1.2 million persons per year, fertility trends lead the CBO to forecast a stagnant population by mid-century (Congressional Budget Office 2026).

Substantial regional, and more localized, variations underlie this national trend. As the Asquith and Mast study shows, a substantial share of US counties have already experienced a half-century of net population decline. Vital statistics provide additional insight into the underlying regional and state variations. From 2000 to 2020, the nation's most populous states of California, Texas, Florida, New York, Pennsylvania, and Illinois experienced birth rate declines of 32, 30, 28, 24, 16, and 30 percent, respectively (Martin et al. 2002; Osterman et al. 2022). Relatively moderate declines in some of the New England and Mid-Atlantic states reflect that they had lower birth rates at the 2000 baseline, which has now developed into a source of variations in regional population pressures.

Declining birth rates, conventionally defined as the number of births per 1,000 women of any age, reflect a blend of population aging and declining fertility rates, defined as the number of births per 1,000 women of childbearing age (i.e., between the ages of 15 and 44). Both forces have contributed to recent trends in the United States. Nationwide from 2000 to 2020, for example, population aging accounts for the 5 percentage-point gap between the birth rate's 25 percent decline and the fertility rate's 20 percent decline.

Uncertainty over whether fertility has been permanently depressed or temporarily delayed in the wake of the Great Recession is now being resolved. Any rebound in births (or "catch-up" fertility) among women in their later childbearing years appears modest. This finding results in an increasingly high likelihood that the completed fertility rates of recent cohorts of women will indeed be lower than those of women from earlier cohorts (Kearney and Levine 2021). As things stand, the 2020 data point to below-replacement fertility in all 50 states.

Although US fertility may have rebounded toward replacement levels during the 1980s, the global experience casts doubt on any presumption that below-replacement fertility should, in general, be viewed as a self-correcting development (Geruso and Spears 2025). Put differently, international data provide little reason to believe that fertility rates have a systematic tendency to rebound after falling below replacement levels.

Enrollments in public school districts, to whose budgetary and operational data I will later turn, provide a stark illustration of how persistently low fertility can impact the management of state and local public-service provision. Indeed, school systems face the leading edge of the challenges linked to low fertility, since a given year's fertility rates influence preschool and kindergarten enrollments a mere four and five years on.

Turning to the data, the National Center for Education Statistics (2023) reports region-wide declines in K–12 enrollment across the Northeast and Midwest beginning early in the 2000s. The COVID-19 pandemic brought sharp, additional short-run declines to enrollments, in excess of one million students nationwide (Clemens et al. 2025). Looking forward, the Department of Education forecasts an additional loss of 2.7 million K–12 students nationally from fall 2022 to fall 2031 (National Center for Education Statistics 2023). These declines will bite particularly hard in the US's Northeast and West regions, where they are forecast to approach 10 percent. Moderate declines are also expected across the Midwest.

At the level of individual school districts, enrollment declines have been a common occurrence over the last quarter-century. Among continuously operating school districts that have not merged or otherwise changed their boundaries, the Common Core of Data reveals that a remarkable 60 percent experienced net declines in enrollment from 1994 to 2019. This drop reflects, in part, that small districts, many of which are rural, were more likely to contract over the period in question than were large districts. At the same time, a number of large districts, including several in the Midwest, also experienced dramatic enrollment declines. These include the Cleveland Metropolitan and St. Louis City school districts, both of whose enrollments have

halved since their late-1990s highs. Looking ahead, the forecast loss of 2.7 million K–12 students from fall 2022 to fall 2031 implies sharper and even more widespread enrollment declines, impacting large urban districts nationwide as well as small rural school districts.

In the next section, I develop a set of facts that characterize the scope of state and local government activity. I provide descriptive evidence suggesting that enrollment declines, and population declines more broadly, may pose substantial challenges to the efficiency of the state and local public sectors.

ii. Population Decline and the Expenditures of State and Local Governments

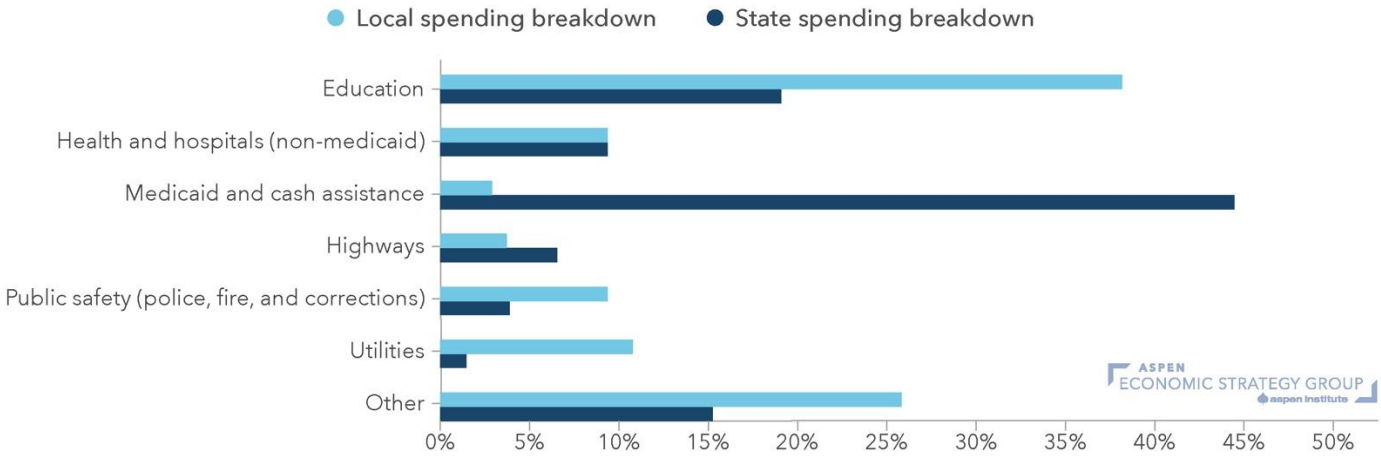
What do state and local governments actually do, and why might declining populations negatively impact the efficiency of public-service provision? This section begins with an overview of state and local government expenditures. It then presents evidence on the long-run relationship between population changes and changes in the per-constituent expenditures of state and local governments.

