

The Foundation for Educational Choice
STATE RESEARCH

Tennessee's High School Dropouts
Examining the Fiscal Consequences

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The Foundation for Educational Choice is a 501(c)(3) nonprofit and nonpartisan organization, solely dedicated to advancing Milton and Rose Friedman's vision of school choice for all children. First established as the Milton and Rose D. Friedman Foundation in 1996, the foundation continues to promote school choice as the most effective and equitable way to improve the quality of K-12 education in America. The foundation is dedicated to research, education, and promotion of the vital issues and implications related to choice in K-12 education.

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Our authors take full responsibility for research design, data collection, analysis, content and charts, and any unintentional errors or misrepresentations. They welcome any and all questions related to methods and findings.

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Executive Summary

High school dropouts adversely impact the state of Tennessee each year—financially and socially. Dropouts' lower incomes, high unemployment rates, increased need for medical care, and higher propensity for incarceration create a virtual vortex that consumes Tennesseans' tax dollars at a vicious rate. Hundreds of millions of dollars are spent on these high school dropouts every year.

This study examines those costs across three major state funding mechanisms: state tax collections, Medicaid funds, and the costs of incarceration. All three aspects compose substantial parts of Tennessee's operating budget. In 2009, for example, TennCare—the state's Medicaid program—accounted for \$1.6 billion of Tennessee's \$4.28 billion in economic stimulus funding.¹

- **There are more than 750,000 high school dropouts in Tennessee.**

According to U.S. Census data, there were 776,952 high school dropouts aged 25 or older living in Tennessee in 2007. This group represents the majority of residents who are either unemployed, in need of Medicaid assistance, or incarcerated. The data show that as the general level of education increases (from associate's degree to bachelor's degree and so forth), the use of public assistance programs declines.

- **Each dropout costs the state \$750 in lost tax revenue each year over his or her lifetime.**

State taxes make up the bulk of the funding for state-based programs. Because there is no personal income tax in Tennessee, sales and excise taxes, vice taxes, and motor vehicle taxes make up most of state revenue. By examining the earning histories of Tennesseans based on educational attainment, a solid conclusion can be reached based on average salary according to level of education. When these data are compared across historical tax collection information in the state, it stands to reason that each high school dropout costs Tennessee approximately \$750 per year. According to Tennessee Department of Education statistics, there were at least 12,000 high school dropouts in 2007; costs, therefore, in lost revenue are staggering—at least \$9 million per cohort per year.

- **Each dropout costs the state nearly \$1,100 in Medicaid services each year.**

High school dropouts are less likely than graduates to have health insurance and more likely to report that they are in ill health. This creates an increased demand within their population for Medic-



aid services, which nearly one in five dropouts receives in a given year. Those additional costs create a burden of nearly \$1,100 a year per dropout on the state-funded portion of Medicaid. That cost represents the overall average cost, regardless of a specific individual's personal health.

- **Every dropout costs the state an average of approximately \$950 in incarceration services each year.**

Incarceration costs are constant whether a specific dropout is incarcerated or not, and reflects the overall average of the cohort. Although the odds of any individual resident being incarcerated are low, that rate increases significantly among high school dropouts. Their presence in the Tennessee penal system is substantial, and they are key contributors to such problems as overcrowding and staffing issues. Additionally, those dropouts place a greater strain on prison education programs, which need additional staff to run them. Based on U.S. Census statistics, each dropout costs the state more than \$950 a year in incarceration costs, which includes capital outlays and staffing.

- **Tennessee has a population of more than 750,000 high school dropouts. At a cost of nearly \$3,000 per individual annually, dropouts cost the state more than \$2 billion a year.**

Tennessee taxpayers are burdened by the costs of assisting the state's undereducated residents. High school dropouts cost the state more than \$2.1 billion a year, based on conservative estimates. In a time of economic strife, preventive measures to ensure state funds can be better appropriated are undoubtedly important. Until then, this academic failure will continue to be an anchor in a sea of financial problems for Tennessee.



Introduction

An Economic Perspective on High School Dropouts

Educational attainment is a key predictor of a person’s level of success in life. Evidence shows that individuals with greater levels of education have higher-paying jobs, better general health, and a lower likelihood of being incarcerated. Those benefits have been cited by such educational watchdog groups as the Alliance for Excellent Education, reported in media outlets including *Education Week*², and reflected upon in newspapers across the United States.³

Unfortunately, not only are there personal consequences of being less educated, but there are “neighborhood effects” as well. That is to say, dropouts typically have a negative impact on their state and its residents. State tax revenue, economic growth, Medicaid, and incarceration are affected by the state’s average education attainment.

An understanding of the public costs and benefits of the current educational system is vital. After all, taxpayers should know if their public education “investment” is paying off. That is why the Foundation for Educational Choice has examined this relationship in Indiana, Maryland, Missouri, Oregon, New Jersey, North Carolina, South Carolina, Texas, and Wisconsin, all of which show the financial drain high school dropouts can have on a state.

For example, in New Jersey, high school dropouts were found to earn a total of \$6 billion less than high school graduates each year.⁴ In Maryland, dropouts cost the state an additional \$94 million in Medicaid services. Residents who failed to graduate high school cost the state more than \$150 million per year in incarceration costs.⁵

Those trends are prevalent in Tennessee as well. Although there is no state personal income tax, decreased earnings affect the state and local counties through reduced purchases of goods, which cuts into sales tax revenues. In 2007, \$7.1 billion—28.6 percent of all state expenditures for the fiscal year—was spent on Medicaid, with dropouts constituting a majority of residents needing assistance. That number jumped to an estimated \$7.6 billion in 2008.⁶ Incarceration costs continued to grow in the state as well, from \$714 million in 2007 to an estimated \$759 million in 2008. Nearly 3 percent of Tennessee’s total spending goes to inmate care.



In fairness, keeping the public safe and providing state services do cost money; however, the price shouldn't be astronomical. With a better-educated society, those costs would shrink, state funds would be better utilized, and residents would be able to accumulate greater wealth.

