State Education Spending: Current Pressures and Future Trends

Abstract - *Education expenditures are one of the largest spending areas for state and local governments, and per–pupil expenditures have been growing over time. We examine trends in state aid for education and overall education spending and decompose the existing drivers behind growing state costs. We then explore how predicted future demographic trends will affect education spending levels, as the percent of the population that is of school age falls. We conclude that there will continue to be a large state role in education funding, but demographic changes may lead to reduced political support for schools in the future.*

Sheila E. Murray
Bush School of Government and Public Service, Texas A&M University, College Station, TX 77843-4220

Kim Rueben & Carol Rosenberg
Urban Institute, Washington, DC 20037

National Tax Journal
Vol. LX, No. 2
June 2007

INTRODUCTION

Since the 1983 report *A Nation at Risk*, states have increased their focus on almost all aspects of education. For example, states on their own or in response to federal mandates developed new curriculum standards and accountability systems. Many states have increased state aid to reduce the disparity across school districts in per–pupil spending. And finally, many states mandated class–size limits. Not surprisingly, this focus has put upward pressure on education spending. While elementary and secondary education expenditures on a per–pupil basis have been growing over time, education expenditures have been relatively stable as a percentage of state budgets (about 22 percent) over the last 20 years.[1] This relative stability is due in part to the fact that expenditures for other state responsibilities have been growing both in overall levels and as a share of state budgets. The most notable of the growing non–education expenditures are state Medicaid expenditures, which have grown from $56.6 billion in 1985 to $267 billion in 2005 and have surpassed education as the largest state spending item. These trends will likely continue as the baby–boom population ages and is expected to live longer, putting upward pressure on Medicaid spending and crowding out other priorities, including education.

Changes in demographic trends across population–age cohorts could have important implications for the need for

[1] Comparisons of state budget items are from the National Association of State Budget Officers (NASBO) State Expenditure Reports, annual surveys of state budget items (1987 and 2006).

education spending and the political support for education. As a share of the population, the elderly are expected to grow relative to the share of school–aged children and working adults. Public support for education spending is lower among the elderly, who receive less direct benefits from education than other age groups. States' ability to allocate funds to education may be constrained by pressure from other programs with greater political support. While the percentage of the population that is of school age is forecasted to fall nationwide and in all states, the number of children is expected to grow in some states. These states, given trends in declining class sizes, can be expected to face pressure to maintain or increase spending. While in states with declining school–age populations the need for overall education spending may fall, nationwide the growing student population, coupled with an increased share of disadvantaged and disabled students, indicates a growing need for education spending. However, if demographic changes weaken the political support for education, it may become increasingly difficult to pay for this additional spending.

Will education spending continue to grow on a per–pupil basis or will it be crowded out by other state programs? In this paper we examine current trends in education spending and whether these trends are expected to continue, examining the cost components that have led to increased per–pupil spending levels. We present national trends in the growth and composition of total public K–12 education resources and compare this growth to changes in student and total populations. We demonstrate how states have increased their share of education spending and how this growth in education spending compares to other state budget items. We examine the causes behind the shift to more state financing of education and how states allocated the rising expenditures across different spending categories. We then look forward, first describing the predicted changes in the age and racial profile of the U.S. and then examining how we expect existing spending trends and future demographics to interact and affect education spending. We think existing spending trends will continue, putting pressure on states to increase per–pupil spending, but political considerations prompted by demographic changes, especially reduced support for schools as the population ages, might mitigate this effect.

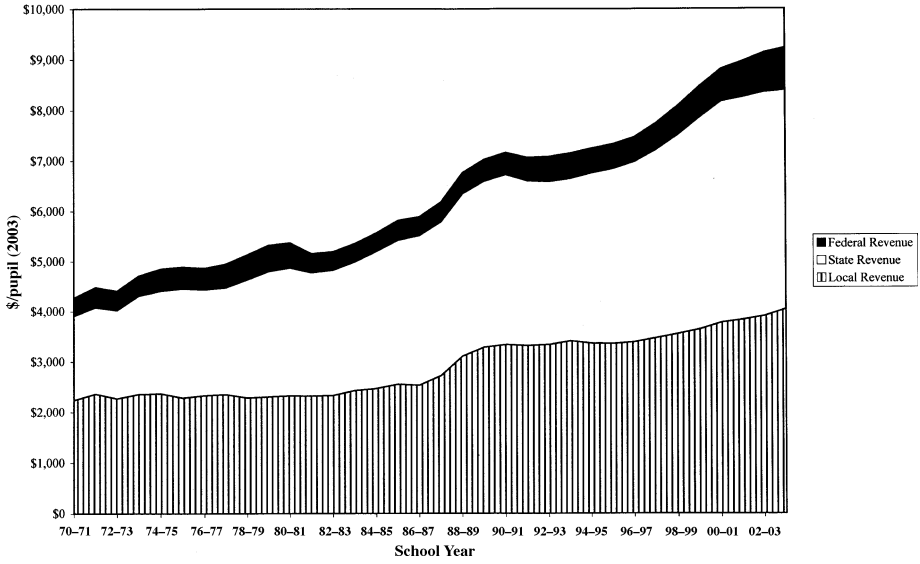
EDUCATION RESOURCES AND POPULATION TRENDS

Figure 1 presents real per–pupil revenues for K–12 education from the 1971 through the 2004 school years.[2] The top line of the graph represents total revenues from all sources. Real revenues per student more than doubled over the period, from just over $4,200 in 1971 to just over $9,000 in 2004 (in 2003 dollars). During the same time period, real education revenues per capita increased less dramatically by 54 percent, reflecting smaller growth rates in enrollments as compared to the overall population.

Table 1 decomposes whether the increases in per–pupil spending are coming from increasing revenues for education or a declining number of students by examining levels of spending at five–year intervals between the 1971 and 2001 school years and for the 2004 school year. Real total revenues grew 2.8 percent per year in the early 1970s, but fell in the late 1970s by about one percent per year before increasing continually since the 1980s. This decline in real revenues during the 1970s is largely due to the increased level of inflation. Enrollment in public schools fell in the 1970s

[2] The school year refers to the year of the spring term. Thus, 1972 refers to the 1971–72 school year.

Figure 1. Federal, State, and Local Real Revenues per Pupil



and mid–1980s before increasing again over the last 25 years. While spending per pupil increased, it is important to recognize that the percentage of the school–age population was falling, while the working age population was increasing. Thus, the burden of spending more per student was borne by a growing working age population. Real revenues have grown strongly since the 1980s, outpacing both population and enrollment changes.

While student populations were falling in the first half of this period, Table 1 illustrates that the number of teachers grew by an average of 1.1 percent between 1971 and 2004, with only a slight decline between the 1976 and 1977 school years. Consequently, student–teacher ratios were falling for most of this period and can partly explain spending per–pupil growth. We further discuss the relationship between spending increases and teachers in the fourth section.