The functions of state and local governments

Data from the 2023 Annual Survey of State and Local Government Finances provide the Census Bureau's latest snapshot of the scale and mix of state and local government activity. According to the Census Bureau, the direct expenditures of state and local governments amounted to $2.21 and $2.48 trillion, respectively, with states spending an additional $811 billion through intergovernmental transfers that help to finance the expenditures of local governments.

Figure 1 separately illustrates the composition of state and local government spending across functional categories, as assigned by the Census Bureau. Education accounts for a substantial portion of direct expenditure by both layers of government, at 19 and 38 percent, respectively. For states, this spending is primarily on higher education, while local governments spend primarily on K–12 education. States spend substantially on redistribution through their Medicaid and cash assistance programs (44.4 percent of their direct expenditure), with Medicaid being by far the largest of states' redistributive programs. Additional spending on health care and hospitals accounts for roughly 9.4 percent of direct expenditure by both state and local governments; local government spending in this area goes primarily to hospitals. Highways account for a modest share of state and local expenditure (6.5 percent for state governments and 3.7 percent for local governments), while local governments are the primary providers of public-safety services (9.4 percent of their direct expenditure) and utilities (10.8 percent).

Figure 1: Breakdown of state and local government direct expenditures by functional category, 2023



Source: US Census Bureau 2025

Statewide population change and the expenditures of state and local governments

How do changes in expenditure on public-service provision relate to changes in population? Figure 2 illustrates, at a high level, that larger expansions in states' populations predict smaller increases in per-capita expenditures by state and local governments. Using Census data processed by the Urban-Brookings Tax Policy Center (Urban Institute 2025), the figure presents the long-run correlation between statewide population changes and state and local government spending per resident. It presents these data using changes over the 40-year period extending from 1979 to 2019. (I deliberately limit the data to the pre-COVID-19 pandemic period, given the unusual spending circumstances of the pandemic years.)

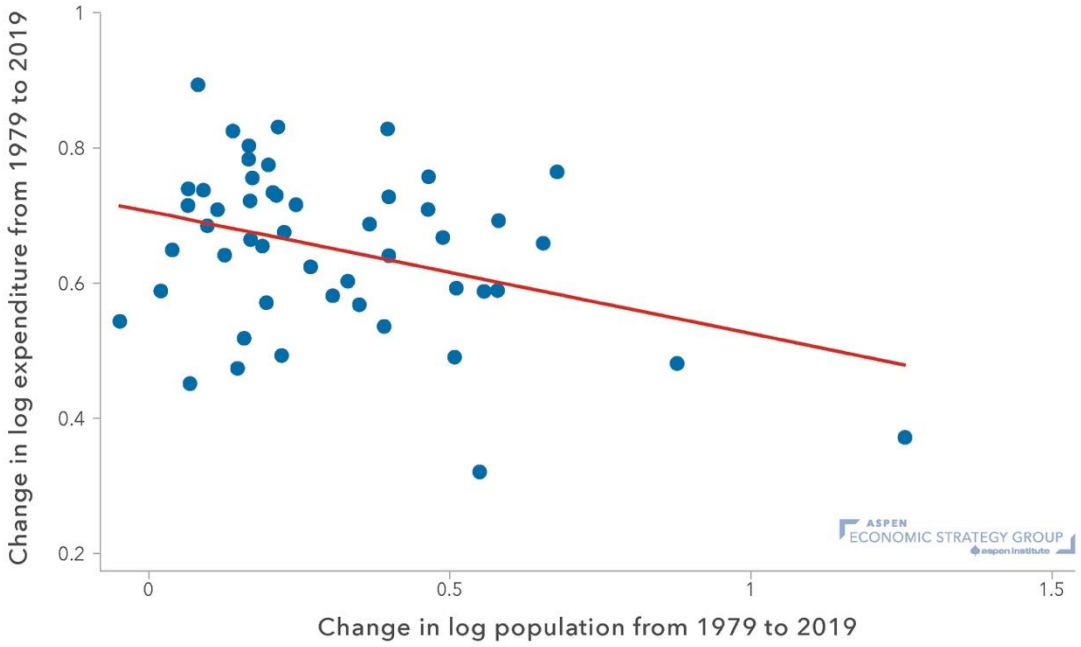
The best-fit line reveals that a 10 percent larger increase in a state's population predicts a 2.2 percent smaller increase in its per-capita expenditure. In other words, while total spending grows as the population increases, per-capita spending grows more slowly when the population grows more quickly. Greater population growth is thus associated with less growth in per-resident expenditure by state and local governments. Put differently, states that experience slower population growth experience greater growth in their per-resident spending burdens. As we will see when I turn to public school districts, many of which have experienced substantial enrollment declines, contracting jurisdictions face an even sharper challenge of escalating per-constituent cost burdens.