Reviewing the Research on Dropouts

High school dropouts and their economic and social impacts attract national attention from think tanks, media outlets, and many other institutions. The Urban Institute and the Civil Rights Project at Harvard, the Alliance for Excellent Education, the Center for Labor Market Studies at Northeastern University, Editorial Projects in Education at *Education Week*, and the Heritage Foundation are just some of the groups that have identified the major challenges associated with—and facing—high school dropouts.⁷

An individual's educational attainment plays a major role in determining his or her economic value and societal contributions. Individuals who drop out of high school generally have fewer opportunities and face greater challenges in the workforce—and in society in general—than their more highly educated counterparts. Those challenges include a greater likelihood of being unemployed or out of the labor force and having lower annual income.⁸ Dropouts' average yearly income falls at least \$10,000 behind graduates' and even further behind residents with college degrees and beyond.⁹

However, those effects are not restricted to dropouts' take-home pay. Dropouts report having more health care issues than graduates, and as a result, they create a greater burden on their state's Medicaid programs.¹⁰ Dropouts also make up a large portion of the United States prison population. American males without high school diplomas are two to five times more likely to be incarcerated in a given year than male high school graduates.¹¹

Through advances in research—particularly Dr. Lance Lochner's and Dr. Enrico Moretti's work examining the relationship between failure to graduate high school and incarceration—researchers have a better idea today in interpreting the significance of not completing high school.¹²

The data analyzed in this study are sourced primarily from the U.S. Census Bureau's Current



Population Survey, considered the most accurate reflection of American populations and trends. For this study, information from the 2007 March Supplement—which includes data ranging from age to education to housing trends—was used to determine the state’s population of residents by educational attainment, Medicaid use, average wages, employment status, and other factors.

However, the Census data do not include incarceration statistics. Therefore, data were taken from the Tennessee Department of Corrections’ 2007 Annual Report, which includes inmate counts, staffing figures, and budget numbers that reflected the costs of housing Tennessee’s inmate population.¹³ Reviews of the state’s actual spending in 2007 also were instrumental in determining social costs. These were provided directly by the state, with supplemental breakdowns from The Sunshine Review, a nonprofit organization dedicated to state and local government transparency.¹⁴

For the sake of calculations, this study uses the Tennessee Department of Education’s dropout rate for 2007; however, it may provide a more optimistic view of the state’s graduation rate than is actually the case. That rate, which suggests nearly 81 percent of all Tennessee’s high school seniors graduated in 2007, is between 8.5 to 11 points higher than estimates provided from such sources as *Education Week* and the U.S. Department of Education’s National Center for Education Statistics (NCES).¹⁵

Tennessee’s Graduation Rate

Tennessee’s graduation rate is lagging in comparison to the other states the Foundation for Educational Choice has examined. According to the NCES, of all the public high school students beginning cohort in 2002-2003, only 70 percent had graduated by 2005-2006. That places Tennessee below the national average of 73 percent and behind such neighboring states as Arkansas (80 percent), Kentucky (77 percent), Virginia (75 percent), and North Carolina (72 percent). It is important to note that Tennessee has seen a steady increase in its graduation rate since 2000, improving to 71 percent by the end of 2006, from 59 percent in 2000-2001. That growth outpaced the U.S. average increase, which was only 1.7 percent.¹⁶

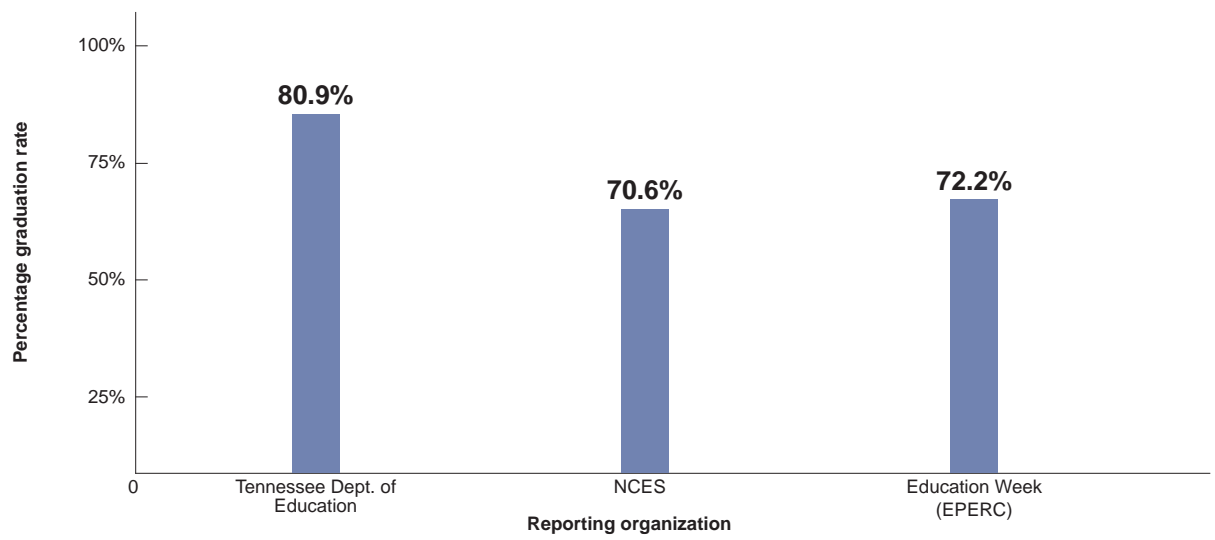
As seen in Figure 1, the estimates of Tennessee’s graduation rate vary considerably by source. The highest estimate, compiled by the Tennessee Department of Education, lists the rate at close to



81 percent. However, other estimates, including those from the U.S. Department of Education, and the EPE Research Center at *Education Week* (EPERC) put Tennessee's 2006 graduation rate closer to 70 percent. The difference can be explained in the techniques used to gather these rates. While the Tennessee Department of Education uses dropouts over the course of the students' senior years as an indicator, the other estimates use a more comprehensive approach to better understand the number of students lost through the four-year span that high school graduates generally follow.

Tennessee's graduation rate is likely lower than what has been reported by state government. Figure 1

Statewide high school graduation rates by reporting organization (2006)



Regionally, Tennessee's graduation rate lagged behind its northern neighbors but remained ahead of southern bordering states. Nearly all states, except Virginia, posted increases from 2001, but Tennessee's gain of 11.6 percentage points was the largest in the group. Even with this improvement, the state's rate still lagged in the bottom half of the area's scores.



Tennessee's graduation rate lagged behind its northern neighbors but remained ahead of southern bordering states.

