

Testimony to the New Jersey Senate Committee on Higher Education

September 24, 2012

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Thank you for the opportunity to address this committee. There have been numerous studies that have quantified the rate of return on public investment in higher education. Conservative estimates start at 10% above inflation and go on to 12% and even 38% (for NJ) in one study. The economic benefits accrue primarily due to the significantly higher lifetime earnings of those with college degrees. For example, US estimated average lifetime earnings are:

High school graduate: \$1.8 million

Associate's degree: \$ 2.3 million

Bachelor's degree: \$3.4 million

Master's degree: \$3.8 million

Professional degree: \$4.7 million

Ph.D. degree: \$4.0 million

In addition to all forms of taxes paid by those with higher earnings, each degree holder also requires lower spending on all forms of federal and state social and welfare programs. The resulting returns are therefore significant.

For New Jersey, the primary areas where higher education investments will pay rich dividends are:

- Higher education capacity: Tens of thousands of NJ high school graduates leave to attend college in another state and many do not return to the NJ workforce
- Research infrastructure: Funding for research starts a virtuous cycle by attracting the best students and private investment. For example, New York state's investment in a nanotech hub around Albany
- Teaching excellence: Investing in colleges that develop a strong faculty dedicated to teaching excellence will also attract students with a strong academic profile and facilitate effective career preparation by blending classroom learning with experiential approaches that ensure graduates are ready to join the workforce thereby building a valuable pipeline of human capital to the private sector
- Holistic approach: Integrating the above elements can create win-win scenarios for public higher education and the private sector. For example, University of Connecticut in Stamford.

In summary, the economic imperative for investment in public higher education is self evident and is supported by many studies. The benefits for the State and the NJ workforce are numerous and sustained. In moving forward with these discussions and developing policies and funding priorities, the faculty and staff of the NJ State Colleges are a valuable resource and we welcome the opportunity to offer our collective experience and insights so that together we can make sound investment decisions for NJ public higher education, which in turn will pay rich dividends in the near term and in the long run.

Thank you.

High Returns:

Public Investment in Higher Education

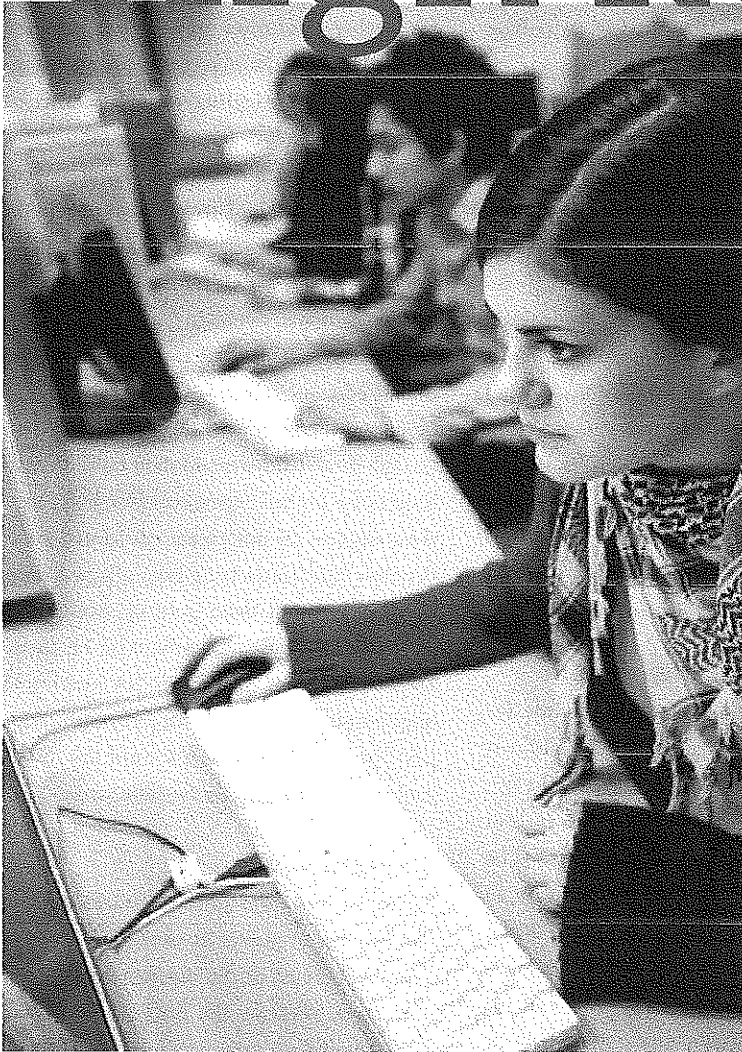
Remember the United Negro College Fund slogan, “A mind is a terrible thing to waste”? It’s powerful because it’s founded on a universal truth. A mind is indeed a terrible thing to waste.

