

SCHOOL CHOICE

ISSUES

IN THE STATE



School Choice for South Carolina:

Many agree with the concept. Some disagree. And some simply want more information. As the public debate continues to grow louder about how best to provide a quality education to all South Carolina children, it is critical to know the facts about school choice, and to have an understanding of how school choice programs have had an impact on communities, parents and students around the country. All of this analysis is done with one goal in mind: The best possible education for all of South Carolina's children.

The High Cost of South Carolina's Low Graduation Rate

Prepared By:

Brian J. Gottlob

Senior Fellow

Milton and Rose D. Friedman Foundation

June 2007

OUR CHALLENGE TO YOU

Our research adheres to the highest standards of scientific rigor. We know that one reason the school choice movement has achieved such great success is because the empirical evidence really does show that school choice works. More and more people are dropping their opposition to school choice as they become familiar with the large body of high-quality scientific studies that supports it. Having racked up a steady record of success through good science, why would we sabotage our credibility with junk science?

This is our answer to those who say we can't produce credible research because we aren't neutral about school choice. Some people think that good science can only be produced by researchers who have no opinions about the things they study. Like robots, these neutral researchers are supposed to carry out their analyses without actually thinking or caring about the subjects they study.

But what's the point of doing science in the first place if we're never allowed to come to any conclusions? Why would we want to stay neutral when some policies are solidly proven to work, and others are proven to fail?

That's why it's foolish to dismiss all the studies showing that school choice works on grounds that they were conducted by researchers who think that school choice works. If we take that approach, we would have to dismiss all the studies showing that smoking causes cancer, because all of them were conducted by researchers who think that smoking causes cancer. We would end up rejecting all science across the board.

The sensible approach is to accept studies that follow sound scientific methods, and reject those that don't. Science produces reliable empirical information, not because scientists are devoid of opinions and motives, but because the rigorous procedural rules of science prevent the researchers' opinions and motives from determining their results. If research adheres to scientific standards, its results can be relied upon no matter who conducted it. If not, then the biases of the researcher do become relevant, because lack of scientific rigor opens the door for those biases to affect the results.

So if you're skeptical about our research on school choice, this is our challenge to you: prove us wrong. Judge our work by scientific standards and see how it measures up. If you can find anything in our work that doesn't follow sound empirical methods, by all means say so. We welcome any and all scientific critique of our work. But if you can't find anything scientifically wrong with it, don't complain that our findings can't be true just because we're not neutral. That may make a good sound bite, but what lurks behind it is a flat rejection of science.

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MILTON & ROSE D. FRIEDMAN
FOUNDATION

Educational
Choice



Executive Summary

Research has documented a crisis in South Carolina's high school graduation rate. While state officials report a graduation rate above 70 percent, researchers from South Carolina and elsewhere place the rate just above 50 percent, with rates among minority students lower than 50 percent. South Carolina's graduation rate is the worst of all 50 states.

This study documents the public costs of high school dropouts in South Carolina, and examines how school choice could provide large public benefits by increasing public school graduation rates. It calculates the annual cost of South Carolina dropouts caused by reduced tax revenue, increased Medicaid costs and increased incarceration costs, and documents the employment impacts that dropouts have on the South Carolina economy. It then examines how competition from private schools already raises public school graduation rates, and calculates the public benefits that would follow from increasing South Carolina's public school graduation rates by enacting a modest school choice program.

Key findings include:

South Carolina spends more on dropouts after they leave school than it spent when they were in school

- More than 30,000 South Carolina students in the class of 2005 failed to graduate from high school. The state's overall graduation rate is about 52.5 percent. Independent estimates have placed South Carolina's graduation rate at the very bottom of the 50 states. On average, South Carolina's more than 340,000 working-age dropouts each earn \$8,000 less than high school graduates each year, totaling \$2.8 billion, and reduce state employment by more than 37,000 jobs.
- Each new class of dropouts produces public costs of \$98 million every year for the rest of their lives, or about \$3,193 per dropout.
- Over an expected lifetime of 50 years, one year's class of dropouts will cost South Carolina \$4.9 billion.
- These cost estimates only include costs associated with three sources: lost revenue from taxes and fees, increased Medicaid costs and increased incarceration costs. Because dropouts also incur many other public costs, the true public cost of dropouts is larger than \$3,193 per dropout per year.
- Just the state portion of school funding in South Carolina (not including local and federal funding sources) is about \$3,228 per student. This means the state is spending more on dropouts each year after they leave school than it spent when they were in school.

School choice improves public school graduation rates and produces millions in public savings

- School districts with more students in private schools have higher public school graduation rates. All South Carolina children benefit from increased competition from private schools.
- The beneficial effect of private school competition on South Carolina public schools is large enough that even a modest school choice program, one that increased private school enrollment by fewer than 6 percentage points, would reduce the number of public school dropouts by 1,549 to 3,137 students per year, saving South Carolinians between \$5 million and \$10 million in tax revenue, Medicaid costs and incarceration costs every year.
- The total savings from preventing these students from dropping out, over an expected lifetime of 50 years, would be between \$247 million and \$501 million.

About the Author

Brian J. Gottlob (bgottlob@poleconresearch.com) is the Principal of PoEcon Research. For 17 years Gottlob has analyzed economic, demographic, labor market industry and public policy trends for private sector, government and not-for-profit organizations. He has extensive experience in developing econometric models and has completed studies on range of economic, tax policy, energy, education, and health care issues in the States of New Hampshire, Virginia, Ohio, New Mexico, New York, Texas, Oregon, Michigan, Georgia, Mississippi, West Virginia and Illinois. Gottlob is a Senior Fellow at the Milton and Rose D. Friedman Foundation. He has been an instructor at the Whittemore School of Business and Economics at the University New Hampshire, a member of the Advisory Board of the New England Economic Partnership (NEEP) and a member of the National Association of Business Economics. Prior to founding PoEcon, Gottlob was a Vice President for Fiscal and Economic Policy at the Business and Industry Association of New Hampshire. He has an undergraduate degree in economics from the State University of New York and a graduate degree in public policy analysis from the University of New Hampshire.

About the Milton and Rose D. Friedman Foundation



The Milton and Rose D. Friedman Foundation, dubbed “the nation’s leading voucher advocates” by the Wall Street Journal, is a non-profit organization established in 1996. The origins of the foundation lie in the Friedmans’ long-standing concern about the serious deficiencies in America’s elementary and secondary public schools. The best way to improve the quality of education, they believe, is to enable all parents with the freedom to choose the schools that their children attend. The Friedman Foundation builds upon this vision, clarifies its meaning to the public and amplifies the national call for true education reform through school choice.

About the South Carolina Policy Council



Founded in 1986, the South Carolina Policy Council Education Foundation is the state’s largest member-based public policy organization. The Policy Council’s mission is to promote limited government, lower taxes, free enterprise and traditional South Carolina values. Policy leaders describe the SCPC as the public relations firm for conservative ideas in South Carolina. South Carolinians rely on them for an independent, credible and principled approach to promoting free enterprise and limited government. Through issue forums, publications, media interviews and speakers’ bureau, they provide a voice for their members and a reliable response to policy makers’ information needs. That is why the SCPC is the largest and most respected conservative organization in South Carolina.

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Introduction

Across the nation, increasing attention is being focused on high dropout rates in public high schools. In South Carolina, recent studies by the University of South Carolina, the Editorial Projects in Education Research Center (EPERC) and the Annie E. Casey Foundation have documented the long-standing crisis in high school graduation rates in South Carolina.¹

The individual consequences of not completing high school are large and well-documented, but there also are substantial public costs when individuals do not graduate from high school. Public costs result when individuals who do not graduate from high school contribute less to the economy and consume more public services. Lower rates of labor-force participation, higher rates of unemployment among those who are in the labor force and lower wages and salaries for those employed all are consequences of the failure of many individuals to obtain a high school diploma. When individuals attain higher levels of education, there are associated public benefits in the form of lower use of public-assistance programs, better health, lower rates of incarceration and overall lower social-service expenditures. At the same time, higher educational attainment increases productivity, employment, economic growth, income and tax revenues.

Most school districts and states dramatically understate the number of students who leave school before obtaining a high school diploma. At the same time, few efforts have been made to calculate the costs of dropouts beyond the individual or private consequences that result from failure to obtain a high school diploma. Consequently, we have an incomplete assessment of the costs to society of high school dropouts and the public consequences of a failure to make reforms to public education that address the problem.

An understanding of public costs and benefits is fundamental to debates about education reform, but they rarely are documented. Over the past two decades, citizens have supported higher spending on public schools and myriad reform initiatives because of the large private and public benefits they expect from improved educational outcomes.

This study addresses several critical education-reform issues. First, in estimating some of the public costs associated with a failure to graduate from high school, we provide perspective on the urgency of reform for South Carolina citizens and policymakers who may have little interest in education policy. Second, by documenting the costs associated with dropouts and calculating the likely impact that school choice will have on high school graduation rates, we clarify how school choice benefits are allocated. As evidence mounts that school choice increases the achievement of participating students, opponents of choice increasingly have argued that the benefits to those students are outweighed by the alleged public costs of choice. In response to this, a fundamental premise of the school choice movement is that increased competition will improve the quality of public schools and benefit students who remain in the public schools as well as those who participate in choice programs. In this study we expand the public-benefit calculation to include all citizens of South Carolina, not just those with children in schools.

Previous research has found that school choice produces efficiencies that save money in education budgets – one analysis found the total net fiscal savings of school choice programs nationwide from 1990 to 2006 to be \$444 million. The same analysis found that no state or district with a school choice program had ever experienced a reduction in per-student instructional spending.² This study looks beyond the direct fiscal effect of school choice by calculating the social costs of reduced dropout rates. School choice saves money for state budgets even outside of the education category, by increasing tax revenue and reducing expenditures on support programs and incarceration.