Table 1

Statewide high school graduation rates, reported by the U.S. Department of Education (2001 and 2007)

State	2007 Graduation Rate	2001 Graduation Rate
Tennessee	70.6	59.0
Missouri	81.0	75.5
Arkansas	80.4	73.9
Kentucky	77.2	69.8
Virginia	74.5	77.5
North Carolina	71.8	66.5
Alabama	66.2	63.7
Mississippi	63.5	59.7
Georgia	62.4	58.7

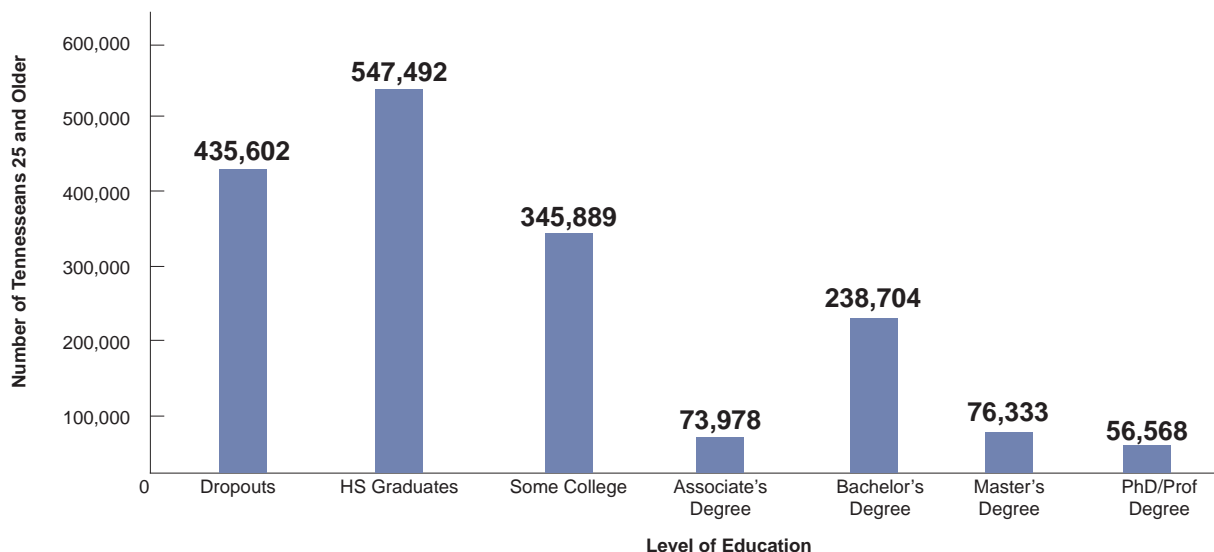
Source: National Center for Education Statistics, U.S. Department of Education.

Recent initiatives show the Tennessee Department of Education is concerned about the state's graduation rates. In 2007, the Tennessee Diploma Project was created to better prepare students for college and to help boost achievement in public schools. Students beginning high school in 2009 were the first group exposed to the new Diploma Project program, which emphasizes real-world skills and increases coursework in order to prepare students for the next steps in their lives. Features of the program include additional higher math credits, a personal finance course, and focused elective tracks, among others.

As of 2007, there were more than 435,000 dropouts in Tennessee.

Figure 2

Tennesseans' educational attainment (2007)



Source: U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.



As of 2008, Tennessee was allocating 17.5 percent of all state expenditures for elementary and secondary education, an 8.4 percent increase from 2007.¹⁷ Although this was less than the national average of 20.9 percent, it still represents a significant amount in relation to the lagging graduation rates. Tennessee’s total state spending in 2007 was \$46.2 billion, out of which the state spent approximately \$6.8 billion on K-12 education.¹⁸ Capital expenditures (costs of building and maintaining educational facilities) consumed \$531 million of educational expenses.

Over the past two decades, Tennesseans have seen an increased focus on education spending in primary and secondary schools. That was exacerbated in 1992 with the adoption of the Basic Education Program, part of the Education Improvement Act. The Basic Education Program dictated baseline funding of public education in the state—instruction, classroom, and non-classroom components—and assigned weighted variables multiplied across student enrollment counts to figure out state funding in K-12 schools.

These costs have increased considerably in recent years, a common trend across the United States. Despite this, standardized testing, such as the National Assessment of Educational Progress (NAEP), has failed to correlate an equal connection between greater spending and better results.¹⁹ In short, although students in America’s public schools are getting more money toward schooling, they aren’t necessarily getting a better education.

Tennessee’s dropouts lead all other residents in both unemployment rate and likelihood of not being in the labor force. Table 2 show the disparities.

In 2007, before the economic recession, Tennessee dropouts had substantially higher unemployment rates compared to high school graduates: 11.3% vs. 6.9%, respectively.

Table 2

Tennessee’s unemployment rate by educational attainment (2007)

	Employed	Unemployed	Unemployment Rate	Not in Labor Force	Percentage not in Labor Force
Dropouts	252,601	32,209	11.31%	492,142	63.34%
HS Graduates	806,820	59,936	6.91%	521,507	37.57%
Associate’s Degree	170,830	6,573	3.71%	50,695	22.23%
Bachelor’s Degree	431,392	12,741	2.87%	132,806	23.02%
Master’s Degree	157,087	3,303	2.06%	49,360	23.53%
PhD/Prof Degree	79,864	893	1.11%	18,509	18.65%

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.



Dropouts are nearly twice as likely as high school graduates to be unemployed. They are nearly four times more likely to be out of work than a college graduate. It is clear that high school dropouts face obstacles to becoming contributing members to Tennessee’s economy.

Wealth Accumulation and Total Earnings

A higher level of education typically leads to higher-paying jobs with better employee benefits. Such jobs demand well-educated employees, and as qualifications increase, oftentimes so do salaries. What many Tennesseans may not know, however, is the depth of the disparity between the incomes of residents with different educational backgrounds.

The average dropout will make almost \$9,000 a year less than their counterparts who graduate high school. That difference increases as educational attainment increases. Tennesseans with just some college coursework, for example, make more than twice as much on average as dropouts. Those differences are shown in Table 3.

If Tennessee’s dropouts had completed high school, it is estimated that this population would have earned an additional \$7 billion in 2007.