The basic pattern in figure 2 holds for education, highway, health and hospital, and utility expenditures. Medicaid and cash welfare assistance expenditures are an exception. This pattern is

interesting in that Medicaid and cash welfare assistance are redistributive programs for which per-capita expenditure reflects choices regarding the generosity of benefits and eligibility rules. Additionally, the federal share of Medicaid expenditure is sufficiently generous that it substantially blunts states' exposure to incremental cost increases. Variations in expenditure on infrastructure and public services, by contrast, will be more closely linked to constituent demand and to the cost of service delivery.

The negative correlation between population growth and growth in per-capita expenditure is modestly stronger for capital than for current operating expenditures. Across broad functional categories, it is strongest for utilities. This fact pattern is suggestive that the relationship between population growth and per-capita expenditure may be driven, at least in part, by standard economies of scale.

Figure 2: Changes in population and changes in real per-capita expenditures by state and local governments, 1979 to 2019



Source: Author's calculations using census data processed by the Urban-Brookings Tax Policy Center (Urban Institute 2025). Each circle represents the changes in log population and log per-capita expenditures from 1979 to 2019 for a single state.

Spending on schools facing declining versus expanding enrollment

Analyses of state aggregates can only go so far. Figure 3 thus looks at the geographically far more granular data on changes in enrollments and expenditures across public school districts. The data come from the Common Core of Data (2025) produced by the National Center for Education Statistics. They have been preprocessed by the Urban Institute and made available through its Education Data Portal for each pre-pandemic year from 1994 through 2019. To avoid instances in which either enrollment or expenditures were impacted by district mergers, the figure presents data on just under 9,000 districts for which the required data are reported in each year and for which the data report no changes to the district's boundaries.[1]

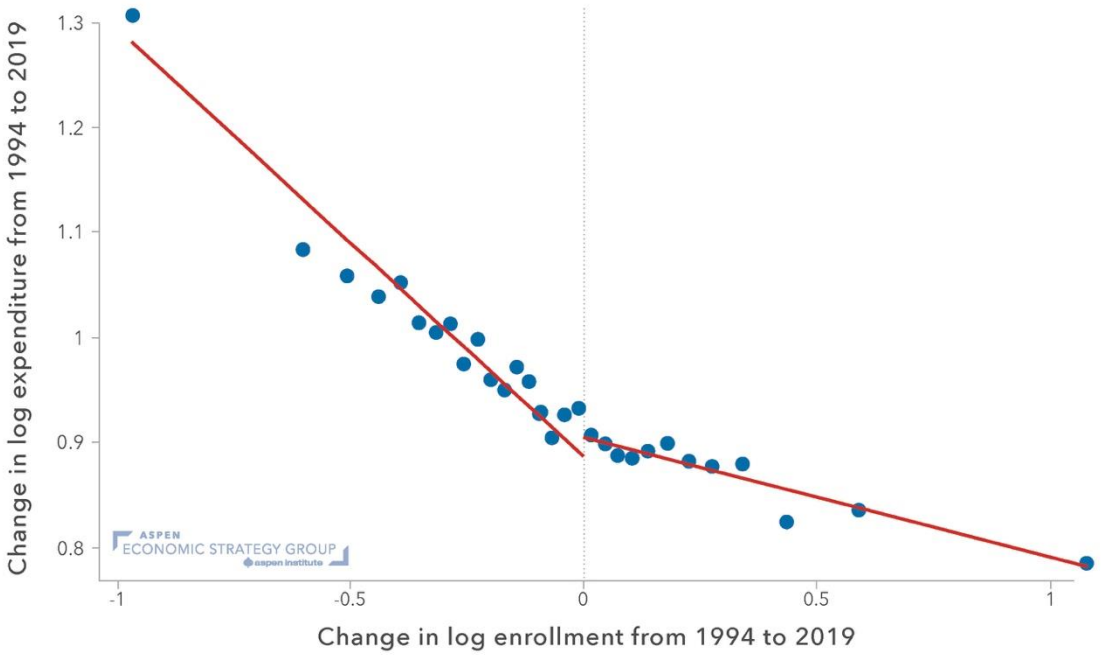
For ease of visual representation, the underlying data have been grouped into 30 bins based on the size of each district's change in enrollment.

Two interesting facts emerge from the school district enrollment-and-expenditure data. First, the overall relationship between enrollment and expenditure changes is remarkably similar to the relationship between population and expenditure changes for the totality of state and local government activity. From 1994 to 2019, 10 percent higher growth in a district's enrollment predicts a 2.4 percent smaller rise in per-enrollee expenditure. This relationship is substantially steeper over shorter time horizons, suggesting gradual adjustment in response to changes in enrollment.

Second, in contrast with long-run changes to the statewide population, which are almost uniformly positive, school districts include many instances of substantial long-run enrollment declines. Figure 3 reveals a sharp asymmetry in the relationship between enrollment and expenditure changes for contracting relative to expanding districts. For districts in decline, a 10 percent larger contraction in enrollment predicts a 4.1 percent larger rise in per-enrollee expenditure. For expanding districts, the comparable figure is a substantively smaller 1.1 percent. This fact pattern is consistent with findings in a recent, related analysis (Lee and Scafidi 2025).