Figure 1 and Table 1 also demonstrate that the sources of resources changed substantially over the last three decades. The figure reports the cumulative revenues from federal, state, and local governments. Although local funding increased throughout this period, revenues from state sources rose more quickly between 1972 and 1987 and, as a consequence, the states' share of total resources increased from 38 percent in 1972 to 49 percent in 1987. Revenues from the states then grew slowly from 1987 to 1992. By 1992, local governments contributed only 47 percent of all public education resources, down from 53 percent in 1972. More recently, as Dye and Reschovsky (2007) point out, this pattern has tempered. After the 2001 recession, state spending grew at a slower rate and the state share of spending actually decreased slightly between the 2003 and 2004 school years. Local revenues, while still a smaller share than state revenues, have grown steadily since 2001. We believe this shift back towards local revenues is a temporary phenomenon, reflecting the strength of property values (and property taxes) during the last recession, rather than a shift away from long–term trends. In 2004, the state share of education revenues was 47 per-

TABLE 1
U.S. PUBLIC K–12 EDUCATION REVENUES, SELECTED SCHOOL YEARS 1971 TO 2004

	1971	1976	1981	1986	1991	1996	2001	2004	Avg Annual Growth Rate
Total Revenues (billions 2003$)	204	234	223	250	304	339	416	448	2.4%
U.S. Resident Population (thousands)	203,984	215,465	227,225	237,924	249,623	266,278	282,193	290,850	1.1%
Population 20-64 (thousands)	109,576	119,847	129,116	139,246	148,067	154,829	169,083	175,756	1.4%
Fall Enrollment (thousands)	45,894	44,819	40,877	39,422	41,217	44,840	47,223	48,541	0.2%
Teachers (thousands)	2,059	2,198	2,184	2,206	2,398	2,598	2,941	3,049	1.2%
Total Revenues per Capita (2003$)	1,000	1,085	980	1,049	1,217	1,274	1,473	1,541	1.3%
Total Revenues per Pupil (2003$)	4,446	5,217	5,449	6,331	7,369	7,563	8,803	9,233	2.2%
Share of Total Revenues (Percentage)									
Federal	8	9	9	7	6	7	7	9	
State	39	44	47	49	47	48	50	47	
Local	52	47	43	44	47	46	43	44	

Source: National Center for Education Statistics (various years); Bureau of the Census (various years).

cent, while the local share was 44 percent and the federal share was nine percent. The federal government played a small and shrinking role in education finance between 1972 and 1992, but in the last decade federal participation has increased with the passage of No Child Left Behind, growing from seven to nine percent of total education revenues between 2001 and 2004.

The growth in the state share of education spending arises either at the expense of other responsibilities of state governments or through the growth in state revenues. As we noted in the introduction, spending on elementary and secondary education has been relatively stable as a percentage of state budgets (about 22 percent) over the last 20 years (NASBO, 1987–2006). Thus, state budgets have been growing over this period, with total real state revenues increasing from 513 billion dollars in 1985 to 1,166 billion dollars in 2005 (NASBO, 1987–2006). Other spending areas, most notably Medicaid, have been increasing their shares of state budgets.

Total state and local spending has also increased. In Table 2, we examine the share of state and local budgets going to education expenditures and other spending areas, using data from the Census of Governments.[3] When we include local budgets, we find that state and local spending on K–12 education as a share of total spending fell from 28 percent in 1972 to 24 percent in 1985, but has remained relatively stable since then. In contrast, public welfare (the category that includes most Medicaid expenses) was relatively stable at 12.5 percent of spending from 1972 to 1985, but has been increasing since and currently makes up 17.6 percent of state and local expenditures.[4] Thus, spending on education has maintained a relatively constant share of state, and state and local, budgets over the last 25 years. This has largely been due to overall growth in state and local spending. However, it is important to note that other budget items, most notably Medicaid, have been growing more quickly and are making up an increasing share of state (and state and local) budgets.

THE GROWING STATE ROLE IN FUNDING SCHOOLS

There are several reasons why the responsibility for education finance has shifted to the states. One of the more important ones is court cases arguing for equalization of school finances. For example, looking at state school finance court cases since the landmark *Serrano* decision in 1972 that equalized school spending in California, Corcoran, Evans, Godwin, Murray, and Schwab (2005) find that school finance reforms mandated by state supreme courts have increased the state share of total education spending, while local shares decreased or remained the same. They find that most states leveled up, that is, increased overall spending per pupil, by an average of 14 percent in the six years following a supreme court ruling on the constitutionality of a state's school finance system.

Decisions in the early cases were largely based on equity arguments that relied on evidence of disparities in tax bases across districts in the state. The remedies were largely aimed at correcting these disparities. More recent cases typically

[3] Note that numbers in Tables 1and 2 are slightly different due to differences in accounting methodologies used between the Census of Governments and National Center for Education Statistics.

[4] The Census of Governments does not separate out Medicaid spending as a category. Most Medicaid spending is part of public welfare, with the remainder largely appearing in the Hospitals category of payments for hospital visits. The growth in public welfare spending is largely coming from increases in Medicaid. As Marton and Wildasin (2007) and McGuire and Merriman (2006) document, standard welfare cash assistance payments have been falling over this period.

TABLE 2
TOTAL STATE AND LOCAL EXPENDITURES BY FUNCTION (BILLIONS 2003$)

	1972	1977	1980	1985	1990	1995	2000	2004	Avg Annual Growth Rate
K–12 Education	203.3	215.0	205.4	223.4	281.5	315.8	386.2	435.8	2.4%
Higher Education	69.1	78.0	75.0	88.5	102.3	116.0	142.1	166.9	2.8%
Public Welfare	92.0	103.8	100.7	117.7	149.5	230.8	246.8	323.2	4.0%
Cash Assistance	45.7	34.1	28.6	29.5	31.1	34.4	21.9	20.2	–2.5%
Health and Hospitals	56.7	69.2	71.1	83.9	104.0	126.6	134.7	153.9	3.2%
Corrections	9.2	13.1	14.2	21.7	34.3	42.8	51.6	54.5	5.7%
Highways	82.9	69.3	73.6	76.1	85.1	92.1	107.2	113.9	1.0%
Police and Fire	37.4	44.6	42.5	50.6	61.0	69.4	84.5	94.5	2.9%
All Other	138.0	192.7	200.8	242.7	310.0	341.8	414.4	471.9	3.9%
Total	734.3	819.9	811.8	934.1	1,158.7	1,369.6	1,589.2	1,834.8	2.9%

SHARE OF TOTAL STATE AND LOCAL EXPENDITURES

	1972	1977	1980	1985	1990	1995	2000	2004
K–12 Education	27.7%	26.2%	25.3%	23.9%	24.3%	23.1%	24.3%	23.8%
Higher Education	9.4%	9.5%	9.2%	9.5%	8.8%	8.5%	8.9%	9.1%
Public Welfare	12.5%	12.7%	12.4%	12.6%	12.9%	16.8%	15.5%	17.6%
Cash Assistance	6.2%	4.2%	3.5%	3.2%	2.7%	2.5%	1.4%	1.1%
Health and Hospitals	7.7%	8.4%	8.8%	9.0%	9.0%	9.2%	8.5%	8.4%
Corrections	1.3%	1.6%	1.8%	2.3%	3.0%	3.1%	3.2%	3.0%
Highways	11.3%	8.5%	9.1%	8.2%	7.3%	6.7%	6.7%	6.2%
Police and Fire	5.1%	5.4%	5.2%	5.4%	5.3%	5.1%	5.3%	5.2%
All Other	25.0%	27.7%	28.3%	29.1%	29.4%	27.5%	27.4%	26.8%