Table
3

Average annual earnings and total earnings by educational attainment (2007)

Educational Attainment	Population	Average Annual Earnings	Total Annual Earnings	Total Earnings If Dropouts Become HS Grads
Dropouts	776,952	\$15,500	\$3,669,932,913	\$0
HS Graduates	1,388,263	\$24,270	\$16,057,343,533	\$52,549,984,572
Some College	782,296	\$31,856	\$16,800,078,898	\$24,920,523,502
Associate’s Degree	228,098	\$34,426	\$8,122,428,009	\$7,852,410,509
Bachelor’s Degree	576,939	\$51,903	\$23,576,357,061	\$29,944,922,611
Master’s Degree	209,750	\$59,093	\$15,400,335,709	\$12,394,651,875
PhD/Prof Degree	99,266	\$101,378	\$83,626,476,123	\$10,063,424,970
TOTAL	4,061,564		\$130,911,736,438	\$137,725,918,038
INCREASED EARNINGS IF ALL DROPOUTS BECOME HS GRADUATES				→ \$6,814,181,601

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this because of to total responses to different questions in the survey.

Source: Author’s calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.



The average earnings shown in Table 3 are the overall averages per group, which include unemployed residents. If only employed Tennesseans were considered, then those estimates would rise in concert with their corresponding unemployment rates—i.e., employed Tennesseans at each level of education probably earn more on average than the overall average of their corresponding group.

The difference seen in wealth accumulation is significant. Assuming all dropouts graduate high school (but do not attend any higher-learning institutions), Tennesseans would have accumulated an additional \$6.8 billion in 2007. The higher income of high school graduates not only is a significant benefit to those individuals, but it creates public benefits to all Tennesseans as well.

Although this income would not be directly applicable to state funds—because there is no personal income tax in Tennessee—it would be applied more directly to educational funding than in other states. Without a state income tax, the majority of the Tennessee’s revenue comes from sales taxes at the state and municipal levels. The largest share of those funds is distributed into education, including state and local allocations. As a result, we can presume that a large share of the additional state income (from sales taxes) would benefit Tennessee’s public schools.²⁰

Other sources of state tax revenue also have a strong correlation to personal earnings. Many of those revenue sources are based on items that typically are consumed or used more often by residents with steady jobs. As a result, we can assume that even more revenue would go to the state based on a population with higher graduation rates. Additional state revenue components include the motor vehicle tax, franchise and excise taxes, insurance and banking taxes, and tobacco, alcohol, and beer taxes, among others.²¹ Further details are provided in Table 4 (next page).

The sales tax is the largest component of Tennessee’s revenue, constituting nearly three-fifths of the state’s tax base. The franchise and excise taxes, as well as the gasoline tax, are also significant sources. Those funds are distributed across different government sectors based on the state’s budget. In 2007, the state’s expenditures totaled \$48.7 billion, of which \$30.3 billion was locally funded and \$18.4 billion was state funded.²²

In 2007, the state’s redistribution of tax revenue focused primarily on education and health and social services—two significant public sectors that strongly affect the quality of life within the state. Table 5 shows Tennessee’s annual budget breakdown (next page).



In 2007, Tennessee’s sales tax was by far the greatest revenue generator for state government.

Table 4

Type of tax by percentage of overall state revenue (2007)

Type of Tax	Percentage of Overall State Revenue
Sales Tax	57%
Franchise and Excise Tax	14%
Gasoline Tax	7%
Other Taxes	6%
Gross Receipts and Privilege Tax	5%
Insurance and Banking Tax	3%
Income and Inheritance Tax	3%
Tobacco, Alcohol, and Beer Tax	3%
Motor Vehicle Tax	2%

Source: Tennessee State Budget, 2007-2009; Sunshine Review: Tennessee State Budget.

In 2007, spending on education made up nearly half of Tennessee’s annual state budget.

Table 5

Type of public service by percentage of state budget (2007)

Type of Public Service	Percentage of State Budget
Education	48%
Health and Social Services	32%
Law, Safety, and Corrections	12%
Resources and Regulation	4%
General Government	3%
Business and Economic Development	1%

Source: Tennessee State Budget, 2007-2009; Sunshine Review: Tennessee State Budget.

In this same year, Tennessee collected approximately \$11.2 billion²³ in tax revenue from the various attainment groups shown in Table 2 during the 2007-2008 fiscal year. Using an eligible state population of 4,061,564, this equates to \$2,758 in average state taxes per person. Using the figures in Table 3, the average annual salary for a Tennessean in 2007 was \$32,232, which includes unemployed residents. On average, Tennesseans sent 8.6 percent of their annual earnings to state government in 2007.



If all high school dropouts accounted for in Tennessee’s population in 2007 had graduated, the benefit to the state would be significant. (see Tables 6 and 7) Each dropout would contribute an estimated \$750 in additional taxes each year if he or she had a high school diploma. With 776,952 residents earning \$8,770 more each year, this would equate to approximately \$582 million in additional state tax revenue.

Tennessee could have seen tax revenues increase by as much as \$582 million per year if dropouts had completed high school.

Table 6

Potential tax collections and revenue if all dropouts had completed high school (2007)

	Population	Average Annual Earnings	Average Tax Collection Per Resident (based on spending)	Total Tax Revenue
Dropouts	776,952	\$15,500	\$1,325	\$1,029,461,400
If Dropouts Become HS Graduates	776,952	\$24,270	\$2,075	\$1,612,175,400
DIFFERENCE		\$8,770	\$750	\$582,714,000

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author’s calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

A single dropout costs the state \$750 each year in lost tax revenue.

Table 7

Summary of lost state tax revenue resulting from dropouts (2007)

Average Annual Earnings - Dropout	\$15,500
Average Annual Earnings - HS Graduate	\$24,270
Difference	\$8,770
Total Additional Accumulated Wealth If No Dropouts	\$6,814,181,600
Average percent of earnings redistributed through state-based taxes	8.55%
Total Estimated Additional Tax Revenue	\$582,714,000
ANNUAL LOST STATE TAX REVENUE PER DROPOUT	\$750

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author’s calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

Every Tennessean who drops out of high school costs the state approximately \$750 in forgone tax revenue. It is important to note that this is a conservative estimate, because many individuals



with lower incomes are unable to buy items that often have higher tax rates. This estimate does not include local/county taxes, the revenue from which also would increase dramatically if residents had a higher average yearly income base.