The Size of the Dropout Problem in South Carolina

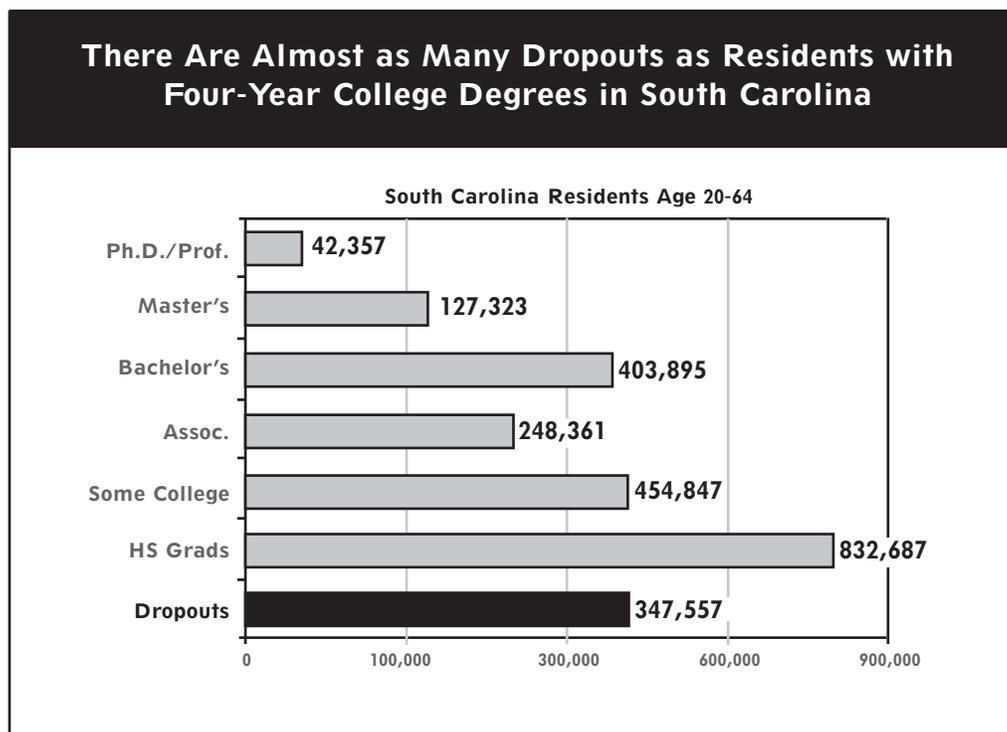
High school graduation is an important predictor of an individual's future economic success. It also is a key indicator of the performance of school districts that sends a clear signal about the need for, or results of, education reform.

The crisis in high school graduation rates is apparent throughout the country but is even more apparent in South Carolina. According to a recent report by the University of South Carolina:

South Carolina's situation regarding high school graduation rates is considered "worse" than the rest of the country, and in most studies, the state ranks at or near the bottom in terms of graduation rates. Data provided to S.C. Education Oversight Committee in mid-2004 show this clearly.³

Only nine states have a higher percentage of their adult population lacking at least a high school diploma than South Carolina's 18.3 percent.⁴ Figure 1, which shows the number of South Carolina residents ages 20-64 by educational attainment, indicates that 347,557 such adults do not have a high school diploma.⁵

Figure 1



Source: PolEcon analysis of U.S. Census Bureau's Current Population Survey /March 2004-06 Supplement data for South Carolina

Most states and school districts significantly understate the problem of students failing to graduate from high school. Independent estimates by the EPERC, a research institute established by the publishers of *Education Week*, the Urban Institute, the Education Trust of the Bill and Melinda Gates Foundation, the Manhattan Institute and the Higher Education Information Service, as well as our own review of annual enrollment and graduation data, all indicate that the number of dropouts is much higher in South Carolina than reported (see Figure 2). The Manhattan Institute and the Urban Institute both find that South Carolina has the nation's lowest graduation rate.⁶

Most independent reviews of graduation rates use data reported by state agencies to the National Center for Educational Statistics. Independent estimates of South Carolina graduation rates are complicated by the fact that the state does not report graduation data based on student demographic characteristics such as race and sex. While overall graduation rates can be calculated independently, rates for sub-populations cannot. The independent reviews of South Carolina's reported graduation data all find similar errors. The independent estimates of high school dropouts in South Carolina place the state's overall graduation rate at between 48 percent and 62 percent, rather than the 74 percent reported by the South Carolina Department of Education for 2004-05.⁷ Using the most detailed and thorough alternative estimates of dropout rates, those produced by the EPERC, we estimate that just under 31,000 students in

South Carolina left high school before obtaining a high school diploma, rather than the 16,781 implied by the official reported state graduation rate and number of high school graduates.

South Carolina also has the dubious distinction of having the third-highest discrepancy between its officially reported graduation rates and the rates calculated by the EPERC and the Urban Institute.⁸ The fact that South Carolina does not report detailed demographic data along with its graduation data adds to concerns about the accuracy of the state's dropout and graduation tracking and reporting systems. The purpose of more accurate reporting of high school graduation and dropout rates is not to criticize the state's education agency but to more realistically assess the extent of the dropout problem and to increase public support for confronting it.

The EPERC, known for conducting among the most thorough reviews of state-reported graduation rates, developed its own estimates for South Carolina using a method known as the "cumulative promotion index."⁹ Figure 3 highlights South Carolina's low graduation rates compared to the nation, as calculated by the EPERC. Most important, Figure 3 shows that the gap between South Carolina's and the U.S. graduation rate is widening.

Figure 2

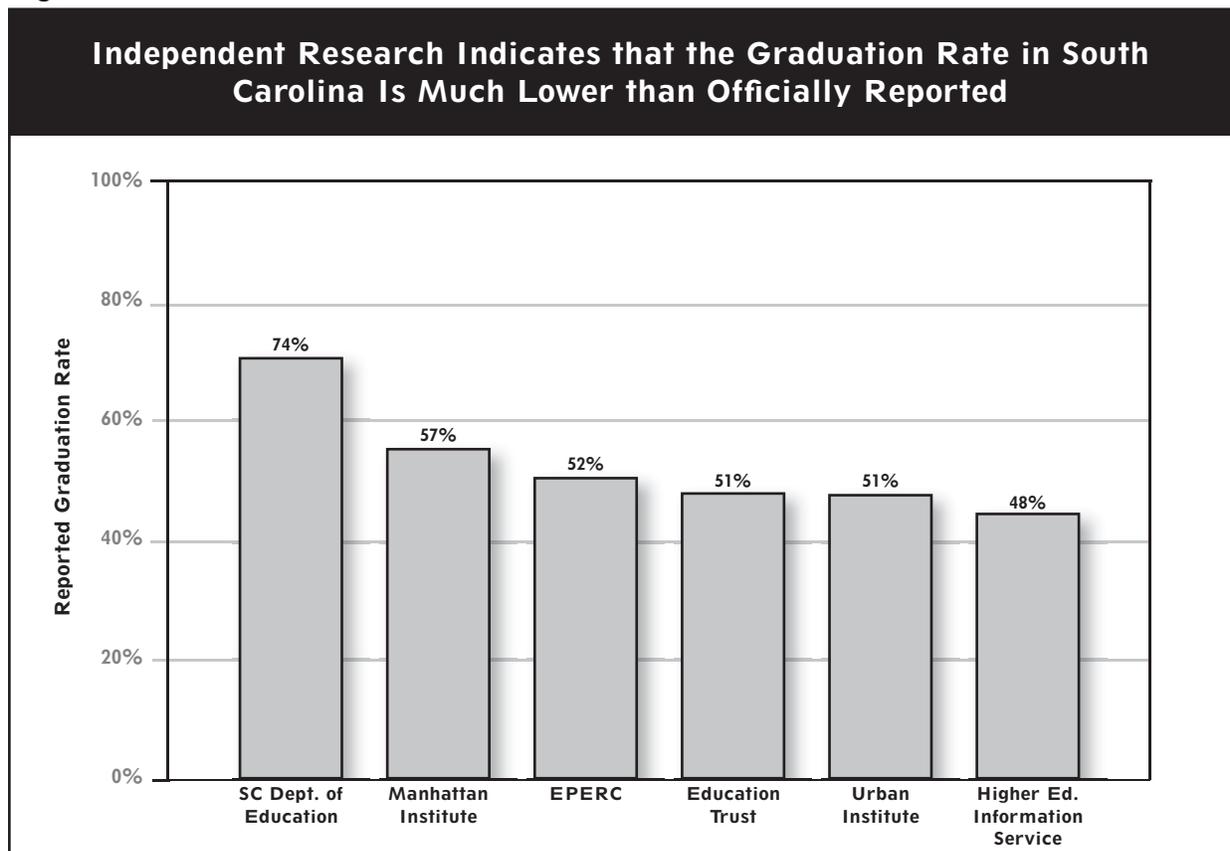
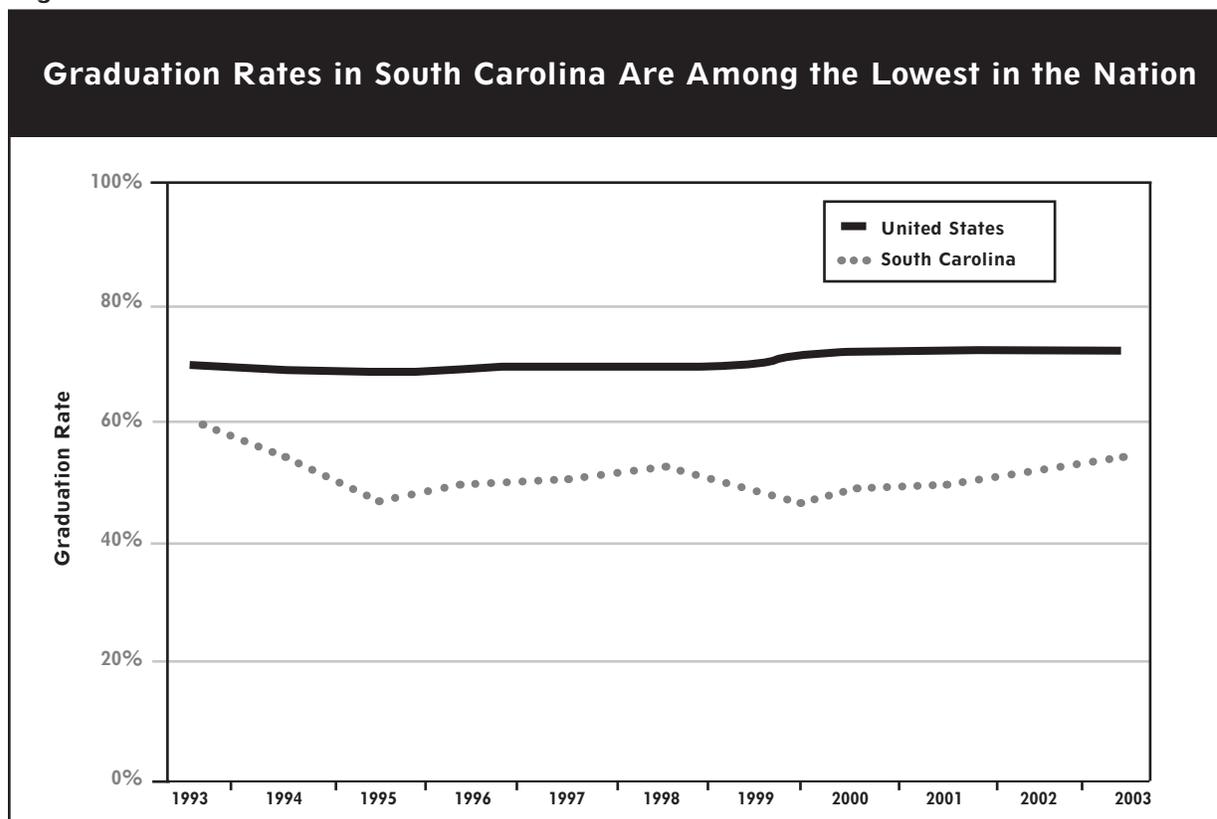