[1] A more comprehensive analysis would require harmonizing the boundaries of districts that merge, such that their expenditures and enrollments are tracked consistently over time and such that the mergers themselves could be analyzed as outcomes.

Figure 3: Enrollment and per-enrollee expenditure changes among regular school districts with stable boundaries



Source: Author's calculations using data from the Common Core of Data (2025) produced by the National Center for Education Statistics, as preprocessed by the Urban Institute and made available through its Education Data Portal. The underlying data on just under 9,000 school districts have been grouped into 30 bins based on the size of each district's change in enrollment. Each circle represents the means of the changes in log enrollment and log per-capita expenditures from 1994 to 2019 across the districts within each bin. Best-fit lines have been estimated separately on the underlying school district observations for the districts with enrollment changes above versus below 0.

While large increases in per-enrollee expenditure are the norm in contracting school districts, there are counterexamples from which lessons can potentially be learned. The examples of the Cleveland Metropolitan and St. Louis City school districts, both of whose enrollments halved between 1999 and 2019, provide an interesting contrast. As reported in the Common Core of Data (2025), the per-enrollee spending of the Cleveland Metropolitan School District nearly doubled in inflation-adjusted dollars over this time period. In stark contrast, the inflation-adjusted per-enrollee expenditures of the St. Louis City School District rose only modestly. These schools have similarly poor test-score performance across the decade preceding the pandemic, as summarized by the Stanford Education Data Archive (SEDA), suggesting that Cleveland's spending growth may not be yielding improved results.[2] Later, I will return to some

[2] As summarized in its readily accessible, district-specific reports, the SEDA data "are based on the standardized accountability tests in math and Reading Language Arts (RLA) administered by each state to all public-school

of the factors that may underlie the substantial divergence in the spending of these two large districts whose enrollments followed similar paths of dramatic contraction.

Implications of contracting populations for hospitals and transit systems

Hospitals and transit systems face pressures that are distinct from and less acute than those facing contracting school districts. This difference arises in part from the fact that they typically serve broader geographic areas than most school districts do, making them less exposed to the acute pressures of localized population decline. Additionally, because they serve the totality of a region's population, while school districts serve the young, they have been less likely to face the full implications of persistently low fertility's consequences. Consequently, a less clear picture has emerged to date of population decline's implications for per-resident spending by hospital and transit systems.

The difficulties hospital and transit systems will face as a consequence of declining population, however, are reasonably clear. As with schools, smaller populations will imply less utilized hospitals. Continued operation of existing facilities will thus become more costly per resident served, which creates pressure for underutilized facilities to close. Similarly, a contracting ridership raises the per-resident cost of sustaining existing transit lines and service frequency. In contrast with the pressure to close facilities outright, transit systems will face pressure to reduce service along margins like the frequency with which routes are run.

What Are the Cost Challenges Posed by Population Decline?

In the remainder of this paper, I discuss the economic factors that may drive the distinctive challenge of adapting to population declines as opposed to accommodating expansions in the demand and need for public services. I organize the discussion around a set of conceptually distinct challenges governments may confront when scaling back. I first focus on challenges associated with the disruption and political frictions that may arise when closing underutilized facilities, including schools, hospitals, and fire or police stations. Next, I briefly discuss challenges linked to other forms of infrastructure. Third, I discuss frictions that complicate

---

students in grades 3–8 in each school year from 2008–09 through 2017–18." Results across subjects and grade levels are standardized and summarized as "grade level(s) below the national average." The average score in the Cleveland Municipal School District over this period was 2.27 grades below the national average, while the average score in the St. Louis City School District was 2.14 grades below the national average. Adjusted for socioeconomic status, however, the St. Louis City schools appear to perform worse than the Cleveland Municipal schools. The SEDA reports were accessed here: Educational Opportunity Project at Stanford University, "Educational Opportunity in the U.S.," Edopportunity.org, 2024,
https://edopportunity.org/opportunity/explorer/#/split/none/districts/avg/ses/all/3.15/37.39/-96.78/.

retrenchment on labor costs. Finally, I discuss the challenge of financing debts linked to underfunded pensions and retiree health benefits.

i. The challenges of closing or maintaining underutilized facilities

The closure of schools, hospitals, police stations or fire precincts can be fraught. The political difficulty of decisions regarding when and where to close such facilities is not surprising, as closures impose costs on affected populations. School and hospital closures, for example, raise transit costs for those who live closest to shuttered facilities. In the case of schools, this cost increase reduces convenience, may complicate commutes, and disrupts students' social and counseling networks. In the case of hospitals, the health outcomes of those experiencing acute medical emergencies may be at stake. The closure of fire stations and police precincts may similarly worsen response times and may reduce first responders' familiarity with local circumstances. The efficacy of service delivery may suffer as a result.

That said, the costs of facility closures may not be as wide-ranging or long-lasting as one might be inclined to fear. Alexander and Richards (2023), for example, find that while hospital closures reduce employment through direct impacts on the health sector, those impacts do not spill over into other sectors. Research from the education context highlights that while school closures can and do disrupt student attendance, closures that shift students from underperforming schools toward higher-performing schools can mitigate adverse effects on test scores (Engberg et al. 2012). Additionally, while health facility closures increase time in transit, evidence of impacts on care quality is mixed; this ambiguity may reflect the mixed effects of being shifted toward higher-quality facilities while facing greater burdens in reaching such a facility (Mullens et al. 2024). The opportunity to close underperforming facilities can be cast as an opportunity amidst what most will recognize as a painful adjustment process.