Medicaid Costs

In 2007, Tennessee spent nearly \$2.6 billion on Medicaid services.²⁴ According to U.S. Census data, those benefits were distributed to 233,578 residents, meaning that Tennessee spent approximately \$11,095 per identified claimant that year. Although Tennessee spent less than the national average, funding was still at a much higher level than many nearby states.

The data in Table 8 show that Tennessee spends more than the regional average when it comes to Medicaid for individuals. For example, Tennessee spent more than three times as many tax dollars on state-provided health care then Arkansas or Mississippi in 2007. Virginia, on the other hand, boasts a population of 1.5 million more people than the Volunteer State, but spent \$100 million less. Such costs are substantial, and a disproportionate amount of these expenses are on high school dropouts.

Tennessee spends more on Medicaid than most neighboring states.

Table
8

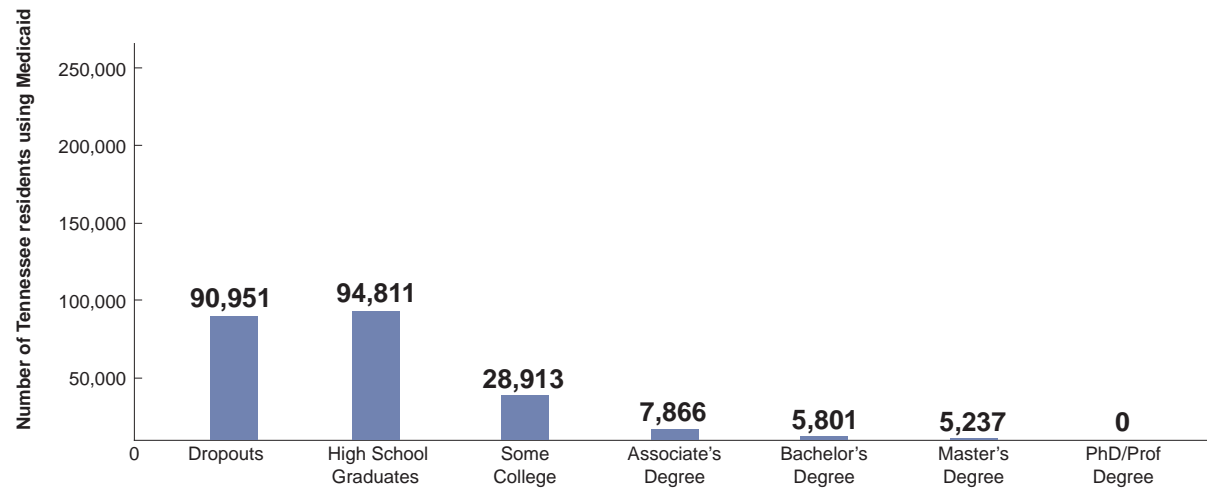
State	Medicaid Spending (2007)
Tennessee	\$2,591,579,945
North Carolina	\$3,489,476,907
Georgia	\$2,663,374,430
Missouri	\$2,531,579,805
Virginia	\$2,481,443,130
Kentucky	\$1,397,086,713
Alabama	\$1,280,541,790
Arkansas	\$823,824,132
Mississippi	\$792,347,004

Source: StateHealthFacts.org



As of 2007, there were more than 90,000 dropouts (age 25 or older) who were using Medicaid in Tennessee. Figure 3

Tennessee residents using Medicaid by educational attainment (2007)

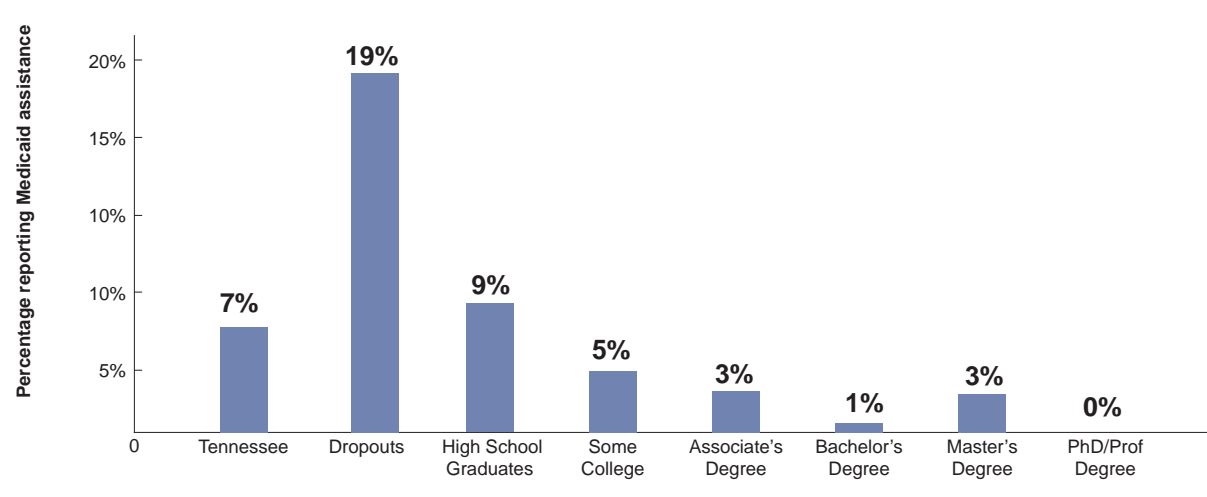


Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

Tennessee's dropouts are twice as likely as graduates to depend on Medicaid. Figure 4

Self-reported Medicaid assistance by educational attainment (2007)



Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.



High school dropouts comprised more than 38.9 percent of the population considered eligible for Medicaid benefits, according to Census data. In fact, 18.8 percent of all dropouts accept some form of government health benefits from the program. High school graduates, because of having a larger overall population, made up 40.6 percent of the state Medicaid population, but just 9 percent—one in 11 members—of this population received benefits in 2007.

Of the \$2.59 billion spent by Tennesseans on Medicaid coverage in 2007, approximately \$1 billion in aid was given to dropouts. In comparison, there were more than twice as many residents who had graduated only from high school (1,050,386 residents compared to 485,180) but they were only slightly more expensive as a whole to cover (\$1.05 billion overall).

Higher Medicaid use by dropouts costs Tennessee more than \$523 million per year.