Figure 3



Dropouts Cost South Carolina Taxpayers Millions Every Year

For the more than 340,000 South Carolina residents ages 20 to 64 who lack at least a high school diploma, the consequences of dropping out are clear. Understanding that the same consequences face the more than 30,000 young people who did not graduate from high school in South Carolina in 2005 provides an indication of the public cost and benefits at stake for each year that South Carolina fails to reform public education. First, we will document some of the individual or private consequences of dropping out; then we will calculate some of the public costs.

Table 1 shows how some measures of individual outcomes are affected by educational attainment in South Carolina. The table shows that South Carolina residents without a high school diploma are less likely to be in the labor force and are much more likely to be unemployed than high school graduates. Dropouts are much more likely to receive or to have a child who receives Medicaid benefits. Finally, dropouts are more likely to be incarcerated than are those with higher levels of educational attainment.

South Carolina Dropouts Earn \$8,000 Less Each Year, Totaling \$2.8 Billion

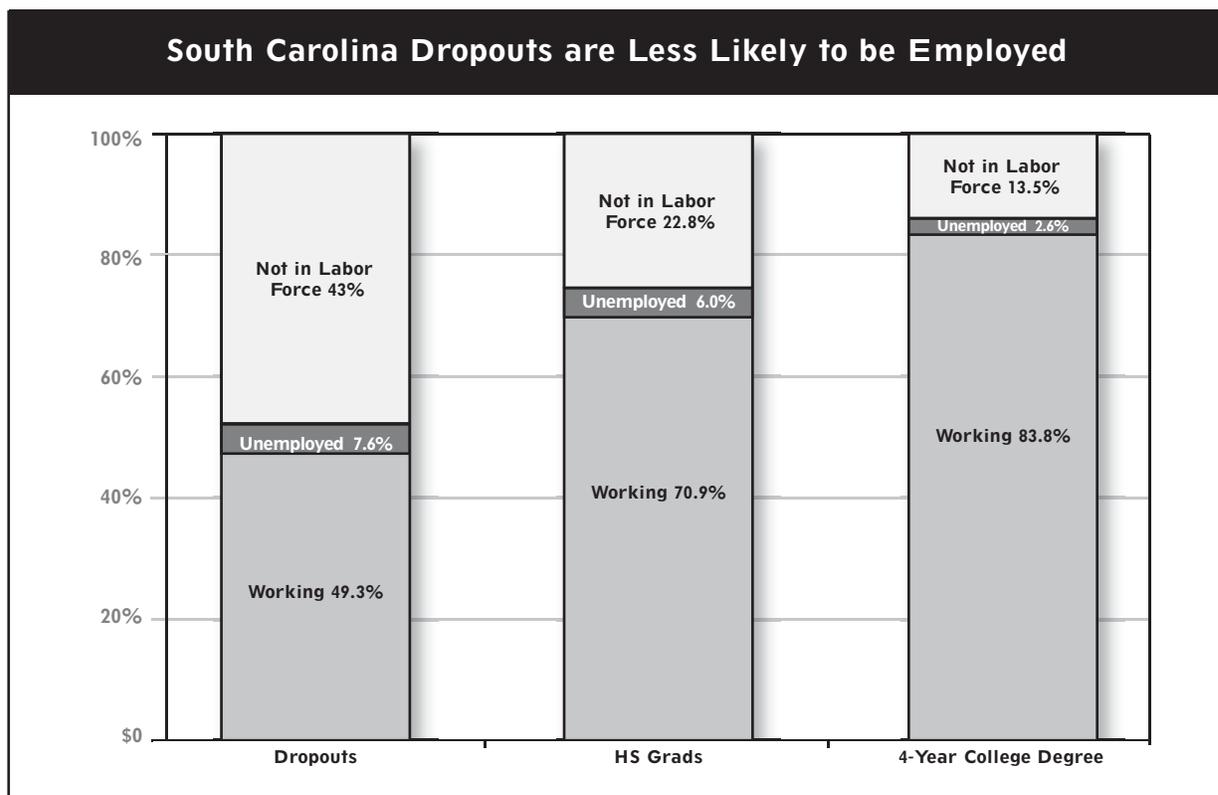
Dropouts are less likely to be in the labor force, are less likely to be employed if they are in the labor force, and earn less if they are employed. Figure 4 compares the labor market status of South Carolina's dropouts with that of high school graduates and with that of working-age residents with a four-year college degree. The chart shows that fewer than half of working-age dropouts in South Carolina are employed, another 43 percent are not looking for work and almost 8 percent are not employed but are looking for work. The percent unemployed in this chart differs from the "unemployment rate" presented in Table 1 and Figure 6 because the "unemployment rate" measures unemployment only among those who are in the labor force and looking for work.

Table 1

South Carolina Dropouts Have Much Worse Life Outcomes							
	Dropouts	HS Grads	Some College	Assoc. Degree	Bachelor's Degree	Master's Degree	Ph.D./ Prof.
% in Labor Force	57.0%	77.2%	74.1%	85.4%	86.5%	89.3%	86.2%
Unemployment Rate	13.3%	7.8%	6.2%	4.0%	2.9%	1.2%	0.0%
Annual Earnings—Wages & Other Income (Age 20-64) ¹⁰	\$15,013	\$23,099	\$24,620	\$34,411	\$43,127	\$53,467	\$89,300
% on Medicaid or with Child on Medicaid	38.5%	23.5%	18.0%	15.4%	9.3%	1.6%	1.9%
Incarceration Rates (Males Only)*							
White	0.93%	0.39%	0.27%		0.08%		ALL COLLEGE GRADS COMBINED
Hispanic	2.00%	1.2%	NA		NA		
African-Americans	4.11%	2.35%	2.15%		0.75%		

Source: U.S. Census Bureau, Current Population Survey, March Supplement 2004-06 and PoEcon calculations. *Incarceration rates from U.S. Census Bureau as reported in E. Moretti (2005)¹¹ and PoEcon. calculations.

Figure 4

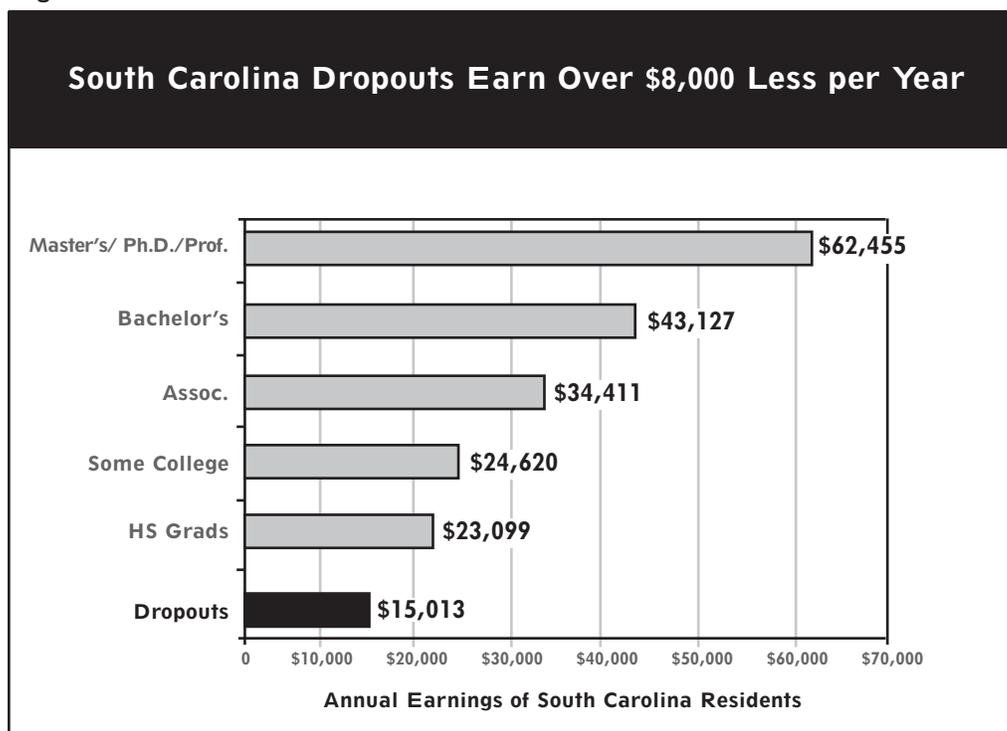


Source: PoEcon analysis of U.S. Census Bureau's Current Population Survey 2004-06 March Supplement data for South Carolina

The average annual earnings of dropouts are far lower than those of people who have received a high school diploma. Figure 5 highlights the impact in South Carolina of dropping out in terms of annual earnings in 2005. The chart shows that dropouts earn, on average, about \$8,000 less than high school graduates. The wage and salary differential illustrated in Figure 5 is a result of lower-paying jobs, lower labor-force participation and lower employment rates of dropouts compared to graduates. As Figure 6 shows, when dropouts are in the labor force they have much higher unemployment rates than individuals with at least a high school diploma. The unemployment rate among high school dropouts in South Carolina is over 13 percent.