Note: Census classifies most of Medicaid funds under "Public Welfare–Vendor Payments." Some Medicaid spending is included under "Hospitals" when either the state or local government provides the service directly. Consequently, the Census and NASBO figures are not directly comparable.
Source: State and Local Government Finance Data Query System.

have taken a very different approach. The recent cases focus on ensuring that all students in a state have equal access to adequate educational opportunities (Minorini and Sugarman, 1999). The argument in these cases is that at least some districts do not provide students with an adequate education and that it is the state's responsibility to see that they receive the funding to allow them to do so. In contrast to the earlier equity–based cases, the remedy might require some districts to spend more (perhaps significantly more) than other districts if, for example, districts have many students from low–income families and from families where English is not the first language. Current estimates from the Education Trust (2005) assume that the cost of educating students from low–income families is 1.2 to 1.4 times the average cost. Thus, the trend toward addressing adequacy would suggest larger increases in revenues for districts and schools serving at–risk students than was the experience under equity–based cases.

The influence of the federal government in education has broadened over time and has increased the responsibilities for state governments. The federal government's role in education primarily comes through the reauthorizations of the Elementary and Secondary Education Act (ESEA) of 1965 and the Individuals with Disabilities Education Act (IDEA) of 1975. Prior to the 1994 reauthorization, the federal government focused on "at–risk" students, about 25 percent of students. States and districts were able to opt out of the federal program if they wished. However, the 1994 legislation adopted under President Clinton affected all public schools in the country, regardless of whether they receive any federal aid and regardless of how many "at–risk" students they have. The 1994 reauthorization required states to implement curriculum standards and accountability systems. Federal mandates were further expanded after passage of the 2002 reauthorization, which is commonly known as No Child Left Behind (NCLB). To receive federal funds under NCLB, states now must test all public–school students in grades three through eight and each student once in high school; states must release test scores for every school and by racial, ethnic, economic, and other subgroups within each school; and they must impose sanctions on schools that fail to make adequate yearly progress for two consecutive years.

Prior to the recent reauthorizations, only a few states had such accountability systems. Thus, under NCLB many states had to find new resources to establish and maintain the state's academic standards, assessment programs, and accountability system. States also faced increased teacher salary and training costs to satisfy the NCLB requirement that all public schools have "highly qualified" teachers in core academic subjects.

Estimates for these costs are not reported by the federal government or state governments. A few studies have estimated the costs of the testing systems needed to implement NCLB rules. For example, Hoxby (2002) analyzes the educational accountability costs of 25 states. Her estimates of these costs range from a low of $1.79 per pupil (South Carolina) to a high of $34.02 per pupil (Delaware). Hoxby asserts that if all states spent as much as Delaware, the costs of the accountability system would only amount to less than one half of one percent of per–pupil costs. These costs, however, do not reflect the costs of the remediation for schools with sanctions or the costs of meeting higher teacher standards.

More recently, there has been a movement on the part of states to calculate the costs of implementing new data systems and the costs of NCLB. In 2004, 12 states, in concert with the Council of Chief State School Officers, set about to measure expected costs using a common framework. In contrast to Hoxby's

measures that determine the costs of implementing an accountability program from state–level administrative data, these states' estimates begin by asking a sample of school district teachers and administrators what resources (both time and materials) would be needed to meet the NCLB requirements. These activity–based cost estimates are much larger than those estimated by Hoxby. For example, the estimate for New Mexico includes a cost per year of $260 to $385 per pupil, an order of magnitude larger than the Hoxby estimate (Palaich, Augenblick, Silverstein, and Brown, 2005). States stress that much of the cost of compliance with NCLB identified by this method is not met by federal funds.

The federal Individuals with Disabilities Education Act (IDEA) first passed by Congress in 1975 requires school districts to develop an individual education program (IEP) for each student with a disability and provide those services specified in the IEP. The costs of the IEP are shared among the federal, state and local governments.

Between the 1978 and 2003 school years, the number of special education students increased 186 percent, an average annual rate of growth of 2.4 percent.[5] Special education enrollments grew most rapidly from 1978 to 1982 and from 1992 to 1998. Compared to enrollments of all students, special education enrollments grew much faster; for example, between 1989 and 2003, special education enrollments grew more than two and half times as fast as total enrollments (53 percent versus 20 percent).

Data on special education revenues are not reported annually by the U.S. Department of Education. However, under contract for the department, the American Institute for Research (AIR), Center for Special Education Finance has compiled estimates of revenues and expenditures from surveys of state governments and other published sources. Table 3 reports the most recent estimates from these collections (Parrish, forthcoming). As Table 3 shows, total special education spending, which represents additional spending on special education students over and above regular education funds, is rising faster than regular education spending. Real (2003 dollars) special education spending increased 117 percent from 1983 to 1999, while real general education spending increased only 69 percent. The faster

TABLE 3
TRENDS IN SPECIAL EDUCATION FUNDING

	1983	1988	1994	1999
Special Education (billions 2003$)	23.6	30.2	37.3	51.0
General Education (billions 2003$)	200.7	247.3	287.8	338.2
Eligible Pupils (thousands)	3,990	4,167	4,896	5,978
Total Enrollment (thousands)	39,223	39,649	43,078	46,143
Special Ed Expenditure Per Pupil (2003$)	5,911	7,254	7,622	8,540
Percentage of Students in Special Ed	10.2%	10.5%	11.4%	13.0%
Share of Special Education Revenues (Percentage)				
Federal	7	6	6	8
State	56	58	55	47
Local	37	36	39	45

Source: Parrish (forthcoming). The numbers of eligible pupils are taken from Parrish, Harr, Wolman, Anthony, Merickel, and Esra (2004).

[5] Information on costs and spending of special education programs can be difficult to find on an annual basis and differentiating total costs of educating special education students from the additional costs of educating these students above regular education costs can be difficult. To ensure consistency in our over–time comparisons, we limit our attention to Parrish's time series, which examine the additional costs of educating students with IEPs.

growth in special education spending is due in large part to expanding special education enrollments. Much of the increased costs of special education are falling on local school districts, although the share of special education spending coming from the federal government has increased slightly from six percent in 1994 to eight percent in 1999, while the state share has decreased from 55 percent in 1994 to 47 percent in 1999. Parrish (forthcoming) suggests that the decline in the state share is a result of capping special education funds and, thus, shifting the burden to local governments.

Parrish finds that the majority of new special education enrollments came from students in less severe categories of disability and this had the effect of increasing the ratio of special education students to teachers (shown in Table 4). He also finds that the ratio of spending per special education student to spending per regular education student fell over time, from 2.28 in 1985 to 1.90 in 1999. Thus, spending on special education is growing faster than that for general education because of increased enrollments rather than relative increases in spending per special education student.