Table 9

Educational Attainment	Population	# on or w/ Child on Medicaid	% on or w/ Child on Medicaid	Total Cost to State	If All Dropouts Become HS Graduate
Dropouts	485,180	90,951	18.8	\$1,009,114,078	\$0
HS Graduates	1,050,386	94,811	9.0	\$1,051,941,319	\$1,537,839,730
Some College	534,003	28,913	5.4	\$320,793,783	\$320,793,783
Associate's Degree	240,511	7,866	3.3	\$87,274,371	\$87,274,371
Bachelor's Degree	614,181	5,801	0.9	\$64,362,907	\$64,362,907
Master's Degree	180,417	5,237	2.9	\$58,105,248	\$58,105,248
PhD/Prof Degree	64,922	0	0.0	\$0	\$0
TOTAL	3,169,599	233,578	7.4	\$2,591,591,706	\$2,068,376,039
ESTIMATED ANNUAL MEDICAID SAVINGS IF ALL DROPOUTS GRADUATE					\$523,215,667

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

Dropouts had an average Medicaid impact of \$2,080 per resident, measuring total costs divided by the entire group population, not just recipients. This average among high school graduates was just over \$1,001, thanks to lower usage rates by individuals with higher levels of education. The Tennessee average Medicaid share was \$818 per resident altogether, and \$612 for non-dropouts.

Why does lower educational attainment have such an impact on Medicaid costs? Dropouts are



more likely to report that they are in poor health than their more-educated counterparts. Census data show that only 9 percent of high school graduates consider themselves in poor health. On the other hand, that figure is nearly 20 percent among dropouts. In both cases, only residents aged 25 and older were considered. That contrast grows even deeper as educational attainment increases: Only 2 percent of residents with master’s degrees and higher reported being in poor health.

Dropouts tend to self-report poorer health.

Table
10

Self-reported quality of health by educational attainment (2007)

Self-reported Quality of Health	Dropouts	HS Graduates	Associate's Degree/ Some College	Bachelor's Degree	Master's/PhD/Prof Degree
Excellent	9.9%	18.4%	26.3%	36.7%	32.0%
Very Good	10.8%	28.0%	31.9%	34.6%	36.9%
Good	28.1%	31.7%	24.3%	20.3%	21.1%
Fair	31.4%	12.9%	13.2%	5.1%	7.7%
Poor	19.8%	9.0%	4.3%	3.2%	2.4%

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

Tennesseans with lower levels of educational attainment are also less likely to have even partial health care coverage provided by their employers (see Figure 5). In 2007, almost 7 percent of qualified Tennesseans (employed on a regular basis) reported receiving no health care benefits from their employers. Among dropouts, that figure nearly doubles, as more than 12 percent of their employed population were in positions with no health coverage.

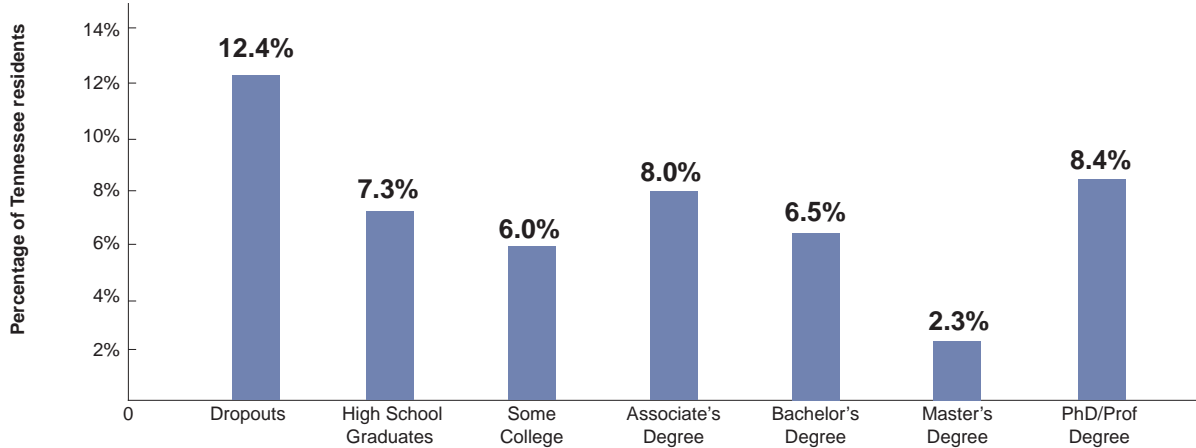
It is important to note that Figure 5 displays conservative estimates for the population categories, as the figures only incorporate qualified employed residents. Including unemployed or undocumented employees likely would create a large increase among high school dropouts who have no employer-provided health care programs.



Tennessee's dropouts are nearly twice as likely to report not having health coverage at their workplace.

Figure 5

Self-reported lack of health coverage by educational attainment (2007)



Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

Residents with lower levels of education are significantly less likely to be employed in a workplace that provides health care coverage.

Table 11

Data from 2007 Current Population Survey

	Percentage Uninsured	No Coverage	Some Coverage	Full Coverage	Total (CPS Sample)
Dropouts	12.37%	15,041	97,739	8,806	121,585
HS Graduates	7.25%	31,814	355,591	51,311	438,715
Some College	6.00%	16,851	214,105	49,740	280,695
Associate's Degree	8.01%	9,605	100,908	9,401	119,915
Bachelor's Degree	6.47%	21,999	271,271	46,708	339,978
Master's Degree	2.28%	2,809	114,706	5,940	123,455
PhD/Prof Degree	8.38%	3,252	28,736	6,835	38,823
TOTAL	6.93%	101,372	1,183,053	178,742	1,463,166

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

Table 11 shows the disparities in employer-provided health care benefits across levels of educational attainment. Residents with lower levels of education are significantly less likely to be em-



played in a workplace that provides health care coverage, and therefore, increasing the pressure on the TennCare program. This extended reliance on public support for medical needs has a significant impact on Tennessee’s Medicaid spending (see Table 12). Based on these calculations, residents who fail to graduate from high school are responsible for more than \$523 million in additional state Medicaid funds than if there were no dropouts in the state. This estimate can be considered conservative because it assumes that this new crop of high school graduates would enter the workforce without any additional schooling. If they continued their education, it can be reasoned that Medicaid costs would be driven down even more.