Figure 5 depicts the simple relationship between education and earnings. However, because earnings also are a function of other factors, including age, experience, race, ethnicity and gender, we used regression analysis to more accurately estimate the relationship between education and earnings independent of the influences of those factors. We used a subset of more than 4,000 South Carolina respondents to the March 2004-06 Current Population Survey (CPS), including individuals ages 20-64 who have completed at least the ninth grade but who had not attended a postsecondary institution, to determine the impact on earnings of a high school diploma and of each additional year of schooling. We found that, when we isolate the impacts of educational attainment by controlling for other factors, including age, race/ethnicity and gender, high school graduates earned \$9,225 more on average than working high school dropouts.

Figure 5



Source: PolEcon analysis of U.S. Census Bureau's "Current Population Survey" March Supplement 2004-06 data for South Carolina

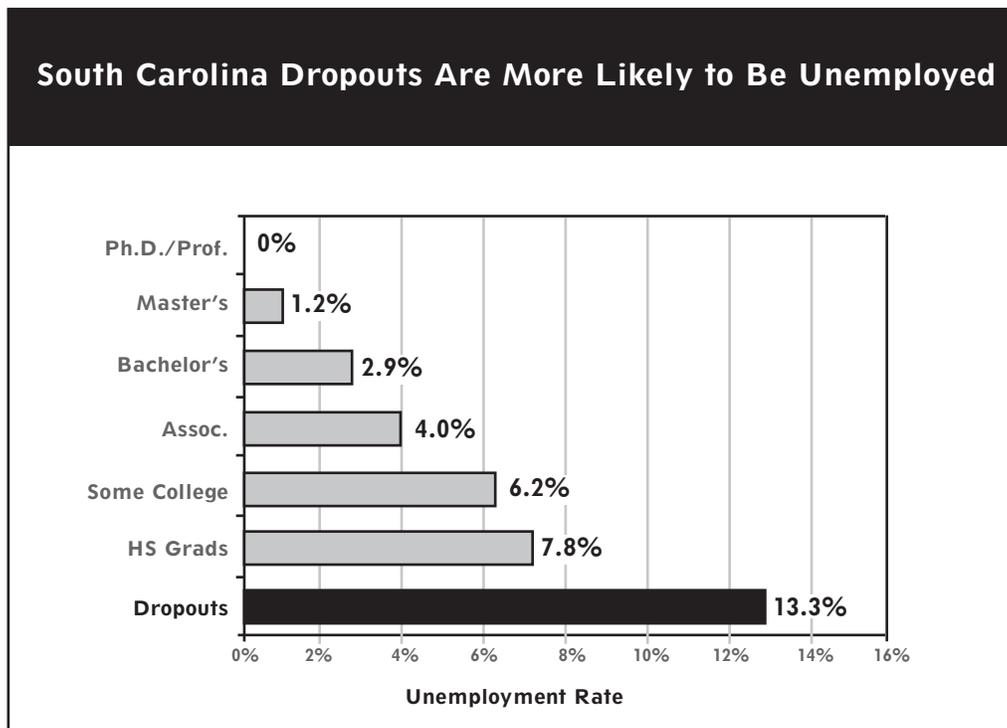
The difference in annual earnings that we found between dropouts and high school graduates implies that if all of South Carolina's residents of working age had obtained at least a high school diploma, total earnings in South Carolina in 2005 would have been \$2.8 billion higher.¹²

Lower Earnings of Dropouts Reduce South Carolina Employment by More than 37,650 Jobs, Reducing Opportunities for All South Carolinians

The lower earnings of South Carolina's dropouts have a significant impact on the South Carolina economy. Higher-quality, well paying jobs require more productive workers with higher levels of educational attainment. South Carolina's

relatively high percentage of dropouts reduces the overall productivity of the South Carolina labor force and of the state's economy. Jobs in growing sectors of our nation's economy increasingly require workers with higher levels of educational attainment, and are more concentrated in states and regions with relatively higher levels of educational attainment in the workforce.

Figure 6



Source: PolEcon analysis of U.S. Census Bureau's "Current Population Survey" March Supplement 2004-06 data for South Carolina

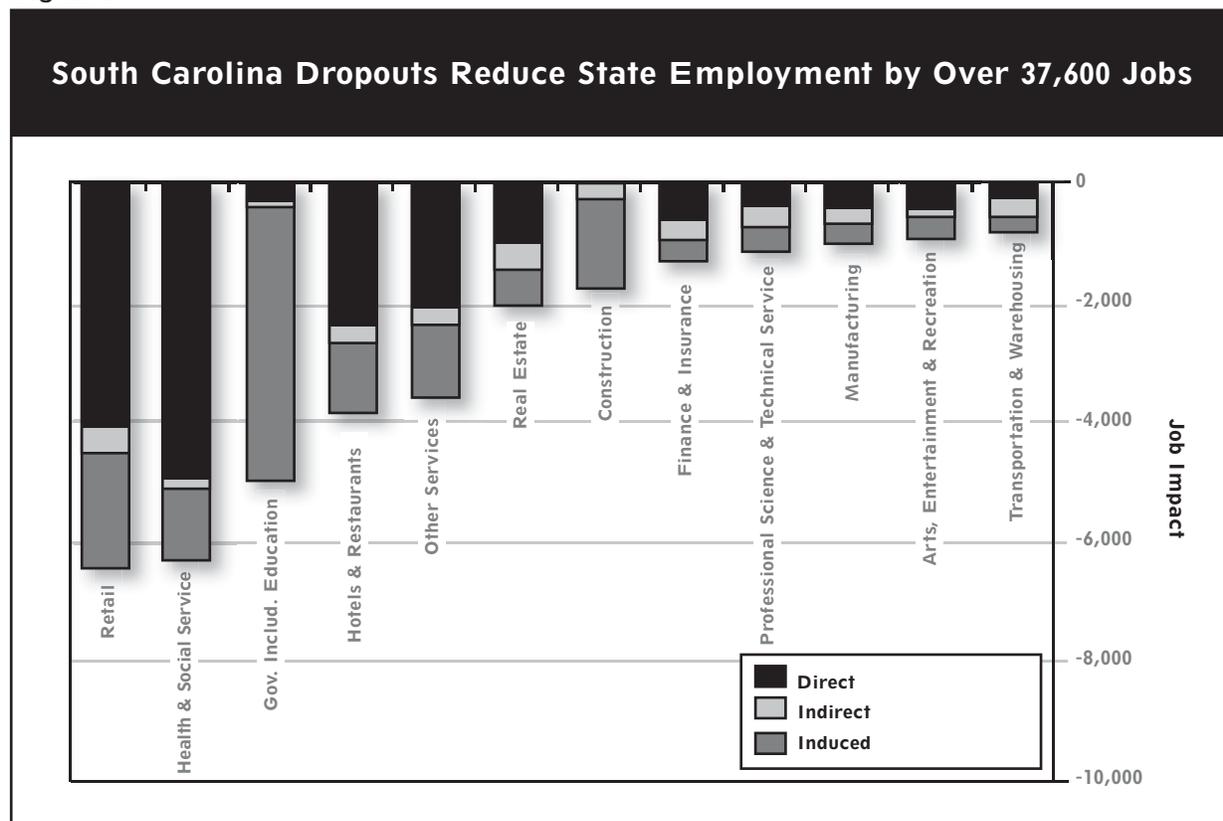
Table 2

Education Level	Population	Average Earnings	Total Earnings	No Dropouts (All Become HS Grads)
Dropouts	342,319	\$15,013	\$5,139,200,915	\$0
HS Grads	818,334	\$23,099	\$18,902,778,899	\$26,810,039,712
Some College	445,015	\$24,620	\$10,956,313,802	\$10,956,313,802
Associate's Degree	245,598	\$34,411	\$8,451,297,338	\$8,451,297,338
Bachelor's Degree	389,927	\$43,127	\$16,816,161,959	\$16,816,161,959
M.A./Ph.D./Prof.	167,116	\$62,455	\$10,437,229,780	\$10,437,229,780
Total	2,408,303	\$29,473	\$70,702,982,693	\$73,471,042,591
			Difference	\$2,768,059,898

With a relatively high percentage of dropouts among its working age population, and with the notoriety gained from having among the lowest high school graduation rates in the country, South Carolina is likely to be viewed less favorably by employers. As a result, even South Carolina residents who are well educated have fewer opportunities. This study does not measure the impact of employers' perceptions of the quality of South Carolina's workforce on the state's economy, which are likely to be significant. But it does measure the economic impacts of the lower earnings of South Carolina's dropouts. If even a small fraction of South Carolina's more than 340,000 working-age dropouts had graduated from high school, the increase in earnings would be substantial. A more productive workforce and higher incomes would result in increased spending on goods and services, which would produce large "multiplier" effects.