When a mind fails to reach its full potential, whether for lack of access to a college education or for some other reason, society suffers, too. That is why higher education is important. Most of the benefits are well established: higher income, lower unemployment, better health, longer life, faster technology creation and adoption, reduced crime, greater tolerance, increased civic involvement, and so on. Less widely known is that college education also creates substantial government fiscal benefits.

The Fiscal Impacts of College Attainment

Because college education leads to higher earnings for individuals, it also leads to more tax revenue. The magnitude of this effect may be surprising. (See “National Fiscal Effects per Four-Year-Equivalent Degree.”) Over the course of an average lifetime, a four-year-equivalent degree (the weighted average of associate’s, bachelor’s, master’s, professional, and doctorate degrees) gives government \$471,000 more in income, payroll, property, and sales-tax revenue—more than twice what it would collect in lifetime taxes from a high school graduate lacking a college degree.¹

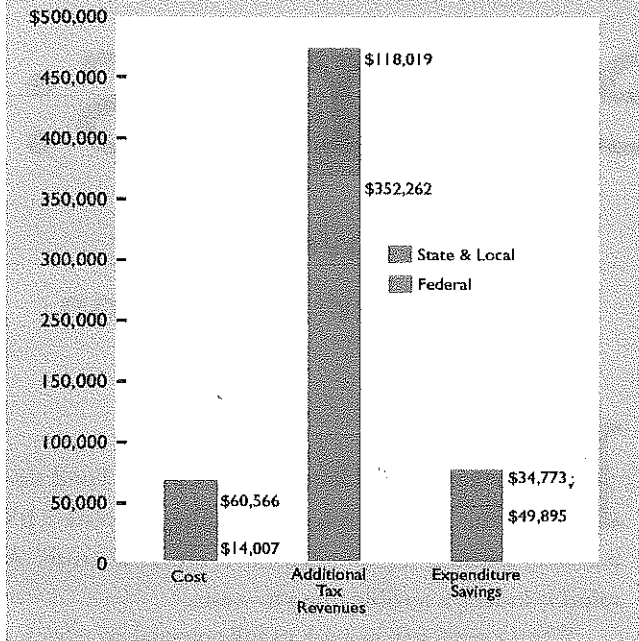
The magnitude of the college-attainment effects on the amounts going out of government coffers may be surprising as well. Each four-year-equivalent degree leads to lower spending on welfare programs, Medicare, Supplemental Security Income, unemployment compensation, workers’ compensation,



Photograph: iStockphoto

Because college education leads to higher earnings for individuals, it also leads to more tax revenue.

National Fiscal Effects per Four-Year-Equivalent Degree



prisons, and medical care for the uninsured. The government savings over an average lifetime is conservatively estimated to be almost \$85,000.

Direct savings in post-college government expenditures per college degree exceeds what the government spends for each college degree. In other words, government spending per college degree is negative. The post-college savings for government are, conservatively, about \$10,000 more than the cost. The cost is generously estimated to be about \$74,500 per four-year-equivalent degree from public colleges. That estimate is on the high side because it includes all public funding for higher education (all appropriations for operations and capital costs at state colleges, public college endowment revenues, financial aid and loan subsidies to students in both public and private colleges, and spending on university research and service activities).

Thus the \$556,000 fiscal payoff per four-year equivalent degree is actually a conservative number, and the \$74,500 fiscal

cost per degree is a high estimate. Government gets back at least \$7.46 for every dollar it invests in a college student.

Moreover, \$7.46 in fiscal benefits per dollar spent is only the direct fiscal return from college attainment. Indirect effects on tax revenues and government expenditures through higher education's effect on economic growth are not included. The estimated fiscal return also does not include any economic benefits from publicly sponsored university research, from university public service and extension activities, or from the effect of public colleges and college education on entrepreneurial activity and job creation.

Recouping the Investment

Obviously, most the \$556,000 lifetime fiscal payoff occurs well after the \$74,500 cost per degree. As with any investment, the upfront costs matter relatively more in present value than the benefits in the future. The fiscal benefits of college attainment are so much greater than the costs, though, that it takes only a little over nine years after graduation to fully recoup the government investment. Putting it another way, the public investment in a student who graduates with a bachelor's at the typical age of 22 is recovered just after the individual turns 31.