Additional Medicaid costs per dropout are approximately \$1,078 each year. Table 12

Summary of additional annual Medicaid costs per dropout (2007)

Dropouts Eligible For Medicaid Benefits	485,180
Dropouts Receiving Medicaid Benefits	90,951
Percentage of Dropouts Receiving Benefits	18.75%
HS Grads Eligible for Medicaid Benefits	1,050,386
HS Grads Receiving Medicaid Benefits	94,811
Percentage of HS Grads Receiving Benefits	9.03%
Average Tennessee Medicaid Benefit, 2007	\$11,095
Reduction in Population Receiving Benefits If Dropouts Graduate	47,157
Reduction in Total Medicaid Spending If Dropouts Graduate	\$523,215,667
ADDITIONAL ANNUAL MEDICAID COSTS PER DROPOUT (2007)	\$1,078

Note: Figures reflect reported response counts as provided by the 2007 Current Population Survey, released by the U.S. Census Bureau. Counts may vary from chart to chart in this report because of total responses to different questions in the survey.

Source: Author’s calculations. U.S. Census Bureau, *Current Population Survey* (March Supplement 2007), data for Tennessee.

With 485,180 eligible dropouts contributing to more than \$1 billion in Medicaid expenses, the impact of academic failure is evident. Based on past trends, if these dropouts had graduated from high school, they would have had a positive fiscal effect of more than \$500 million on Tennessee’s health care system. Using U.S. Census data, our calculations show that each dropout would cost the state an average of \$1,078 each year in Medicaid support.



Incarceration Costs

In 2007, Tennessee housed 26,267 total inmates in state-run public correctional facilities. If prisoners kept in local and private jails also are considered, this number rises to 38,407. Those inmates offered their state little aside from basic labor while creating massive costs paid for by taxpayers. Because they are behind bars, they cannot offer wealth-creating services to society and have no regular income to contribute to public funds (through taxation). At the same time, their living and security costs are major drains of state funding.²⁵

Although Tennessee has one of the highest crime rates in the country (4,840 crimes per 100,000 people, approximately 20 percent higher than the national average), the state has a below-average population of offenders and inmates (433 incarcerated residents per 100,000 people, slightly lower than the national average of 440).²⁶ According to Department of Corrections information, Tennessee’s inmate population is projected to rise by 11.7 percent through June 2019. That represents an increase of more than 300,000 felons in Tennessee correctional facilities.²⁷ However, Tennessee still had the lowest inmate ratio in a list of all bordering states (see Table 13).

Tennessee has fewer prison inmates per resident than neighboring states.

Table
13

State	Inmates per 100,000 Residents (2007)
Tennessee	433
Mississippi	661
Alabama	587
Georgia	550
South Carolina	527
Missouri	524
Virginia	472
Kentucky	464

Source: Bureau of Justice Statistics, *Prison and Jail Inmates at Midyear 2007*.

Of Tennessee’s inmates, 8,802 were incarcerated for violent crimes (homicide, assault, kidnapping, and sexual offenses). That constitutes 46 percent of Tennessee’s inmate population. Drug



offenses were the second largest factor behind incarceration, consisting of 15.6 percent of the state's felons.²⁸ Within the system, 50.2 percent of inmates were white, while 47.8 percent were black, and 2.0 percent identified themselves as "Other."²⁹

In 2007, the state appropriated \$569 million to the Tennessee Department of Corrections to house those criminals. Tennessee's prisons are on the brink of overcrowding, with all facilities reporting at least 94 percent of their bunks as filled. Four facilities house more inmates than their listed capacities (Hardeman, Northeast, South Central, and Whiteville).

There has been much research examining the connection between criminal activity and education. Dropouts are more than eight times as likely as high school graduates to be imprisoned in their lifetimes.³⁰ Residents with lower levels of education are also more likely to be drug users: Approximately 47 percent of inmates incarcerated for drug-related offenses failed to graduate high school.³¹ That may show an observatory link between fewer employment options and a higher likelihood of drug trafficking.

Studies have shown that higher levels of education in a population have a strong connection with lower crime and incarceration rates. The most telling research, conducted by Lochner and Moretti, shows that dropouts are more than twice as likely as a Tennessee high school graduate to be incarcerated in a given year.³² Because there is no Census data that individually account for criminal activity and inmate status, Lochner's and Moretti's formula is used to determine the impact of dropouts on the state correctional program.

In 2006-2007, Tennessee had an estimated 80.9 percent graduation rate, according to the Department of Education (shown in Figure 1). The working figure for total graduates was 52,424, which would mean that 12,377 students dropped out in 2007.³³ Because Department of Education numbers are being used, this can be considered a conservative estimate. Using this figure, we calculate expected incarcerations for the 2007 graduating cohort.

Table 14 shows the projected cost of 2007's high school cohort on the Department of Corrections. Note that this is a conservative estimate, and only covers one cohort of students in the frame of only one year. With a number of different cohorts making up Tennessee's residential base, potential savings become staggering over time. Assuming a lifespan of 65 years and an average starting



age of 18 (when leaving high school), each cohort, if there were zero dropouts, would save Tennessee about \$149 million in the course of their lifetimes solely in the money saved by not needing to imprison them. This figure fails to account for judicial or capital costs.

As of 2007, dropouts cost the Tennessee Department of Corrections more than \$3 million per year per cohort.

Table
14

Projecting reduced incarceration costs, if no dropouts (2007)

# HS Graduates	52,424
# Dropouts	12,377
% Graduation Rate (TN Dept. Of Education)	80.9
Expected Incarcerations from Dropouts	152
Expected Incarcerations from HS Graduates	73
Total Expected Incarcerations	225
Expected Incarcerations from Former Dropouts (If Graduation Rate = 100%)	17
Total Expected Incarcerations (If Graduation Rate = 100%)	90
Reduction in Incarcerations	135
Incarceration Costs Per Inmate (Non-Death Row)	\$23,491
Projected Incarcerations Costs	\$5,294,223
Projected Incarcerations Costs, If No Dropouts	\$2,123,561
REDUCTION IN INCARCERATION COSTS, IF NO DROPOUTS	\$3,170,662

Sources: Author's calculations. See Tennessee Department of Education; Tennessee Department of Corrections; Lance Lochner and Enrico Moretti, *The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports*. University of California-Berkeley. October 2003.