We used the IMPLAN economic modeling system to construct an economic model of the South Carolina economy to estimate the employment impacts of the reduced earnings of South Carolina dropouts.¹³ We modeled the impacts as a reduction of \$2.8 billion in income among South Carolina households in the \$15,000 to \$25,000 income range. The reduced income of dropouts, from direct expenditures and as a result of indirect and induced multiplier effects, result in about 37,651 fewer full- and part-time jobs, or about 2 percent of total South Carolina employment. Figure 7 highlights some of the larger employment reductions in broad employment sectors that are attributable to the lower earnings and resulting expenditures of dropouts.

Figure 7



Dropouts Reduce South Carolina Tax Revenue by \$277 Million Each Year

The higher income of high school graduates relative to dropouts is a substantial private benefit to individuals graduating from high school, but it also produces public benefits to South Carolina taxpayers. Better-educated individuals increase the productivity of the state's economy. In addition to increasing the earnings of South Carolina residents, higher graduation rates would provide additional tax and fee revenues for state and local governments in South Carolina.

We used data on the average earnings of South Carolina dropouts and high school graduates (ages 20-64) from the March CPS Supplement for 2004, 2005 and 2006 to calculate hypothetical tax liabilities using the "TAXISM" models developed by the National Bureau of Economic Research. These federal and state-level models estimate tax liabilities based on existing federal and state tax laws and marginal tax rates, including all available tax credits and exemptions. We had to make some simplifying assumptions in calculating tax liabilities. Most important, because we had no data on spousal income for the population of high school dropout taxpayers, we treated all taxpayers as if they were filing as single taxpayers. We calculated state tax liabilities for taxpayers with zero to three dependent child exemptions and weighted the number of returns according to the percentage of dropouts with and without dependent children, as indicated by CPS data. Because there are a number of additional tax deductions, exemptions or credits that can apply to taxpayers age 65 and older, we limited our tax analysis to residents under the age of 65. The complexities of individual tax filings could not be captured when trying to model more than 340,000 tax returns of working-age dropouts, but our results provide a reasonable estimate that is likely to be within a few percentage points of the true income-tax cost associated with the earnings differential between high school graduates and dropouts.

The estimated impact of dropouts on South Carolina tax revenues, including state income-tax liability for eight combinations of taxpayer types, is presented in Table 3. The table shows that the lower earnings of South Carolina's working-age dropouts result in state income-tax revenues that are \$149 million lower (or about \$435 lower per dropout) than they would be if all residents had attained a least a high school diploma. The \$2.8 billion in reduced statewide earnings attributable to dropouts also results in lower consumer spending, which in turn reduces other tax and fee revenue by more than \$128 million (or about \$374 per dropout), including \$80 million in sales tax revenue. Dropouts reduce combined tax and fee revenue by an estimated \$277 million annually in 2005 dollars, or about \$809 for each of South Carolina's 342,319 residents ages 20-64 who lack at least a high school diploma.

Table 3

Dropouts Reduce South Carolina Tax Revenue by \$277 Million Each Year					
	Total Income	No Children	1 Child	2 Children	3 or More Children
HS Grads	\$23,099	\$695	\$477	\$293	\$152
Dropouts	\$15,013	\$213	\$96	\$10	\$0
Difference		\$482	\$381	\$283	\$152
X					
Dropouts (Age 20-64)		248,302	44,792	30,651	23,812
Lost Income Tax Revenue		\$119,681,564	\$17,065,752	\$8,674,233	\$3,619,424
				Total Lost Income Tax Revenue:	\$149,040,973
				Other Lost Tax & Fee Revenue:	\$128,061,633
				Total Annual Revenue Loss:	\$277,102,606

Dropouts are Twice as Likely to Rely on Medicaid; Dropouts Increase South Carolina's Medicaid Costs by \$155 Million Each Year

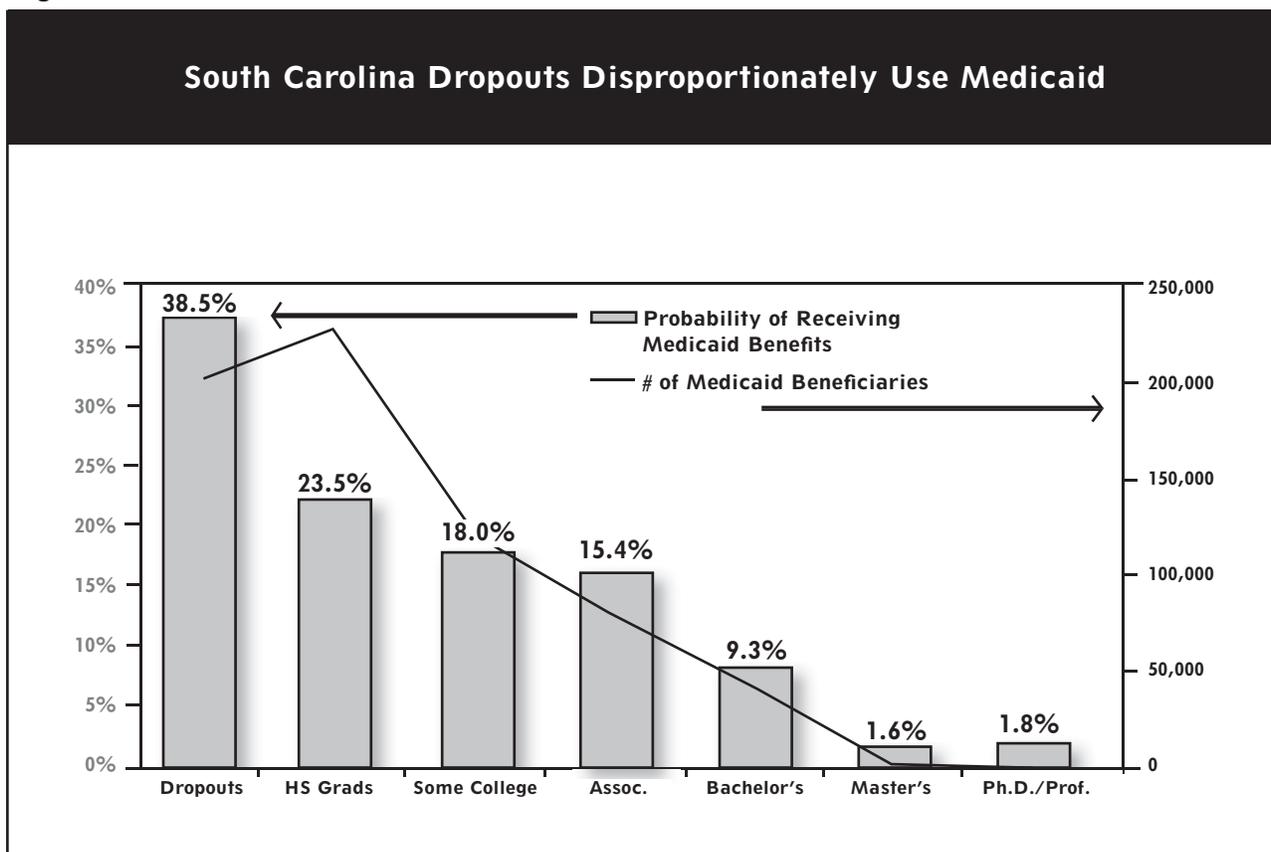
Individuals who fail to obtain at least a high school diploma are at a much greater risk of reliance on safety-net program such as Medicaid, Temporary Assistance to Needy Families, housing assistance and food stamps. The

probability of being a beneficiary of one or more public-assistance programs increases dramatically for individuals who do not have at least a high school diploma.

We focus on the Medicaid program to illustrate the impact of high school graduation on social safety-net expenditures in South Carolina. Medicaid is the largest and most costly safety-net program in South Carolina and across the country. Medicaid expenditures in South Carolina exceeded \$4.2 billion in 2005, of which more than \$1.3 billion were from state sources of revenue (not federal matching funds). Combined state and federal funds for Medicaid account for 24 percent of the total budget of the state of South Carolina in 2005, just above the national average of 23 percent.¹⁴

The cost of Medicaid, which provides health care for lower-income individuals, is shared by the state and federal governments, with the state of South Carolina paying just over 30 percent of the cost in 2005.¹⁵ About 992,000 people of all ages—24 percent of the South Carolina population—were enrolled in one or more Medicaid benefit programs in 2003, ranking the state ninth among all states on the percentage of population enrolled in Medicaid.¹⁶ The 49 percent of all births in South Carolina that were paid for by Medicaid is significantly higher than the 41 percent average for all states, according to the most recent available data from the Vital Statistics Reports of the National Centers for Disease Control.¹⁷

Figure 7



Source: PoEcon analysis of U.S. Census Bureau's "Current Population Survey" March 2004-06 data for South Carolina

The probability that an individual in South Carolina will be a Medicaid beneficiary is strongly related to his or her educational attainment. Based on the March 2004-06 CPS, the probability that a high school dropout or a dependent child in South Carolina receives Medicaid benefits is 38.5 percent. The probability drops to 23.5 percent for high school graduates and continues to decline as educational attainment increases.

The CPS is known to underestimate the number and percentage of public-assistance recipients because of

limitations on the individuals included in its samples.¹⁸ It does highlight the relationship between educational attainment and public-assistance costs, but it will produce a low estimate of the cost of dropouts and the impacts of educational reform on public costs and benefits.

To estimate the Medicaid costs attributable to dropouts, we compared the probability that a South Carolina high school dropout, or the dependent child of a dropout, would be on Medicaid to the probability for high school graduates (about 38.5 percent compared to 23.5 percent). We used this comparison to determine the difference in the number of expected Medicaid recipients among high school dropouts and graduates, and multiplied this difference by the average cost per Medicaid recipient (not including the costs of elderly and disabled recipients, or administrative costs).¹⁹ We estimated the reduction in the number of people who would be on Medicaid if all high school dropouts had obtained diplomas instead, and calculated the corresponding change in Medicaid costs. Table 4 presents estimated dropout-related Medicaid costs. We estimated that, if all South Carolina dropouts had received high school diplomas, there would be 52,134 fewer Medicaid recipients, saving South Carolina about \$48 million in Medicaid costs annually. Because the CPS is known to underestimate the number of Medicaid recipients in the population, as noted above, these figures will underestimate the actual cost of Medicaid related to dropouts in South Carolina.