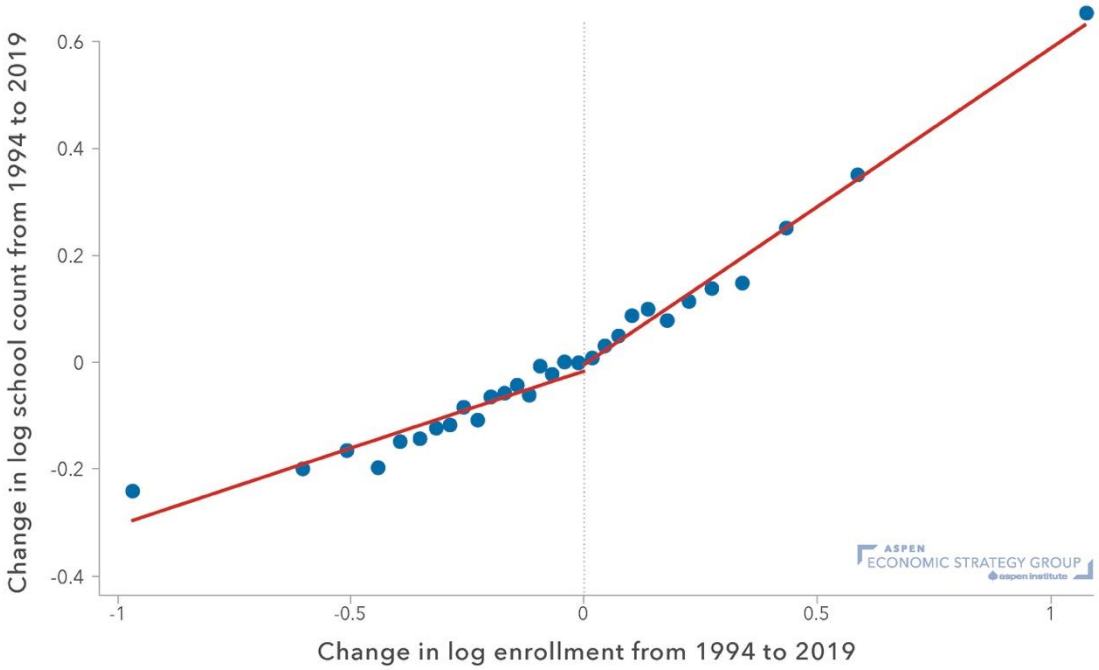
Nonetheless, declines in population imply reductions in service need and hence reductions in required capacity. For hospitals and schools, a declining constituent base translates quite directly into reductions in utilized capacity, and hence into rising costs per constituent served. While closing facilities may be costly to local residents and thus politically painful, these considerations must at some point give way to the problem of rising costs.

Data on school districts provide evidence regarding the relative ease of adapting the number of facilities to enrollment changes, as shown in figure 4. As before, I examine changes from 1994 to 2019 among school districts that report no changes to their boundaries. For ease of visual representation, the underlying data are once again grouped into 30 bins based on the magnitude of districts' enrollment changes. As one should expect, the data reveal that districts experiencing rising enrollments add to their number of schools while districts with declining enrollments subtract from their number of schools. The magnitude of these adjustments, however, is very different for expanding relative to contracting districts. In expanding districts, a 10 percent

increase in the number of students predicts a 6 percent increase in the number of schools, such that the number of students per school would rise moderately. In contracting districts, a 10 percent decline in the number of students predicts just a 3 percent decrease in the number of schools. Declining districts thus experience, on average, quite dramatic declines in the occupancy of their schools that remain in operation.

The Cleveland Metropolitan and St. Louis City school districts illustrate once again that there can be substantial differences between districts that experience similarly dramatic declines in enrollment. While the enrollments of both districts fell by just over half between 1999 and 2019, the extent to which they reduced their numbers of operating schools differed substantially. From 1999 to 2019, the Cleveland Metropolitan School District contracted from 124 to 104 schools (a decline of 16 percent), while the St. Louis City School District contracted from 115 to 74 schools in operation (a decline of 36 percent). The extent to which this difference in school closures contributed to the dramatic divergence in these districts' per-enrollee expenditures is an open question. Its impact on student outcomes is also a consideration of high importance.

Figure 4: Enrollment changes and changes in school counts among regular school districts with stable boundaries, 1994–2019



Source: Author's calculations using data from the Common Core of Data (2025) produced by the National Center for Education Statistics, as preprocessed by the Urban Institute and made available through its Education Data Portal. The underlying data on just under 9,000 school districts have been grouped into 30 bins based on the size of each district's change in enrollment. Each circle represents the means of the changes in log enrollment and the log of the number of schools in operation from 1994 to 2019 across the districts within each bin. Best-fit lines have been estimated separately on the underlying school-district observations for the districts with enrollment changes above versus below 0.

ii. The challenges of scaling back on transit and utilities infrastructure

Other forms of state and local government infrastructure pose related yet conceptually distinct challenges. Like underutilized schools and hospitals, for example, underutilized transit routes must eventually be shut down or, at minimum, receive less service. The maintenance of underutilized road and utilities infrastructure raises a basic question regarding the allocation of resources: How should states and localities allocate funding when the infrastructure in depopulating areas is used less and less over time? If baseline spending and maintenance schedules are maintained, then the cost per user will rise; if spending is reduced and resources are reallocated, then the remaining users in depopulating areas may suffer from diminishing access and quality of service.