The shift toward state responsibility for financing education (from 39 percent in 1971 to 50 percent in 2001) can largely be accounted for by court mandates to equalize spending across districts and to new federal rules and mandates. NCLB has increased the need for state accountability and testing systems and has increased the state role in compliance. Growing numbers of special education students have also increased state costs, though a larger percentage of these costs are borne by local districts.

DECOMPOSING SPENDING CHANGES

Demographic, institutional and policy pressures have led to increases in per–pupil education spending that have often been the responsibility of state governments. Hanushek and Rivkin's 1997 analysis into the components of the growth in spending in the period up to 1990 offers insights on the key drivers of future education costs. Focusing on the effects of the "baby bust," their estimates suggest that the decline in enrollments between 1970 and 1990 accounted for nearly 25 percent of the increase in real expenditures per student during that time period. The authors point out that, despite the declining enrollments, the number of teachers actually grew in the post–1970 period. They find that much of the spending growth was attributable to increased instructional costs that resulted from a combination of falling pupil–staff ratios and rising teacher salaries.

In Table 4, we present selected teacher characteristics from the 1971 to the 2004 school year. Hanushek and Rivkin (1997) find that average teacher salaries increased by 27 percent between 1970 and 1990, largely due to increases in average number of years of experience and in the number of teachers with a master's degree. Over the last 15 years, however, teacher salaries have been largely constant in real terms at about $46,000 per year. Table 4 also shows that teacher experience was relatively constant in the 1990s, though the percentage of teachers with a master's degree continued to grow.

Hanushek and Rivkin (1997) find that, although teacher salaries grew between 1970 and 1990, earnings for female teachers eroded as compared to other college–educated women by about ten percent once changes in education and experience were controlled for. In contrast, relative earnings for male teachers increased slightly. Most of these changes took place in the 1970s, with far less erosion of wages in the 1980s. Growth in the difference in relative salaries for teachers as compared to other similarly educated workers has reoccurred in the last decade. Allegretto, Corcoran, and Mishel (2004)

TABLE 4
SELECTED TEACHER CHARACTERISTICS

	1970–71	1975–76	1980–81	1985–86	1990–91	1995–96	2000–01	2003–04
Number of Teachers	1,710	2,198	2,184	2,206	2,398	2,598	2,941	3,049
Average Annual Salary (2003$)	42,487	41,375	37,092	42,171	44,990	44,369	45,134	45,751
Median Years of Experience	8	8	12	15	15	15	14	N/A
Percentage with a Master's Degree	2.7%	3.7%	4.9%	5.1%	5.3%	5.5%	5.6%	N/A
Student–Teacher Ratio	22.3	20.4	18.7	17.9	17.2	17.3	16.0	15.9
Special Ed Student–Teacher Ratio	N/A	N/A	18.3	15.9	15.2	14.8	15.6	N/A

Source: National Center for Education Statistics (various years). Information on student–teacher ratios is from Hanushek and Rivkin (1997) and calculated using information from Tables AA1 and AH1 in *Annual Reports to Congress on the Implementation of the Individuals with Disabilities Education Act*.

examine relative teacher wages using a number of datasets and find that teachers earn considerably less than comparable workers in other fields and that this difference has grown over time. Examining data from the Current Population Survey (Allegretto et al., 2004), the authors find that, since 1979, teacher wages relative to those of other workers with similar education and experience have fallen by 18.5 percent among women and 9.3 percent among men, though the authors do find that teachers have better health and pension benefits. These changes in relative salaries could be expected to limit the supply of new teachers going forward, or require significant increases in teacher salaries to meet expected demand.

Table 4 also shows that the demand for teachers has increased steadily and student–teacher ratios have decreased since the 1971 school year. Hanushek and Rivkin (1997) note that the growth in the special education population and the increased staff for these students put upward pressure on total education costs. In particular, they find that 36 percent of the decline in overall pupil–teacher ratios between 1980 and 1990 was caused by changes in special education programs. Between 1980 and 1990, student teacher ratios for special education students fell from 18.3 to 15.2 (see Table 4). However, staffing requirements for special education are not driving current reductions in overall student–teacher ratios. Increased enrollments of special education students from 1990 to 2000 were offset by expanding special education student–teacher ratios. As shown in Table 4, special education student–teacher ratios increased from 15.2 to 15.6 over the period, while overall student–teacher ratios decreased from 17.3 in 1990 to 16.1 in 2000.

The increase in teachers employed is due in part to school districts moving to smaller class sizes, often at the urging of states in the aftermath of evaluations of Tennessee's class size reduction program in 1985 (summarized, for example, in Krueger (2003)). For example, in 1996 California implemented a class–size reduction program that offered school districts $650 per pupil in additional funding for classes in grades K–3 where the student–teacher ratio was kept to 20 students or less. This program costs the state about $1.6 billion per year and has reduced student–teacher ratios for the given classrooms by about one–third (Reed, Rueben, and Barbour, 2006).

About one quarter of the increase in per–pupil spending from 1980 to 2000 is due to the increase in the total teacher wage bill, with about half of this increase coming from higher salaries, and half, due to smaller student–teacher ratios.[6] The rising salaries for teachers are not unexpected given the rising salaries of college graduates in other sectors of the economy. It is somewhat surprising that states increased the intensity with which teachers were used given that they became relatively more expensive.

School districts have been slow to adjust inputs (and, thus, spending) down in response to declining enrollments.[7] This could be due to difficulties of decreasing teaching staffs and consolidating schools or due to the costs of per–pupil spending becoming cheaper on a per–capita basis as the rest of the population grows. How do these patterns vary across states, and is it the changes in the number of students

[6] Hanushek and Rivkin (1997) found that per–pupil spending increases were also related to falling student–other staff ratios and to additional out–of–classroom expenses. That is, the number of district staff and other school staff was also increasing relative to the number of students. We find that student–staff ratios are still falling and expect other non–classroom expenses, most notably state accountability and testing systems to also increase per–pupil spending levels.

[7] Ladd (1997) makes this point, as do Silva and Sonstelie (1995), when examining California finances after the *Serrano* decision.

that seem to affect spending levels? In the next section, we examine current and future changes in the composition of the population, but we first investigate simple correlations between changes in spending per pupil and changes in demographics across states.

We start by examining correlations across states between changing numbers and percentages of students, overall population, and the elderly between 1985 and 2000. We find a small negative correlation (–0.11) between changes in real spending per pupil and changes in the number of people of school age. We find a stronger negative correlation (–0.51) between changes in the percentage of the population that is school–aged and changes in real per–pupil spending, implying that spending per pupil increases as the number of students declines. We also find a negative correlation between changes in spending per pupil and changes in the percent of the population that is elderly (–0.28), but a positive correlation between spending per pupil and changes in the percent of the population that is of working age (0.18).

Additionally, we find positive correlations between changes in the number and share of the population that is school–aged and the share of state and local spending that goes to education (0.26 and 0.21, respectively). This correlation is stronger (0.29) if we examine changes in the child dependency ratio—or changes in the school–age population as compared to the working age population. There is a negative relationship (–0.28) between changes in the share of the budget going to education and changes in the percent of the population that is elderly. Thus, it seems states are willing to spend more money on children when they make up a larger share of the population, but this support erodes as the share of the population over 65 grows.