Table 4

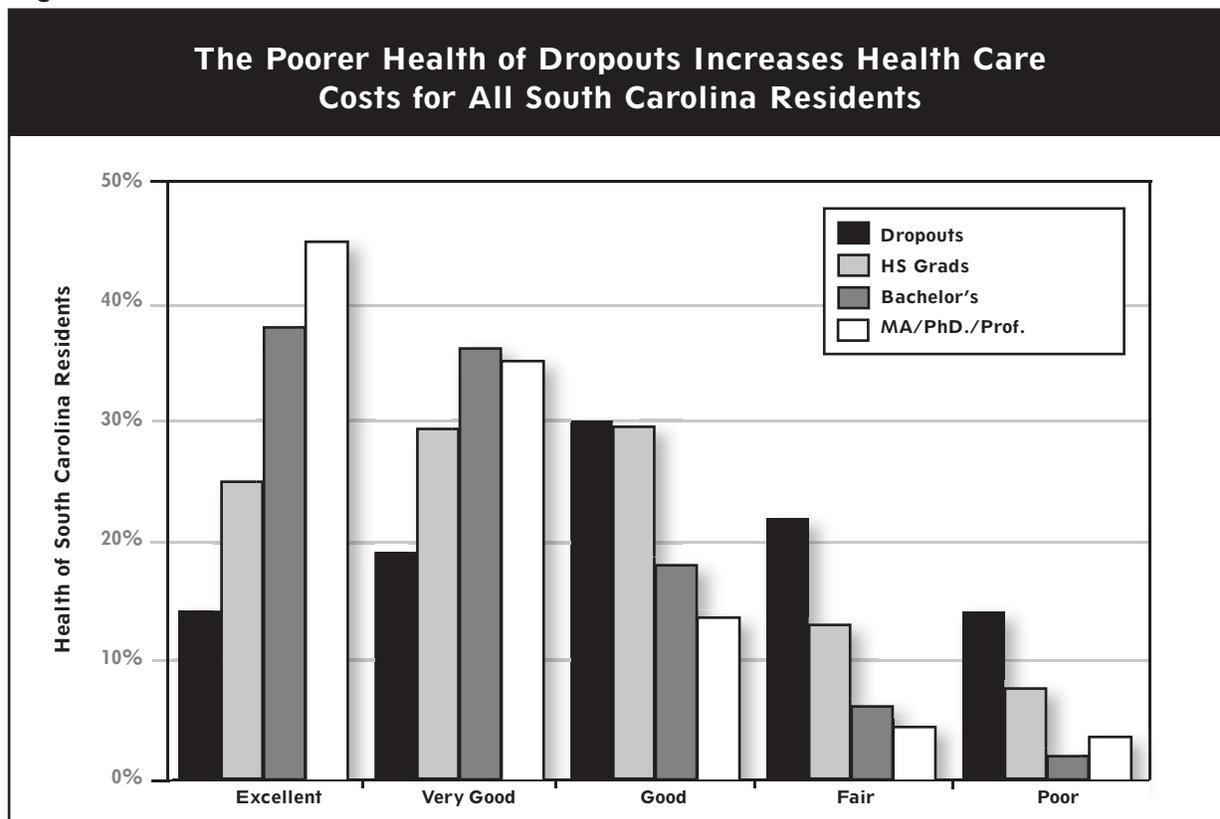
Higher Medicaid Use by Dropouts Costs South Carolina \$48 Million Each Year									
	Population	% On or w/ Child on Medicaid	# On or w/Child on Medicaid	Total Cost = Recipients x Average Cost	State Share of Costs	# on Medicaid if All Graduated	Total Cost = Recipients x Average Cost	State Share of Medicaid Costs	
Dropouts	347,557	38.5%	133,809	\$397,949,289	\$122,090,842	0	\$0	\$0	
HS Grads	832,687	23.5%	195,681	\$581,956,617	\$178,544,290	277,357	\$824,860,729	\$253,067,272	
Some College	454,847	18.0%	81,872	\$243,488,696	\$74,702,332	81,872	\$243,488,696	\$74,702,332	
Associate's Degree	248,361	15.4%	38,248	\$113,748,345	\$34,897,992	38,248	\$113,748,345	\$34,897,992	
Bachelor's Degree	403,895	9.3%	37,562	\$111,710,087	\$34,272,655	37,562	\$111,710,087	\$34,272,655	
Master's	127,323	1.6%	2,037	\$6,058,538	\$1,858,759	2,037	\$6,058,538	\$1,858,759	
Ph.D./Prof.	42,357	1.8%	762	\$2,267,455	\$695,655	762	\$2,267,455	\$695,655	
Total	2,457,027		489,973	\$1,457,179,027	\$447,062,525	437,839	\$1,302,133,849	\$399,494,665	
	Annual Medicaid Cost of Dropouts						52,134	\$155,045,178	\$47,567,861

Poorer Health of Dropouts Increases Costs for all Health Care Consumers

Dropouts increase the cost of state and federal health care programs because they are less likely to be covered by employers or other privately provided health insurance, and because their lower income levels qualify them for publicly provided health insurance. But even when they do not receive publicly provided health coverage, the impact of dropouts on health care costs can be significant if they are unable to pay for the health care services they use. Rising health care costs have resulted in an increasing percentage of “uncompensated care” among health care providers. Uncompensated care increases the cost of health care and health insurance because it results in the shifting of health care costs onto the individuals and insurance providers who do pay for health care.

Figure 9 shows that dropouts in South Carolina are, in general, in poorer health than South Carolina residents who have obtained a least a high school diploma. The poorer health of dropouts increases the cost of publicly provided health care coverage (Medicaid and Medicare) and exacerbates the problem of uncompensated care that increases the cost of health care for private payers.

Figure 9



Source: PolEcon analysis of U.S. Census Bureau "Current Population Survey" March 2004-06 supplement data

South Carolina Dropouts Are Twice as Likely to Be Incarcerated; Each Class of Dropouts Costs an Extra \$3 Million Every Year

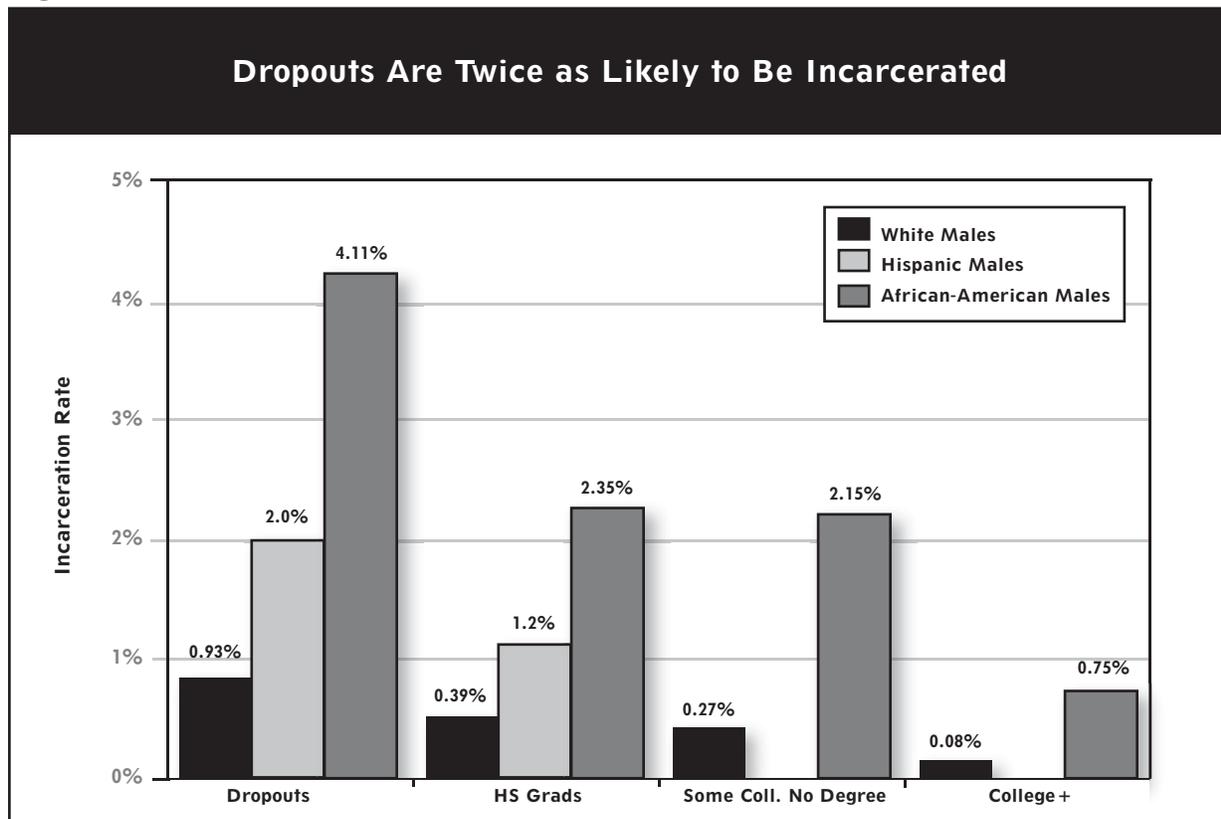
South Carolina has among the lowest annual incarceration costs per inmate (about \$15,000 in 2006) of any state in the nation.²⁰ The state spent about \$483 million for its correctional system in 2005, of which all but \$10 million came from state funds.²¹ Largely because it has reduced per-inmate incarceration costs, South Carolina spends a smaller percentage of its budget on corrections than the average state (2.7 percent versus 3.5 percent).

Although the chances are small that any one individual will be incarcerated, a high school dropout is more than twice as likely as a high school graduate to be incarcerated. Our estimates of the incarceration costs associated with dropouts rely on differences in the probability that individuals with different levels of educational attainment will be incarcerated in any one year. Because males account for the vast majority of incarceration costs, we calculated the impact of dropouts on incarceration costs using only male high school dropouts in South Carolina. Figure 10 shows the probability of white, Hispanic and African-American male dropouts being incarcerated at some point during their lifetimes.