A point of contrast, which is particularly salient for utilities, is that the home itself is the point of access for utilities including water and power. This observation points to a potentially important difference between utilities and roads on the one hand and, on the other hand, services like schooling and health care, which are typically provided at more-centralized facilities. Universal access to utilities and road networks requires that all homes be served and connected. Consequently, the social goal of universal access may require continued operation at heighted cost. The cases of utilities and roads contrast with the cases of schooling and health care, where universal access can, at least in principle, be maintained even while closing underutilized facilities. In light of the higher cost of delivering service to outlying and depopulating areas, an important question is whether the residents of such areas can be charged rates commensurate with cost. Some might regard differential pricing for essential utilities as unfair. That said, charging common prices in the face of differential costs subsidizes these areas' residents. As a result, common pricing raises costs by distorting residential location decisions in ways that prolong needed adjustments.

iii. The challenges of sticky staffing

Beyond the economic and logistical difficulties of managing infrastructure, scaling back faces challenges to retrenchment on labor costs. Collective bargaining agreements, which may limit adjustments to both the number of workers and their compensation, are an obvious potential source of such frictions. Even outside formal collective-bargaining arrangements, experienced teachers and other civil servants may enjoy tenure-like grants of job security. Together, these factors will lead teacher-to-student or public employee-to-constituent ratios to rise as enrollment or overall population declines. Additionally, the decline in job security associated with working in a contracting district may require schools to pay more in order to recruit and retain workers.

A recent analysis of school district budgets and staffing finds evidence consistent with a role for staffing frictions (Lee and Scafidi 2025). In districts with expanding enrollment, this study finds modest long-run changes in per-pupil staffing. By contrast, per-pupil staffing rises substantially,

even over a 20-year time horizon, with the extent of the enrollment declines that occur in contracting districts. The implied long-run increase in staffing ratios is particularly large for administrators relative to teachers. Pay per teacher and other staff member, by contrast, appears to move modestly with either increases or decreases in enrollment.

Inertia, or stickiness in the number of teachers and staff, underlies the rise in staffing ratios as enrollments decline. The implications of inertia point to a potential role for fiscal institutions in driving the associated rise in per-pupil expenditures. Directionally, having fewer students means less need for educational inputs, while having more students means more need. In an environment of declining enrollments, inertia in staffing will thus contribute mechanically to increases in per-pupil expenditures. Fiscal institutions may contribute to this outcome because the typical state or local government's balanced-budget requirements only force adjustments in the face of deficits, which would only emerge here if revenues decline (Poterba 1994; Clemens and Miran 2012). The structure of federal and state funding formulas is such that districts will only experience funding pressures with a lag.

Here again, the Cleveland Metropolitan and St. Louis City school districts provide an interesting study in contrasts. As these districts' enrollments halved, both maintained similar classroom size as inferred from the ratio of students to full-time-equivalent teachers. They differed substantially, however, with respect to other staffing. In the Cleveland Metropolitan School District, the ratios of instructional aides, administrators, and other support staff to teachers were much higher than in the St. Louis City School District in 2019 and beyond.[3]

The Cleveland Metropolitan and St. Louis City school districts also provide interesting data points regarding the potential importance of state and federal fiscal institutions. As reported in the Common Core of Data (2025), the spending of the Cleveland Metropolitan School District has continued to be supported considerably by state financing arrangements. By contrast, the data suggest that the state of Missouri has supported an increasingly small share of the St. Louis City School District's expenditures over the last two decades. Federal revenues also compose a substantially smaller share of revenues for the St. Louis City School District than for the Cleveland Metropolitan School District. Altogether, the local share of public school spending in St. Louis is substantially higher than in Cleveland.[4] The St. Louis City School District's greater

[3] The St. Louis City School District's low reported counts of district-level administrators and district-level support staff, as reported in the Common Core of Data, may be an artifact of the extended period, beginning in 2007, during which the Missouri State Board of Education controlled the St. Louis Public School District (Delaney 2019). Notably, this change in control arose due to a blend of financial mismanagement and accreditation issues. That said, relative to St. Louis, the Cleveland Municipal School District's staffing ratios are high for instructional aides, school-level administration, and other support staff, for which this explanation appears far less plausible.

[4] For the Common Core of Data's most recent snapshots, which are consistent with what I observe in the pre-pandemic data, Cleveland Municipal School District's data can be found at National Center for Education Statistics, "District Directory Information: Cleveland Municipal," NCES.ed.gov, 2025, https://nces.ed.gov/ccd/districtsearch/district_detail.asp?Search=2&DistrictID=3904378&ID2=3904378&details=4. The most recent snapshot for St. Louis City School District can be found at National Center for Education Statistics, "District Directory Information: St. Louis City," NCES.ed.gov, 2025,

reliance on local tax sources may have contributed to the extent to which its operations scaled back as its enrollments declined.

iv. The burden of underfunded pension and retiree health plans

Underfunded pensions and retiree health plans have the potential to pose substantial problems for jurisdictions that are experiencing population decline. Because retirees are no longer working, these costs pose a fiscal drag on ongoing service delivery when they are not pre-funded.