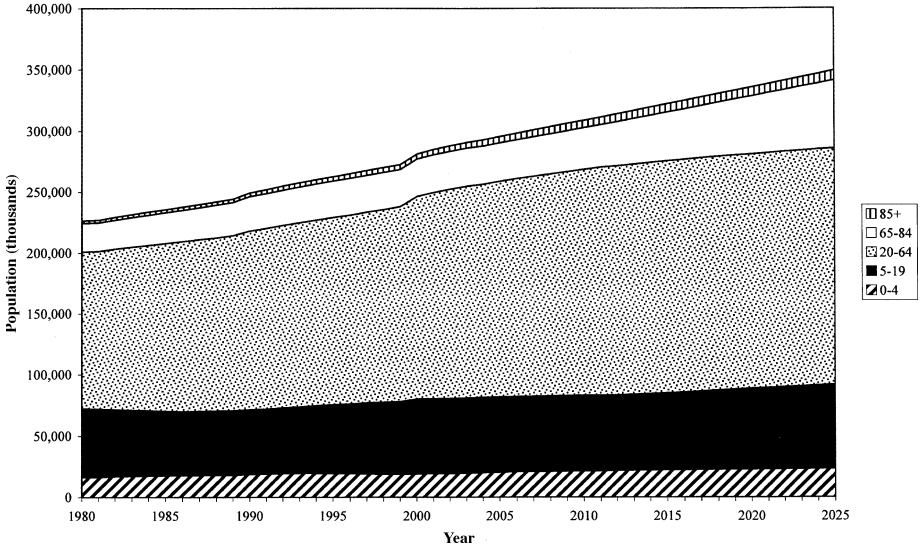
Finally, we examine the relationship between changes in class size and spending per pupil. Not surprisingly, given the large percentage of education budgets that goes to teachers, we find a strong negative correlation (–0.63) between changes in student–teacher ratios and spending per pupil. That is, states with larger declines in student–teacher ratios have higher increases in per–pupil spending.

We find that much of the increase in education spending per pupil from 1980 to 2004 can be attributed to increases in teacher wages and shrinkages in student teacher ratios. Given wage growth for other college–educated workers, it is not surprising that teacher salaries would also rise. The fact that student–teacher ratios were also falling means that districts were relying more on a relatively more expensive resource. This decline in student–teacher ratios was in part due to explicit policies (such as the class size reduction policy in California), but was more generally due to falling enrollments. We find that increases in spending per pupil and declines in student–teacher ratios were strongest in states with a declining number of school–age children.

CHANGING DEMOGRAPHIC TRENDS

How do prior demographic changes compare to expected future changes? Support for spending per pupil seems to have declined in the past in places with larger increases in the percentage of the population that is elderly. We now examine projected demographic changes to see how they can be expected to affect education spending going forward. Figure 2 shows trends in the U.S. population from 1980 through 2025, using U.S. Census Bureau estimates. While we are interested in looking forward, it is appropriate to examine how future patterns compare to current demographic patterns and previous changes in the population. Over this period, the population is expected to increase by 54 percent from a little over 226 million people to just under 350

Figure 2. U.S. Population, 1980–2025



million people. Those 65 and older will account for most of the growth—increasing from 11.3 percent of the population in 1980 to 18.2 percent in 2025. During this time period, the percentage of the population that is 19 or under is expected to decline from 32 to 26.3 percent and the school–age population (those aged five to 19) is expected to decline from 24.8 to 19.6 percent. However, this decline in the percentage of the population does not mean that there will be fewer children in 2025—indeed, there will be 22 percent more school–age children—but that this increase is slower than the overall increase in the population. The working–age population, those individuals aged 20 to 64, is also shrinking as a percent of the overall population and is relatively constant in absolute numbers, increasing from 165 million in 2000 to 194 million in 2025. The slow growth in the working–age population combined with the growing elderly population means that the ratio of non–working to working populations is expected to increase dramatically.

The change in the absolute and relative number of children expected in the population varies by region and state. Table 5 presents information on regional changes in the number of school–age children, the total population and the percentage of the population that is school–aged. The number of students in the Northeast and Midwest declined in the period from 1980 to 2000 and is expected to continue falling in the future. In contrast, states in the South had declines in the number of students until about 1990 and have since had increased enrollments, while states in the West have had increasing numbers of students (as well as overall population growth) and are expected to continue to have growth in the number of school–age children. However, all regions are expected to face a declining percentage of their population that is of school age.

The changes in expected growth rates across states are even more dramatic. Arizona and Nevada are expected to have an over–40–percent increase in the number of five– to 19–year–olds between 2010 and 2025, and Florida and Texas

TABLE 5
REGIONAL CHANGES IN POPULATION GROWTH RATES

Region	Percent change from 1980			Level	Percent change from 2000			
	1985	1990	2000	2000	2005	2010	2020	2025
				A. Total Children 5–19				
Northeast	–9.8%	–16.2%	–6.0%	11,099	–1.3%	–4.5%	–6.5%	–5.7%
Midwest	–9.4%	–12.4%	–4.2%	14,219	–2.6%	–4.5%	–3.8%	–3.1%
South	–3.9%	–2.6%	13.8%	21,665	2.0%	5.7%	18.4%	24.2%
West	–1.1%	11.2%	37.2%	14,315	1.9%	2.8%	13.5%	21.2%
Total	–6.0%	–5.5%	9.2%	61,297	0.3%	0.8%	7.6%	11.8%
				B. Total Population				
Northeast	1.2%	3.5%	9.1%	53,594	2.3%	4.1%	6.6%	7.2%
Midwest	–0.2%	1.5%	9.4%	64,393	2.5%	4.7%	7.9%	8.8%
South	6.7%	13.7%	33.0%	100,237	6.7%	13.3%	27.3%	34.8%
West	8.7%	23.0%	46.4%	63,198	7.3%	14.2%	29.2%	37.3%
Total	4.1%	10.1%	24.2%	281,422	5.0%	7.3%	19.3%	24.2%
				C. Total Children 5–19—Percent of Population				
Northeast	–10.8%	–19.0%	–13.8%	20.7%	–3.5%	–8.3%	–12.3%	–12.0%
Midwest	–9.2%	–13.8%	–12.4%	22.1%	–5.0%	–8.7%	–10.8%	–10.9%
South	–9.9%	–14.4%	–14.4%	21.6%	–4.4%	–6.7%	–7.0%	–7.9%
West	–9.0%	–9.6%	–6.3%	22.7%	–5.0%	–10.0%	–12.1%	–11.7%
Total	–9.7%	–14.2%	–12.1%	21.8%	–4.5%	–8.1%	–9.8%	–10.0%

Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South includes Alabama, Arkansas, Delaware, the District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. West includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
Source: Bureau of the Census (1995, 2000, 2004).

are projected to have a 30 percent and 28 percent increase in the number of children aged five to 19. In contrast, the number of five– to 19–year–olds in West Virginia is projected to decrease by ten percent and Wyoming is projected to have five percent fewer school–age children in 2025 than in 2010. About half of all states are expected to have growing numbers of students between 2005 and 2009. Fewer states will see increases in subsequent years, but by 2016 over 80 percent of states are expected again to face growing student populations. Nearly all states face a declining percentage of their youth (age five–19) populations until 2013; after this, however, the percentage of the population that is school age is expected to grow in over half of the states, though virtually all states are still expected to have a lower percentage of school–age population than in 2000.