In calculating the impact of dropouts on earnings and Medicaid costs, we relied on individual responses by South Carolina residents to monthly CPS surveys. For incarceration costs we had no direct individual measures of educational

attainment, criminal activity and incarceration in South Carolina. Instead, we relied on the research of others for our estimates of the impact of dropouts on incarceration rates.²² We used those estimates to determine the likely number of South Carolina dropouts from each cohort who can be expected to be incarcerated during any year during their working-age lifetimes. Then we used data on the type of crimes and the average length of sentences from the South Carolina Department of Corrections to calculate a “weighted average sentence,” which is applied to each projected incarceration. The weighted average sentence was adjusted based on a weighted average figure for the percentage of sentence served, which we calculated using statistics for each class of crime and sentence.²³ This weighted average time served per incarceration was converted to a number of days and then multiplied by South Carolina’s daily cost of incarceration to arrive at an average cost per incarceration. This was then multiplied by the number of incarcerations to determine the incarceration costs for each year’s class of dropouts. Our cost calculations did not include any costs for policing or prosecuting, or any administrative or capital costs of the prison system, nor did we factor in the costs of crime to victims, property loss or any of the societal benefits associated with lower levels of crime.

Figure 10



Source: U.S. Census Bureau as reported in Moretti, E., “Does Education Reduce Incarceration Rates”; PolEcon analysis of Census data

In addition, we multiplied the costs by 0.6 to estimate the costs associated with recidivism, the tendency of prisoners to be repeat offenders and to be imprisoned more than one time during their lives, generally for longer terms in subsequent incarcerations. Adding the total cost of the first incarcerations to the cost of recidivism gave us a total cost of incarceration for one year’s worth of dropouts.

Table 5 presents our estimates of the impact that dropouts have on annual incarceration costs. Projecting incarceration costs requires an estimate of the number of dropouts by race, sex and ethnicity.²⁵ Because South Carolina does not report data that allow independent calculation of these rates, we used an independent estimate of South Carolina’s overall graduation rate (the EPERC estimate) and developed adjusted rates by race, gender and ethnicity by applying the national average differences between each sub-group’s graduation rate and the combined or overall rate for the state.

We then calculated the expected number of incarcerations in any one year during their lifetimes for each class of dropouts, based on the number of dropouts that year in the state of South Carolina. We then calculated the number of incarcerations expected if all those students had graduated. The impact of dropouts on incarceration costs is the difference between the costs associated with the expected annual incarcerations among a given class of dropouts and the costs associated with the expected annual incarcerations among those same students if they had not dropped out. Table 5 shows that the 2005 class of dropouts is expected to produce 459 incarcerations in any one year during their lifetimes, but only 211 annual incarcerations if all those students had graduated. Eliminating dropouts in South Carolina would reduce the number of incarcerations in each class of students by about 44 percent and lower their total lifetime incarceration costs by \$3 million. We also divided the cost of one year of dropouts by the total number of dropouts to arrive at an average incarceration cost per dropout.

Table 5

Each Class of South Carolina Dropouts Increases Annual Incarceration Costs by \$3 Million					
	2001	2002	2003	2004	2005*
Total Graduates	30,119	31,459	32,650	33,385	33,886
Dropouts	27,251	28,463	29,540	30,205	30,659
Graduation Rate (All Races Combined)	52.5%				
African-American	Male: 40.1%				
Hispanic	Male: 44.9%				
White	Male: 54.6%				
<u>Cohort African-American Dropouts</u>	12,719	12,484	13,441	13,743	13,950
African American Male Dropouts	7,988	7,840	8,441	8,631	8,760
<u>Cohort Hispanic Dropouts</u>	613	936	1,115	1,057	1,073
Hispanic Male Dropouts	370	565	672	637	647
<u>Cohort White Dropouts</u>	13,918	15,042	14,984	15,405	15,636
White Male Dropouts	7,989	8,634	8,601	8,842	8,975
Expected Incarcerations					
African-American	328	322	347	355	360
Hispanic	7	11	13	13	13
White	74	83	83	85	86
Total	410	416	443	452	459
Expected Incarcerations w/out Dropouts					
African-American	188	184	198	203	206
Hispanic	4	7	8	8	8
White	31	34	34	34	35
Reduction in Incarcerations					
African-American	141	138	149	152	154
Hispanic	3	5	5	5	5
White	43	49	49	50	51
Total Incarceration Reduction	187	192	203	207	211
Projected Incarceration Costs (\$millions)	\$7.00	\$6.24	\$6.18	\$6.13	\$6.42
Incarceration Costs With No Dropouts (\$millions)	\$3.19	\$2.87	\$2.83	\$2.81	\$2.94
Total Costs for Initial Incarcerations (\$millions)	\$25.50	\$22.97	\$22.67	\$22.49	\$23.56
Recidivism Cost @ 0.6 Initial Costs (\$millions)	\$15.30	\$13.78	\$13.60	\$13.49	\$14.13
Community Supervision Costs (\$millions)	\$0.27	\$0.28	\$0.30	\$0.30	\$0.31
Total Incarceration Costs of Dropouts (\$millions)	\$41.07	\$37.03	\$36.57	\$36.28	\$38.00
Incarceration Cost per Dropout	\$1,507	\$1,301	\$1,238	\$1,201	\$1,239

*2005 graduates are estimated. As of this writing, the South Carolina Department of Education has not released data of the number of graduates in 2005.

South Carolina Spends More on Dropouts After They Leave School than It Spends in State Aid When They Are Enrolled in School

Not every dropout creates state expenditures for Medicaid and incarceration. Some dropouts cost the state tens of thousands of dollars annually, while others may cost the state only some limited reductions in state income-tax revenue. Still others may cost nothing. To account for these differences, we spread the cost of one year's class of dropouts across the entire population of new dropouts in that year to arrive at an average cost per dropout.

On average, the state of South Carolina will pay more for each dropout after he leaves school as it does in state education aid while he attended school. The annual costs of lost tax revenue, increased Medicaid use and increased incarcerations associated with just one year's class of dropouts (an estimated 30,659 in 2005) is at least \$98 million. These costs average about \$3,193 per dropout. Average state education aid (excluding local and federal funding sources) is about \$3,228 per student. What's more, because there are many other costs associated with dropouts not documented here, and because reduced earnings patterns follow graduates their entire lives and incarceration and Medicaid are multi-year costs, it is reasonable to conclude that the public costs of South Carolina dropouts is substantially greater than our calculations indicate.

More important, the state will continue to incur the cost of each dropout for decades. Citizens of the state of South Carolina continue to pay for the state educational system's failures well into the future. Over their expected lifetimes of an additional 50 years, the public cost of one year's class of dropouts is \$4.9 billion, or almost \$2.3 billion in discounted "present value" terms (discounting at 3.5 percent each year).

Table 6

Each Dropout Costs South Carolina an Additional \$3,193 Each Year	
Lost State Tax Revenue	\$809
Incarceration Costs	\$1,239
Medicaid Costs	\$1,145
Annual Public Cost per Dropout	\$3,193

The Public Benefits of School Choice in South Carolina

Advocates of competition in education generally believe not only that children who participate in school choice programs will benefit, but that overall productivity of public schools would increase as well in response to a school choice program. Nevertheless, most research on school choice initiatives focuses on the effects on students participating in school choice programs. A more complete characterization of the effects of school choice, however, would include the impacts on public schools as well. As we have highlighted, the public costs associated with high school dropouts in South Carolina are large. If competition from private schools is associated with higher graduation rates in public schools, then increasing competition via school choice programs not only will produce benefits to public and private school children, but it will be an effective way to increase the productivity of public schools and confer large public benefits by reducing the number of high school dropouts.

Private School Competition Improves Public School Graduation Rates

Assessing the impact of competition from private schools on nearby public school graduation rates requires sophisticated statistical methods. Few studies have employed methods rigorous enough to sufficiently control for confounding influences and thus estimate the true relationship. The main difficulty is that private schools typically do not appear randomly, but rather, the demand for private schools arises partly in response to public school quality. In mathematical terminology, the number of private school students and public school quality are “simultaneously determined.” Studies that look at the simple relationship between the percentage of private school students in an area and public school quality could thus draw the inaccurate conclusion that a high percentage of private school students in a district results in lower public school quality.

Some studies have employed adequate methods, and they provide a growing body of evidence that competition from private schools improves achievement in neighboring public schools. Hoxby provides a review of this evidence.²⁶ Perhaps the best-designed study was conducted by Dees.²⁷ The Dees study used data from all U.S. counties from the National Center for Education Statistics' Common Core of Data and found that most studies of the relationship between competition and public school graduation rates “dramatically underestimate the effect of competition from private schools on the rate of high school completion in public schools.” Dees's results indicate that an increase in the percentage of students enrolled in private schools equal to one standard deviation (or about 5.8 percentage points of total enrollment in South Carolina) is associated with a 1.7-percentage-point decline in the public school dropout rate overall and a 3.4-percentage-point decline in public school districts where at least 20 percent of students are non-white.

Overall, the percentage of South Carolina students in grades 1-12 who are in private schools is about 8.4 percent (or more than 52,000 students), according to the South Carolina Department of Education. Using data from the U.S. Census, we estimate a slightly higher percentage of 9.1 percent. However, there are large differences in the percentage of students enrolled in private schools across South Carolina's communities. Private enrollment is higher in larger communities, with many small communities having no children enrolled in private schools. For our analysis of the impacts of competition on high school graduations, we use data from communities with at least 200 children in grades 1-12. Private school enrollment in these communities averages about 8 percent, though there is still a wide variation in enrollment levels, as evidenced by a standard deviation of 5.8 percentage points.