Even during their incarceration, many inmates still fail to understand the importance of education. Just 7,680 took advantage of educational services in the Tennessee Department of Corrections in 2007, despite the fact that every facility offers adult education and GED programs. This includes classes ranging from basic literacy to college courses. A total of 922 took the GED exam that year, with 685 passing (74 percent). By 2008, that number increased to 1,224 inmates taking the GED in order to earn their high school equivalency diploma. Of that number, 737 were passing (60.4 per-



cent), thereby affording them some of the benefits of earning a higher level of education.³⁴ Only 147 inmates were taking higher education courses in 2007.

With 7,130 taking full-time high school equivalency classes, it is assumed that at least this proportion of the state's 19,564 inmates who are counted as the current eligible prison population lack a high school diploma. That is likely a conservative estimate because not all individuals are admitted into the ongoing education programs and instead opt for vocational training, work release, mental health and substance abuse programs, and other assignments. However, just the elimination of the GED program (assuming a 100 percent graduation rate in Tennessee) would create massive savings for the state beyond the reduction of inmates.

The GED track is the apex of Tennessee's prison programs. The program is separate from the state's other educational programs, which include volunteer-based literacy courses and vocational seminars. Its use constitutes 59.7 percent of the total enrollment within facility educational systems; however, with a better-educated populace it would lose impact and no longer be necessary. The Department of Corrections' actual Education/Library cost in 2007 was \$13,017,474.³⁵ If a reduction in students led to a correlated drop in expenses for educating those students, it would be reasonable to assume that the cost would be reduced by \$7,766,225. Because all current felons are counted without respect to a potential 100 percent graduation rate (which would reduce the total inmate count), that estimate is conservatively based.

Personnel costs are another area of potential savings with a reduction in prisoners. There were a total of 26,267 Tennesseans incarcerated at some point in 2007, with 5,192 staff members taking responsibility for them, an average ratio of 5.5 inmates per employee. When factoring in the eligible population (those who remained in prison for all of 2007), this figure drops to 19,564 felons and a staff ratio of 3.77:1. The average starting salary of a prison employee in Tennessee that year was \$23,748.³⁶ Total personnel expenditures were \$243,423,376, including more than \$8 million in overtime costs.

Clearly, a drop in incarceration would have an impact on that part of the budget. Fewer inmates would need less administration and likely would create a reduction in overtime costs and over-worked personnel. Using 2007's estimated drop of 135 inmates based on a 100 percent graduation



rate, this would create savings of more than \$850,000 per year in terms of reduced staffing costs (assuming staffing cuts only affect newly hired employees working at minimum scale)—and this covers just one year and one graduating cohort of Tennesseans. As a result, the Department of Corrections could trim costs while improving the inmate-to-staff ratio in its prisons.

Every high school dropout costs the state more than \$950 in incarceration costs alone (see Table 15). With more than 12,000 dropouts, that adds up to nearly \$12 million each year. Even without considering the additional costs of security, officers, and other safeguards against criminal activity, the weight of these dropouts is a major burden on Tennessee’s state budget.

Additional per dropout incarceration costs are approximately \$952 each year. Table 15

Summary of additional annual incarceration costs per dropout (2007)

Number of Dropouts (2007 cohort)	12,377
Number of Additional Inmates (2007 cohort)	135
Additional Cost of Incarceration	\$3,170,662
Additional Cost of Education	\$7,766,225
Additional Cost of Staffing	\$850,933
Total Annual Additional Costs from Dropouts (per cohort)	\$11,787,820
ADDITIONAL ANNUAL INCARCERATION COSTS PER DROPOUT (2007)	\$952

Sources: Author’s calculations. See Tennessee Department of Education; Tennessee Department of Corrections; Lance Lochner and Enrico Moretti, *The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports*. University of California-Berkeley. October 2003.

Conclusion

In just these three aspects of public funding, dropouts cost the state of Tennessee hundreds of millions of dollars each year. This money could have been spent on state debt reduction, capital projects, more comprehensive educational programs, and even lower taxes for residents. These funds would have a major impact on the quality of life for Tennesseans, and in turn spur growth well into the future.

As shown in Table 16, each dropout costs the state nearly \$2,800 each year. In fact, just reducing 2007’s dropout figure by 1 percent (124 fewer dropouts in the 2007 graduating cohort), would produce a fiscal benefit of approximately \$345,000.



Each year, a single high school dropout costs the State of Tennessee \$2,781 from lost tax revenue, greater Medicaid usage, and increased incarcerations.

Table 16

Summary of total annual costs per dropout (2007)

Annual Lost State Tax Revenue per Dropout	\$750
Additional Annual Medicaid Costs per Dropout	\$1,078
Additional Annual Incarceration Cost per Dropout	\$952
TOTAL ANNUAL COSTS PER DROPOUT	\$2,781

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey (March Supplement 2007)*, data for Tennessee; Tennessee Department of Education; Tennessee Department of Corrections; Lance Lochner and Enrico Moretti, *The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports*. University of California-Berkeley. October 2003.

Each year, a single dropout cohort costs the State of Tennessee about \$34.4 million from lost tax revenue, greater Medicaid usage, and increased incarcerations. If all dropouts (all cohorts) were eliminated, the state would save more than \$1.2 billion annually.

Table 17

Summary of total annual costs for 2007 dropouts

Total Estimated Additional Tax Revenue	\$9,280,708
Reduction in Total Spending if Dropouts Graduate	\$13,348,668
Total Annual Additional Costs From Dropouts (2007 cohort)	\$11,787,820
TOTAL SAVINGS IF ALL 2007 DROPOUTS WERE HS GRADUATES	\$34,417,195

Source: Author's calculations. U.S. Census Bureau, *Current Population Survey (March Supplement 2007)*, data for Tennessee; Tennessee Department of Education; Tennessee Department of Corrections; Lance Lochner and Enrico Moretti, *The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self Reports*. University of California-Berkeley. October 2003.

In Table 17, we see that by eliminating all dropouts in 2007, Tennessee stood to gain more than \$34 million. That figure accounts for only Tennesseans who were scheduled to have graduated from high school that year. If all dropouts past and current were eliminated, and given an annual cost of \$2,700 per dropout and approximately 435,000 dropouts, the state would save more than \$1.2 billion through additional revenue and savings annually. Clearly, the failure to graduate from high school is a costly misstep for individuals and the state. Even small measures to encourage academic progress can translate into considerable savings.



Notes

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