These patterns are not dissimilar to previous changes in the number and percentages of the population that is of school age that occurred at the end of the twentieth century. From 1980 to 2000, the percentage of the population that was school–aged fell in virtually all states, while the number of children varied across different areas. The story is starker when we examine changes in the elderly population. Most states are expected to increase the number of elderly by over 60 percent. Interestingly, the states with the largest growth rates in the number of elderly also are the places with increasing numbers of kids. If we examine the growth rates in the percentage of the population that is elderly, we find that all states are expected to have growth rates of more than 21 percent. Indeed, the average percentage change in the share of the population that is over 65 is 51 percent. We expect the increases in those over 65 to exert a significant effect on education spending in the future in virtually every

state. The growing role of the elderly is especially important when coupled with the relatively constant number of people between 20 and 64. The projected national old–age dependency ratio is expected to increase from 0.22 in 2010 to 0.33 in 2025. If we combine the school–age and old–age ratio we find a total dependency ratio of 0.68, much higher than in the recent past. This would imply a smaller share of people working and providing revenues for government services.

In addition to differences in the age makeup of the population, there are changing trends in the racial and ethnic composition of the population going forward. Due to differences in migration and fertility patterns, the country is becoming more racially diverse, with school–age populations more non–white than the overall population. Table 6 compares the ethnic makeup of the school–age population with that of the elderly and overall population over time. In 1995, the overall population was 74 percent white, while the school–age population was 68 percent white, and the over–65 population was over 85 percent white. By 2025, the overall population is forecast to be 62 percent white, while the school–age population is expected to be 53 percent white, and the elderly population is expected to be 75 percent white. Thus, the difference in the racial makeup is growing across age groups. This widening disparity is especially strong in states that are expected to have the highest growth in the number of school–aged children. We find a strong positive correlation (0.61) between the projected growth in the number of school–age children between 2005 and 2025 and the difference in the percentage of the school age and elderly population that is non–white.

Much of the difference in the racial mix by age comes from the increase in the number of Hispanic children compared to seniors. The percentage of the school–age population that was Hispanic in 1995 was 13 percent, while the percentage of the elderly that is Hispanic was five percent. In contrast, by 2025, it is estimated that 23 percent of the school–age population will be Hispanic, while the percentage

TABLE 6
PERCENTAGE DISTRIBUTION OF US POPULATION BY AGE GROUP, 1995–2025

	1995	2000	2005	2010	2015	2020	2025
5 to 19—Share of Population	21.4%	21.8%	21.4%	20.7%	20.0%	19.9%	20.1%
White Non–Hispanic	67.5%	65.1%	62.5%	59.9%	57.6%	55.3%	53.4%
Hispanic	13.1%	14.9%	16.6%	18.3%	19.7%	21.4%	22.9%
Black	14.7%	14.8%	15.1%	15.3%	15.6%	15.7%	15.7%
Asian and Pacific Islander	3.6%	4.2%	4.8%	5.5%	6.1%	6.5%	6.9%
American Indian	1.0%	1.0%	1.0%	1.0%	1.0%	1.1%	1.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
65 and Over—Share of Population	12.8%	12.6%	12.6%	13.2%	14.7%	16.5%	18.5%
White Non–Hispanic	85.4%	83.9%	82.2%	80.8%	79.4%	77.9%	76.4%
Hispanic	4.5%	5.4%	6.4%	7.2%	8.0%	8.9%	9.9%
Black	7.9%	8.0%	8.2%	8.2%	8.4%	8.7%	9.0%
Asian and Pacific Islander	1.8%	2.3%	2.8%	3.2%	3.7%	4.0%	4.2%
American Indian	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total							
White Non–Hispanic	73.7%	71.8%	69.9%	68.0%	66.1%	64.3%	62.4%
Hispanic	10.2%	11.4%	12.6%	13.8%	15.1%	16.3%	17.6%
Black	12.0%	12.2%	12.4%	12.6%	12.7%	12.9%	13.0%
Asian and Pacific Islander	3.3%	3.9%	4.4%	4.8%	5.3%	5.7%	6.2%
American Indian	0.7%	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Bureau of the Census (1996).

of the population that is over 65 that is Hispanic only increases to ten percent of the elderly population. Historically, minority students have typically been from lower–income families and Hispanic students are more likely to be immigrants or the children of immigrants and have some language needs. We explore the cost implications of these trends below.

LOOKING FORWARD

What can we learn about future education funding by examining the patterns in education spending and demographics over the last 20 to 25 years? Does it matter whether populations other than the school–age population are growing or shrinking? The school–age population is expected to grow, which will create upward pressure on nationwide education spending. In states with decreasing enrollments, however, there is the potential for a decline in spending. If spending per pupil is kept constant in states with a declining number of students, fewer resources will be needed on a per–capita basis and, thus, a smaller burden will need to be placed on taxpayers to provide for education spending.

The number of special education students is expected to continue to increase and the school–age population will come increasingly from higher–poverty households. School finance cases have increased the pressure on states to provide adequate and appropriate education for all students. As the number of special needs students (students with disabilities, with limited English proficiency, and from poorer households) increases, per–pupil costs are expected to increase. Special education costs could rise further as all students must meet accountability and achievement requirements under NCLB. The growing share of resource–intensive students in the school–age population is, thus, expected to exert upward pressure on per–pupil education spending.

The Department of Education predicts that student–teacher ratios will continue to decline from current levels of 15.9 in 2003 to 14.5 by 2014. We would expect teacher salaries also to increase due to growing wage premiums for workers with a college education. However, the demographic changes affecting the population as a whole are also affecting the teacher labor force. Hussar (2007) estimates that teacher age and experience levels will decline as teachers retire. He estimates that the percentage of teachers in their 50s will decline from 29 percent in 2004 to 22 percent in 2016, with an increase in the percent of teachers in their forties. He also projects that the number of newly hired teachers will increase steadily from 236,000 in 2004 to 393,000 in 2016. Thus, the teaching force will be lower down on the salary scale (lower levels of experience), which could temper wages. However, we expect that, in order to attract this growing number of teachers from other occupations, salaries will need to increase. This increased need for teachers and rising salaries will put upward pressure on per–pupil spending.

Unlike demographic changes that occurred between 1980 and 2000—when the decline in the school–age population was accompanied by increases in the working–age population—future shifts in the population will be toward the elderly, who often, like children, are net recipients of government services, especially Medicaid. Our examination of past spending patterns suggests that states with the highest increases in the number and share of their population over 65 had lower growth rates in per–pupil spending. It is projected that all states will see an increase of more than 20 percent in the share of their populations 65 and over. The pressure for other state and local services can be especially acute for states with large increases in those 85 and over, a group whose share of the population is rapidly increasing. The number of people

over 85 has increased from 2.2 million in 1980 to 4.2 million in 2000 and is expected to rise to over eight million by 2025. While those over 85 still represent a small share of the population, this growth is expected to exert pressure on state budgets through rising health care costs, in particular for state expenditures on Medicaid insurance to cover the costs of nursing–home care. Thus, while we would expect per–pupil costs to continue increasing, the countervailing pressure of health care for the elderly might limit the availability of state resources for education.