Uncertainty about the accuracy of district-reported graduation rates in South Carolina makes it difficult to perform an analysis of the relationship between competition in education (as measured by the percentage of children enrolled in private schools) and public school graduation rates. For our analysis of the public benefits of competition from private schools, we used a range of estimates produced by our research in other states and by research conducted nationally by other economists. We estimate that private school enrollment causes public school graduation rates to increase by between 2.4 and 4.8 percentage points for every one standard deviation increase in private school enrollment. These estimates fall between the national results obtained by Dees and the results of research in specific states, and are moderate compared to our results obtained using data in other states.²⁸

Even a Modest School Choice Program Would Reduce South Carolina Public School Dropouts by up to 3,100 Each Year, Saving up to \$10 Million Annually

In this section we analyze the impact of an educational reform that would increase enrollments in private schools by allowing South Carolina children to attend the public or private school of their choice using public funds.

Based on the finding (detailed in the previous section) that an increase in private school enrollments will improve South Carolina public school graduation rates due to improved competitive incentives, we calculate that increasing the percentage of South Carolina children enrolled in private schools by 5.8 points would mean:

- About 35,794 additional students enrolled in private schools.
- Between 1,549 and 3,137 fewer dropouts from South Carolina public schools each year, due to the positive incentives provided by competition from private schools.
- Increased tax revenues and reduced Medicaid and incarceration costs of \$5 million to \$10 million as a result of the reduction in public school dropouts. What's more, because dropouts use other social services and incur other costs not included in these three measurements, the total public benefits are likely to be much higher than these figures.
- Total public benefits of between \$247 million and \$501 million over an expected lifetime of 50 years for each class of reduced dropouts, since differentials in earnings, public assistance and incarceration rates between dropouts and graduates are lifelong patterns. The present value of these lifetime benefits, discounted at 3.5 percent each year, is \$116 million to \$235 million. The total value of the lifetime public benefit of each dropout prevented in South Carolina's public schools is about \$159,650, or a present value of \$74,901.

Table 7 presents our calculations of the public benefits that would result from even a modest school choice program in South Carolina. Changing the size of a program to provide school choice to a larger percentage of South Carolina's school-age children and introducing more competition into South Carolina's education system would increase the magnitude of these impacts but not the basic conclusion that the potential public benefit of reducing the number of dropouts, in just three areas of public interest (tax revenue, Medicaid costs and incarceration costs), would be \$3,193 annually and \$159,650 (with a present value of \$74,901) over the working lifetime of each dropout.

Table 7

The Public Benefits of a School Choice Program in South Carolina			
Total Public Enrollment Grades 1-12			617,130
Cohort of Potential Graduates			64,544
Current Annual Dropouts			30,659
Increase in % of South Carolina Students in Private Schools			5.8%
Annual Dropout Reduction	Low Impact Estimate		-1,549
	High Impact Estimate		-3,137
Annual Public Benefits From Increase in School Competition (see Table 6 for details)	Low Impact Estimate		\$4,947,150
	High Impact Estimate		\$10,017,461
Lifetime Public Benefit of 5.8% Increase in Competition	Low Impact Estimate		\$247,357,512
	High Impact Estimate		\$500,873,050
Lifetime Benefits Discounted to Present Value (at 3.5% per Year)	Low Impact Estimate		\$116,038,466
	High Impact Estimate		\$234,965,737
Average Lifetime Public Benefit of Reducing Each Dropout			\$159,650
Average Lifetime Benefits Discounted to Present Value (at 3.5% per Year)			\$74,901

Conclusions

This study highlights the public costs of the failure of individuals to graduate from high school in South Carolina. Our analysis of costs and benefits associated with dropouts includes just a few of the largest state programs where the impact of educational attainment on public costs is likely to be most significant. Most important, this study uses objective empirical methods to document the public cost and benefit implications of education policies that often are debated solely on the basis of their impact on individuals.

Each student who fails to graduate from high school in South Carolina creates large public costs. While this fact has been intuitively understood for some time, this study empirically assesses the cost effectiveness of policies that seek to improve the performance of South Carolina's public schools. We conclude that introducing more competition into K-12 education in South Carolina would significantly improve public high school graduation rates, that the impact of competition provides a compelling and cost-effective method for improving the productivity of public schools, and that this would bring about a large reduction in the public costs associated with dropouts.

These results indicate that school choice programs, rather than benefiting individuals at the expense of the public, provide large public benefits that probably exceed the benefits realized by students participating in the program.

Endnotes

- ¹ Editorial Projects in Education Research Center, "Diplomas Count: High School Graduation in South Carolina," October 2006; University of South Carolina Institute for Public Service and Policy Research, "The High School Crisis in the United States and South Carolina: The Problems Related to Dropouts and Recommended Solutions," May 2005; Annie E. Casey Foundation, "Kids Count Data Book 2006."
- ² See Aud, S. "School Choice by the Numbers: The Fiscal Effect of School Choice Programs, 1990-2006," Friedman Foundation, April 2007.
- ³ University of South Carolina Institute for Public Service and Policy Research, "The High School Crisis in the United States and South Carolina: The Problems Related to Dropouts and Recommended Solutions," May 2005.
- ⁴ U.S. Census Bureau, American Community Survey, 2005.
- ⁵ U.S. Census Bureau, Current Population Survey, March 2004-06 Supplement. The CPS is known to understate dropout numbers because it does not sample populations in institutions (such as prisons) and because it does not distinguish between those who obtain a GED and those who graduate from high school with a diploma. Because research suggests that the labor market outcomes of a GED student are more similar to those of a dropout than a high school graduate, the distinction is important. Since the CPS counts GED recipients as high school graduates, its data will cause us to underestimate the public costs of South Carolina's high school dropouts.
- ⁶ Editorial Projects in Education Research Center, "Diplomas Count," October 2006; Urban Institute, "Who Graduates? Who Doesn't?: Supplement to A Statistical Portrait of Public High School Graduation," 2005; Education Trust, "Getting Honest About Graduation Rates," June 2005; Jay Greene and Marcus Winters, "Leaving Boys Behind: Public High School Graduation Rates," Manhattan Institute, April 2006.
- ⁷ As calculated from district data reported in the South Carolina Department of Education's "High School Report Card, 2004."
- ⁸ Education Trust, "Getting Honest About Graduation Rates," 2005. The Urban Institute calculates graduation rates using the "cumulative promotion index" method. A similar table listing the difference between officially reported graduation rates and Urban Institute rates can be found in the Urban Institute publication "Projections of High School Graduates, 2003-04," Christopher Swanson, 2005.
- ⁹ The cumulative promotion index method for calculating graduation rates was used to examine the high school pipeline. It is a widely accepted method used to estimate the numbers of students who fall off track for earning a diploma at various points between the ninth grade and the expected time of graduation.
- ¹⁰ For the earnings calculations here, we limited the age range to 20-64 because labor force participation drops significantly after this age, as do wage and salary earnings, while Social Security income increases among all categories of educational attainment.
- ¹¹ Moretti, E., "Does Education Reduce Participation in Criminal Activities?" University of California at Berkeley, working paper, 2005.
- ¹² This estimate is appropriate to illustrate the earnings impact of educational attainment, but it does not consider the "equilibrium effects" that would occur in the South Carolina labor market if all dropouts actually did graduate - that is, the ways in which the larger economy would change as a result of such a dramatic rise in high school graduation rates.
- ¹³ IMPLAN Professional Modeling System, Version 2.1, Minnesota IMPLAN Group Inc., Stillwater, Minn.
- ¹⁴ National Association of State Budget Officers, "State Expenditure Report, 2005," November 2006.
- ¹⁵ The Medicaid matching rate for South Carolina was 30.11 percent in 2005, 30.68 percent in 2006 and 30.46 percent in 2007 for most but not all Medicaid services.
- ¹⁶ Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services, MSIS state summary data. Note that some of these beneficiaries are double counted or more.
- ¹⁷ Centers for Disease Control and Prevention, *National Vital Statistics Reports*, Vol. 51, No. 11, June 25, 2003.
- ¹⁸ Callahan, C., et.al., "A Longitudinal Model of Health Insurance, An Update: Employer Sponsored Insurance, Medicaid, and the Uninsured," U.S. Department of Health and Human Services, working paper, 2005.
- ¹⁹ We did not include the average cost of disabled Medicaid recipients in calculating a weighted average cost per Medicaid beneficiary because the need for these services is unrelated to educational attainment. These are among the highest-cost Medicaid beneficiaries and the effect of excluding them is to lower our calculation of the weighted average cost per Medicaid recipient. We treated elderly recipients similarly, and they also are among the highest-cost Medicaid recipients, although the cost of these services is somewhat related to educational attainment. The result is a lower average cost per Medicaid beneficiary than if all beneficiaries were included.
- ²⁰ South Carolina Department of Corrections, "Costs Per Inmate: 1988-2006."
- ²¹ National Association of State Budget Officers, "State Expenditure Report 2005," November 2006.
- ²² Lochner, L., and Moretti, E., "The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports," National Bureau of Economic Research, Working Paper #8605, 2001.
- ²³ Data on length of sentences and percentage of sentence served were calculated using data in the South Carolina Department of Corrections' "Sentence Length Distribution of Total Inmate Population," 2005.
- ²⁴ The probability that a released prisoner will return to prison within five years is closer to 40 percent, but a high percentage of inmates have more than one subsequent incarceration and for longer sentences. Thus we use a single recidivism rate of 60 percent to account for these tendencies.
- ²⁵ In developing our estimates of dropouts we do not include students who receive state or local "certificates" as graduates or in the cohort of potential graduates. This treatment essentially avoids treating the certificate holders either favorably (as graduates) or unfavorably (as dropouts). For a discussion of the controversies surrounding the awarding of certificates rather than diplomas see "High School Certificates: South Carolina's Not Quite Diplomas," South Carolina Policy Council, 2005.
- ²⁶ Hoxby, C., "School Choice and School Competition: Evidence from the United States," *Swedish Economic Policy Review* 10 (2003).
- ²⁷ Dees, T., "Competition and Quality of Public Schools," *Economics of Education Review* 17:419-427 (1998).
- ²⁸ The states are Missouri, Indiana, New Hampshire, North Carolina and Texas.

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