The extent of underfunded pension and retiree health benefit liabilities is difficult to measure. Uncertainty arises in part due to the nuances of discounting, which are central when assessing the current assets required to fund promised streams of future benefits. An important paper by Novy-Marx and Rauh (2011) emphasizes that public-pension accounting rules obscure the true magnitude of these obligations because they are conventionally discounted by the same rate as the assumed returns on pension assets. This flawed discounting methodology understates the value of future liabilities because, for reasons embedded in common law as well as in some states' constitutions, pension obligations have higher legal priority than states' other obligations. Novy-Marx and Rauh emphasize that because pensions will be paid with greater certainty, they should be discounted at lower rates. In 2009, Novy-Marx and Rauh estimated that accounting for this difference could add $1 trillion to the value of pension liabilities for state government employees alone.

How large are the unfunded liabilities of state and local governments' pension and retiree health plans currently? This question is difficult to answer with confidence. A recent report from Pew (Draine et al. 2025) estimates that pensions for state and local government workers were underfunded to the tune of $1.3 trillion in 2022. The latest data available to these authors valued the underfunded portion of retiree health plans at $680 billion in 2019. The accounting issues raised by Novy-Marx and Rauh imply that the present value of the underlying liabilities is likely understated. On the other hand, the stock market's substantial rise relative to the years in which these snapshots were taken may mean that net unfunded liabilities are much lower today.

One way the Pew reports convey the burden of restoring adequate funding is to express the required annual contribution as a share of a state's own-source revenue. Put differently, this figure describes the percentage increases in a state's revenue collections that would be required for the state to fully pay for the burden of its pension liabilities over time. Nationwide, in its latest available data, Pew estimated that underfunded pensions would require an average contribution equivalent to 4.9 percent of states' own-source revenues, and that underfunded

---

https://nces.ed.gov/ccd/districtsearch/district_detail.asp?Search=2&DistrictID=2929280&ID2=2929280&details=4. Like the low reported numbers of district-level administrators and support staff members mentioned above, it is possible that the low state share of the St. Louis City School District's revenues is in part an artifact of the Missouri State Board of Education's extended period of control over the St. Louis City School District.

retiree health benefits would require an average contribution equivalent to 3.5 percent of states' own-source revenues.

States vary dramatically in the burden they associate with underfunded pensions and retiree health benefits. The states of Illinois and New Jersey are notable in that they ranked worst and next-to-worst in the estimated funding burden for both pension and retiree health benefits. For 2019 retiree health benefits, for example, Pew estimates that New Jersey's underfunded liabilities required a $6.4 billion annual contribution, amounting to 12.2 percent of a year's own-source revenue. The equivalent figures for Illinois were $5.0 billion and 9.3 percent. For 2022 pension benefits, Pew estimated Illinois's underfunded liability as requiring a contribution equivalent to 15.3 percent of a year's own-source revenue, such that between pension and health benefits the required contribution is almost 25 percent of a year's own-source revenue. The equivalent figure for New Jersey's unfunded pension debts is 11.5 percent, such that between pension and health benefits, the required contribution is almost 22.7 of a year's own-source revenue. The average nationwide was 8.4 percent, and for a number of states, the combined total is less than 4 percent.

An economically important dimension of underfunded retiree benefits is that it is a genuinely fixed cost, the absolute value of which does not change with the size of a state's population or tax base. Consequently, as the population or tax base declines, the burden of these underfunded benefits on remaining taxpayers rises. These costs thus have the potential to give rise to adverse feedback loops. That is, if a rise in the burden faced by remaining taxpayers results in additional taxpayer exit, a further increase in the burden per taxpayer ensues, which can induce yet more taxpayer exit. Notably, a qualitative analysis of eight relatively recent municipal bankruptcies linked six of the eight to "structural fiscal deficits" involving "population and economic decline" alongside "growing expenditures (pension and healthcare) and unfunded pension liability" (Davidson 2020). It is both unsurprising and rather concerning, in this context, to see Illinois emerge as a state with large unfunded liabilities and a decade of population decline.

Conclusion

Between migration patterns and persistently low fertility, many states and localities are on course to experience substantial declines in population over the coming years. This paper has discussed a set of challenges these developments will bring to the efficiency of service provision by state and local governments. School districts, many of which have already faced substantial enrollment declines over the last quarter-century, provide leading indicators regarding the nature of these challenges.

Both school districts and the subnational public sector as a whole exhibit evidence of economies of scale over the long run. In both settings, 10 percent more population growth has predicted just over 2 percent slower growth in per-capita expenditures historically. Because many school

districts have experienced population decline, their experience sheds light on the asymmetric effect of population contraction relative to growth; in the data presented above, the per-enrollee cost increases associated with 10 percent greater enrollment decline were four times larger than the cost decreases associated with 10 percent greater enrollment increase. Evidence points to the difficulty of closing underutilized facilities, frictions to retrenchment on labor costs, and the burdens of underfunded pension and retiree health liabilities as important challenges to jurisdictions undergoing population decline.

The impacts of low fertility on elementary and secondary schools continue to unfold, while impacts on institutions of higher learning are on the horizon. Against this backdrop, a difference between fertility- and migration-driven declines in population merits emphasis. Declines in migration simultaneously impact both the need for public services and the tax base through which those services are financed. The resulting decline in revenues forces the issue with respect to retrenchment on service provision. This forcing mechanism is absent when declines in fertility reduce the need for education and other child-oriented public services. This reduced need, in turn, raises the risk of inertial, inefficiently slow retrenchment. Over the long run, however, low fertility implies declines in the number of workers per retiree, which will exacerbate our fiscal challenges. In light of these long-run challenges, the United States can ill afford to squander low fertility's short-run fiscal dividend. Efficient retrenchment in the face of declining need for education and other services should be a priority.