The aging of the baby–boom population in the U.S. poses an increasing intergenerational conflict over the disposition of limited resources. One potential implication of the shift in political power from the working population to the elderly is the possibility that disproportionately fewer public resources will be available for services for children, including elementary and secondary education. The elderly receive fewer direct benefits from education spending than other age groups. To the extent that older people vote in their narrowly defined self–interest, we would expect public support for education spending to fall as the population ages. Various researchers have documented that, compared to younger groups, the elderly appear to have weaker preferences for K–12 education (Rubinfeld, 1977; Vinovskis, 1993); that they are less willing to vote favorably on certain school bond referenda (Button, 1992) or more willing to support property tax limitations (Ladd and Wilson, 1983); and that, other factors held constant, in school districts in New York with larger shares of the elderly in their populations, less is spent per pupil on education than in other districts (Inman, 1978). Elderly support for schools in the past may have reflected the capitalization of school quality or spending into house prices; as school spending is less related to property values (as reliance on property taxes falls), we might find additional reluctance of the elderly to support school spending.

Poterba (1997 and 1998) has considered the experiences of all states between 1961 and 1991 to examine how the changing share of the elderly affects the willingness of states to support elementary and secondary education. He found that, other factors held constant, the higher is the proportion of people over 65 in a state, the lower is the amount the state spends (including both state and local spending) per child on K–12 education. Poterba (1998) estimated that the increase in the aged population expected between 1996 and 2030 could lead to a spending reduction of 12 percent.

However, other researchers have found a more nuanced story when examining elderly support for education. Ladd and Murray (2001) analyze the model posed by Poterba using county–level rather than state–level data. In contrast to Poterba's findings, they find that the effect of the elderly share of the population on education spending is small and not statistically different from zero. However, like Poterba, Ladd and Murray (2001) find a reduction in per–child education spending when the elderly and the school–age populations are members of different racial groups.[8] Given the states with the highest growth rates in the number of children are those that face the largest mismatch in the racial makeup of their elderly and school age populations, this could imply declining political support for education spending.

Other studies have investigated this relationship with respect to state–level spending on education. For example, Balsdon and Brunner (2004) have analyzed surveys of California elderly voters and

[8] Specifically, they find that the greater is the difference between the share of the elderly who are white in the state and the share of the youth who are a minority, the lower is the support for education.

found that the elderly prefer local to state spending on education. This is especially telling as California has centralized decision–making on spending levels more than most other states, and suggests that centralization of funding could erode support. Using a national sample of school districts with observations on education spending and demographics from 1972 to 1992, Harris, Evans, and Schwab (2001) find that the share of elderly in the population had a larger negative effect on state spending than on local spending. These results and the current trend of the increasing state role in education finance may indicate further erosion of education support going forward.

The experiences in California during the past three decades offer insights to the future for other states. The past growth in the school–aged and elderly in California foreshadow the projected trends for the rest of the country. School finance equalization coupled with the effect of Proposition 13 led to slower growth in spending per pupil than in other states. Researchers have also found declining support for state–level education spending. This would suggest that education spending would decrease as a priority. However, past policy experiences would suggest that this conclusion is not a *fait accompli*. California has been a leading state in school finance equalization, accountability programs, class size reduction, charter schooling and a host of categorical programs intended to address educational needs and has had a stable share of its state and local revenues going to education since 1990. The stable share was essentially mandated in 1988 with the passage of a state constitutional initiative requiring that a minimum spending level and share of the state budget go to education.

In summary, we expect current patterns of court cases and federal mandates to increase pressure for spending, but the centralization of financing at the state level might undermine political support for these increases. Similarly, changes in the demographic makeup of students is expected to increase the costs of providing an adequate education per pupil. The need to hire more teachers, due to teacher retirements and declining student–teacher ratios, is further expected to increase per–pupil costs in the future. Declining numbers of students would also be expected to increase per–pupil spending given historical patterns. However, increases in the share of the population that is elderly, especially when paired with changes in the ethnic makeup of the elderly and student populations, is expected to erode support for education spending. Therefore, we expect there to be increases in per–pupil spending going forward, but likely declines in the share of state and local budgets going to K–12 education.

CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

We have examined the past growth in educational spending and a shift of responsibility to state governments away from local governments for education spending in the past three decades. Much of the increased responsibility is due to institutional pressure from court–mandated school finance reforms and policy pressures from federal mandates. Looking forward another two decades, we presented data on the age profile of the United States. The echo of the baby boom and sharply higher immigration together will increase the number of school–aged children by 22 percent by 2025. As a share of the population, however, school–aged children will decline from 24.8 percent in 1980 to 19.6 percent in 2025. Trends in the working–age and elderly populations suggest a decrease in support for education spending. In 1980, slightly more than 11 percent of the population was at least 65 years old; in sharp contrast, forecasts anticipate that over 18 percent of the population will be at least 65 in 2025. This pattern reflects the confluence

of a number of trends, including the aging of the baby–boom generation and increased longevity stemming from improvements in medical care.

The changing age profile of the population has a number of obvious implications for public policy at the state level. Medicaid, for example, will undoubtedly be a key pressure on states in the years to come. In addition, demographics will likely have important effects on policy at the state and local level that warrant additional research. Public support for education is a particular concern. Seniors realize fewer direct benefits from education spending than do other age groups. Consequently, as the population ages and political power shifts toward the elderly, we might expect spending on education to fall. Previous research has consistently demonstrated that the elderly are less likely to support increases in school spending when the children in their community are of a difference race and, as the racial makeup of the school–age and elderly populations diverges, we would expect neighborhoods to reflect this divergence. Reduced support for education could then lead to sharp decreases in per–pupil spending as the school–age population continues to grow. Although previous research and earlier trends do not support a prognosis of widespread intergenerational competition over resources, dramatic changes in the share of the elderly could reverse the longstanding trend toward rising spending per student. This political pressure could reverse current trends that have led to increased spending per pupil, including the growing special education and compensatory education systems, the gearing–up of accountability systems, the implementation of class size limitations, and the increasing focus in the courts on states providing an adequate education. In the past, rising costs per pupil were spread across a growing working–age population. In the future, it is likely that calls for education spending will need to compete with calls for spending on public programs preferred by a growing elderly population.

Acknowledgments

We would like to thank Julianna Koch and Paul Duncan for research assistance, and Therese McGuire, Andy Reschovsky and conference participants for comments on an earlier draft. We received financial support from the Lincoln Institute of Land Policy in producing this paper. The opinions expressed are solely those of the authors.

REFERENCES

Allegretto, Sylvia A., Sean P. Corcoran, and Lawrence Mishel.
How Does Teacher Pay Compare? Methodological Challenges and Answers. Washington, D.C.: Economic Policy Institute, 2004.

Balsdon, Edward, and Eric Brunner.
"Intergenerational Conflict and the Political Economy of School Spending." *Journal of Urban Economics* 56 No. 2 (September, 2004): 369–88.

Bureau of the Census.
Statistical Abstract of the United States. Washington, D.C.: U.S. Department of Commerce, various years.

Bureau of the Census.
Census of Government School System Finance (F33). University of Michigan: Inter–university Consortium for Political and Social Research. Washington, D.C., 1972, 1977, 1982, 1987, 1992, 1997–2004 various years.

Bureau of the Census.
"Historical Annual Time Series of State Population Estimates and Demographic Components of Change." Washington, D.C., 1995. http://www.census.gov/popest/archives/1980s/#state.

Bureau of the Census.
"Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025." Washington, D.C., 1996. http://www.census.gov/population/www/projections/st_yrby5.html.

Bureau of the Census.
"1990 to 1999 Annual Time Series of State Population Estimates by Age and Sex." Washington, D.C., 2000. http://www.census.gov/popest/archives/1990s/1990s.html#state.

Bureau of the Census.
"State Interim Population Projections by Age and Sex: 2004 to 2030." Washington, D.C., 2004. http://www.census.gov/population/www/projections/projectionsagesex.html.

Button, James W.
"A Sign of Generational Conflict: The Impact of Florida's Aging Voters on Local School and Tax Referenda." *Social Science Quarterly* 73 No. 4 (December, 1992): 786–97.

Corcoran, Sean, William N. Evans, Jennifer Godwin, Sheila E. Murray, and Robert M. Schwab.
"The Changing Distribution of Education Finance, 1972 to 1997." In *Social Inequality*, edited by Kathryn M. Neckerman, 433–66. New York: Russell Sage Foundation Press, 2004.

Dye, Richard F., and Andrew Reschovsky.
"Property Tax Responses to State Aid Cuts in the Recent Fiscal Crisis." Paper prepared for State and Local Finances After the Storm: Is Smooth Sailing Ahead? Washington, D.C., March, 2007.

Education Trust.
"The Funding Gap 2005: Low–Income and Minority Students Shortchanged by Most States." Washington, D.C.: The Education Trust, 2005.

Hanushek, Eric A., and Steven G. Rivkin.
"Understanding the Twentieth Century Growth in U.S. School Spending." *Journal of Human Resources* 32 No. 1 (Winter, 1997): 35–68.

Harris, Amy, William N. Evans, and Robert M. Schwab.
"Public Education Financing in an Aging America." *Journal of Public Economics* 81 No. 3 (September, 2001): 449–72.

Hoxby, Caroline M.
"The Cost of Accountability." NBER Working Paper No. 8855. Cambridge, MA: National Bureau of Economic Research, 2002.

Hussar, William J.
"Predicting the Number of Newly Hired Teachers in the United States to 2015–16." NCES Working Paper. Washington, D.C.: National Center for Education Statistics, 2007.

Inman, Robert P.
"Testing Political Economy's 'As If' Proposition: Is the Median Income Voter Really Decisive?" *Public Choice* 33 No. 4 (1978): 45–65.

Krueger, Alan B.
"Economic Considerations and Class Size." *The Economic Journal* 113 No. 485 (February, 2003): F34–63.

Ladd, Helen F.
"How School Districts Respond to Fiscal Constraint." In *Selected Papers in School Finance*, edited by William J. Fowler, 39–59. Washington, D.C.: National Center for Education Statistics, 1997.

Ladd, Helen F., and Sheila E. Murray.
"Intergenerational Conflict Reconsidered: County Demographics Structure and the Demand for Public Education." *Economics of Education Review* 20 No. 4 (August, 2001): 343–57.

Ladd, Helen F., and Julie B. Wilson.
"Who Supports Tax Limitations: Evidence from Massachusetts' Proposition 2½." *Journal of Policy Analysis and Management* No. 2 (Winter, 1983): 256–79.

Marton, James, and David E. Wildasin.
"Medicaid Expenditures and State Budgets: Past, Present, and Future." *National Tax Journal* 60 No. 2 (June, 2007): 279–304.

McGuire, Therese J., and David F. Merriman.
"State Spending on Social Assistance Programs Over the Business Cycle." In *Working and Poor: How Economic and Policy Changes Are Affecting Low–Wage Workers*, edited by Rebecca M. Blank, Sheldon H. Danzinger, and Robert F. Schoeni, 289–311. New York: Russell Sage Foundation, 2006.

Minorini, Paul, and Stephen Sugarman.
"School Finance Litigation in the Name of Educational Equity: Its Evolution, Impact

and Future." In *Equity and Adequacy in Education Finance: Issues and Perspectives*, edited by Helen Ladd, Rosemary Chalk, and Janet S. Hansen, 34–71. Washington, D.C.: National Academy Press, 1999.

National Association of State Budget Officers.

"State Expenditure Report." Washington, D.C.: National Association of State Budget Officers, 1987–2006.

National Center for Education Statistics.

Digest of Education Statistics. Washington, D.C.: U.S. Department of Education, various years.

National Commission on Excellence in Education.

"A Nation at Risk: The Imperative for Educational Reform: A Report to the Nation and the Secretary of Education, United States Department of Education." Washington, D.C., Commission on Excellence in Education, 1983.

Palaich, Robert, John Augenblick, Justin Silverstein, and Amanda R. Brown.

"The Cost of Fulfilling the Approved Procedural Requirements of the No Child Left Behind Act In New Mexico." Denver, CO: Augenblick, Palaich, and Associates, Inc., 2005.

Parrish, Thomas B.

"Who's Paying the Rising Cost of Special Education?" *Journal of Special Education Leadership* (forthcoming).

Parrish, Thomas, Jenifer Harr, Jean Wolman, Jennifer Anthony, Amy Merickel, and Phil Esra.

State Special Education Finance Systems, 1999–2000: Part II: Special Education Revenues and Expenditures. Palo Alto, CA: The Center for Special Education Finance, 2004.

Poterba, James M.

"Demographic Structure and the Political Economy of Public Education." *Journal of Policy Analysis and Management* 16 No. 1 (Winter, 1997): 48–66.

Poterba, James M.

"Demographic Change, Intergenerational Linkages, and Public Education." *American Economic Review* 88 No. 2 (May, 1998): 315–20.

Reed, Deborah, Kim S. Rueben, and Elissa Barbour.

Retention of New Teachers in California. San Francisco: Public Policy Institute of California, 2006.

Rubinfeld, Daniel L.

"Voting in a Local School Election: A Micro Analysis." *Review of Economics and Statistics* 59 No. 1 (February, 1977): 30–42.

Silva Fabio, and Jon Sonstelie.

"Did *Serrano* Cause a Decline in School Spending?" *National Tax Journal* 48 No. 2 (June, 1995): 199–215.

Vinovskis, Maris A.

"An Historical Perspective on Support for Schooling by Different Age Cohorts." In *The Changing Contract Across Generations*, edited by W. Andrew Achenbaum and Vern L. Bengtson, 45–65. New York: Aldine de Gruyter, 1993.

Westat for the Office of Special Education and Rehabilitative Services. U.S. Department of Education.

26th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act. Washington, D.C., 2004