References

Alexander, Diane, and Michael R. Richards. 2023. "Economic Consequences of Hospital Closures." *Journal of Public Economics* 221: 104821.

Asquith, Brian J., and Evan Mast. 2024. "Birth Dearth and Local Population Decline." Working paper no. 24-406. W. E. Upjohn Institute for Employment Research.

Clemens, Jeffrey, Philip G. Hoxie, and Stan Veuger. 2025. "Intergovernmental Grants to School Districts and Educational Outcomes During the COVID-19 Pandemic." Mimeograph. American Enterprise Institute.

Clemens, Jeffrey, and Stephen Miran. 2012. "Fiscal Policy Multipliers on Subnational Government Spending." *American Economic Journal: Economic Policy* 4, no. 2: 46–68.

Common Core of Data. 2025. "Education Data Portal." Urban Institute. https://educationdata.urban.org/documentation/. Made available under the ODC Attribution License.

Congressional Budget Office. 2026, January. *The Demographic Outlook: 2026 to 2056*. Publication no. 61879. Congressional Budget Office. https://www.cbo.gov/system/files/2025-01/60875-demographic-outlook.pdf.

Davidson, Mark. 2020. "From Big to Small Cities: A Qualitative Analysis of the Causes and Outcomes of Post–Recession Municipal Bankruptcies." *City and Community* 19, no. 1: 132–52.

Delaney, Ryan. 2019, March 29. "After 12 Years Away, St. Louis School Board Gets Ready to Regain Control." St. Louis Public Radio. https://www.stlpr.org/education/2019-03-29/after-12-years-away-st-louis-school-board-gets-ready-to-regain-control.

Draine, David, Keith Sliwa, Joanna Biernacka-Lievestro, and Riley Judd. 2025, July 30. "An Increase in Pension Obligations Adds to States' Unfunded Liabilities." Pew Research Center. https://www.pew.org/en/research-and-analysis/articles/2025/07/30/an-increase-in-pension-obligations-adds-to-states-unfunded-liabilities.

Edelberg, Wendy, Stan Veuger, and Tara Watson. 2025, July. *Immigration Policy and Its Macroeconomic Effects in the Second Trump Administration*. AEI Economic Perspectives report. American Enterprise Institute.

Engberg, John, Brian Gill, Gema Zamarro, and Ron Zimmer. 2012. "Closing Schools in a Shrinking District: Do Student Outcomes Depend on Which Schools Are Closed?" *Journal of Urban Economics* 71, no. 2: 189–203.

Geruso, Michael, and Dean Spears. 2025. *After the Spike: Population, Progress, and the Case for People*. Simon and Schuster.

Kearney, Melissa S., and Phillip Levine. 2021, May 24. “Will Births in the US Rebound? Probably Not.” Brookings Institution. https://www.brookings.edu/articles/will-births-in-the-us-rebound-probably-not/.

Lee, Matthew, and Benjamin Scafidi. 2025, August. “The Fiscal and Resource Effects of Enrollment Increases and Decreases on American Public School Districts.” EdWorking Paper no. 25-1266. Annenberg Institute at Brown University. https://edworkingpapers.com/ai25-1266.

Martin, Joyce A., Brady E. Hamilton, Stephanie J. Ventura, Fay Menacker, and Melissa M. Park. 2002, February 12. “Births: Final Data for 2000.” *National Vital Statistics Reports* 50, no. 5: 1–104.

Mullens, Cody Lendon, J. Andres Hernandez, Jeevan Murthy, Steph Hendren, Whitney E. Zahnd, Andrew M. Ibrahim, et al. 2024. “Understanding the Impacts of Rural Hospital Closures: A Scoping Review.” *Journal of Rural Health* 40, no. 2: 227–37.

National Center for Education Statistics. 2023. “Table 203.20. Enrollment in Public Elementary and Secondary Schools, by Region, State, and Jurisdiction: Selected Years, Fall 1990 through Fall 203.” *Digest of Education Statistics*. https://nces.ed.gov/programs/digest/d23/tables/dt23_203.20.asp.

Novy-Marx, Robert, and Joshua Rauh. 2011. “Public Pension Promises: How Big Are They and What Are They Worth?” *Journal of Finance* 66, no. 4: 1211–49.

Osterman, Michelle J. K., Brady E. Hamilton, Joyce A. Martin, Anne K. Driscoll, and Claudia P. Valenzuela. 2022, February 7. “Births: Final Data for 2020.” *National Vital Statistics Reports* 70, no. 17: 1–49.

Poterba, James M. 1994. “State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics.” *Journal of Political Economy* 102, no. 4: 799–821.

Urban Institute. 2025. “State and Local Finance Data Exploring the Census of Governments.” Urban-Brookings Tax Policy Center. https://state-local-finance-data.taxpolicycenter.org/pages.cfm.

US Census Bureau. 2025, July. “Annual Survey of State and Local Government Finances: 2023.” Census.gov. https://www.census.gov/data/datasets/2023/econ/local/public-use-datasets.html.