The real internal rate of return on government investment in college students—direct fiscal impacts—is conservatively estimated to be 10.3 percent above the rate of inflation. For comparison, the average yield on inflation-indexed five-year U.S. Treasury bonds is 1.5 percent. So even if one ignores

the many other important social benefits of higher education, public investment in college students is a sound use of tax dollars.

And as if a 10.3 percent fiscal rate of return was not already almost too good to be true, there is a way to make it even higher. Specifically, the fiscal rate of return would be greater still if government funding for higher education were better targeted on students on the margin of college attendance—those struggling with the choice of whether to enroll or forgo higher education. In other words, the marginal fiscal rate of return from targeted public investment in college students exceeds the average fiscal rate of return from all public investment in college students.

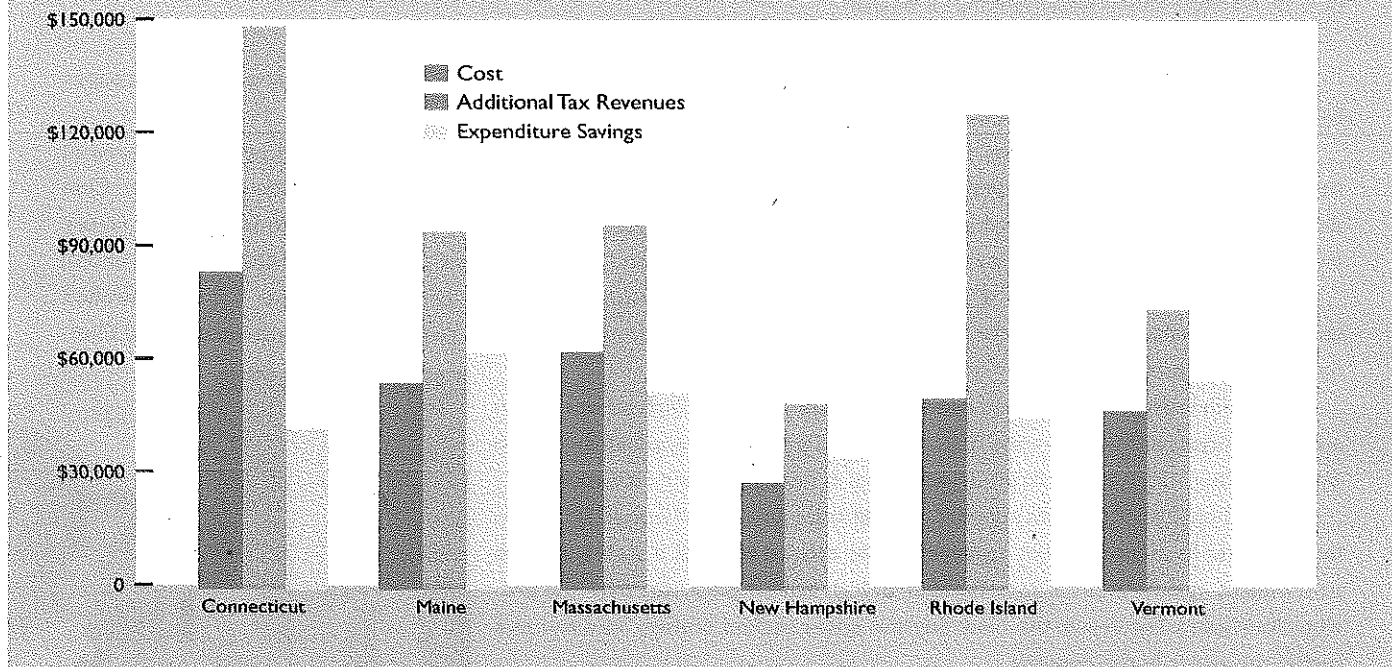
Today much of the public funding for higher education benefits those who would be going to college without the subsidy. Although those students and their families may be grateful for less expensive college degrees, their degrees do not create additional fiscal benefits. Maximum bang per college-education buck comes from getting people into college who would not otherwise be there. Even if there were no concern for equality of opportunity, better targeting of public support for higher education toward the disadvantaged makes good economic sense.

Conundrum

There is a conundrum implicit in the costs and benefits of public investment in college education: Most of the investment is at the state level, whereas the lion's share of the fiscal benefits accrues at the federal level. Indeed, 72.5 percent of the \$556,000 fiscal payoff goes to the federal government, whereas the federal share of funding for higher education is less than 19 percent. Thus, the average fiscal return to individual states is substantially less than 10.3 percent. Moreover, interstate migration of college graduates further reduces the fiscal return to individual states.

Nonetheless, public investment in col-

Fiscal Effects per Four-Year-Equivalent Degree in New England



lege students does benefit states. At the individual state level, each potential college graduate creates \$142,000 in fiscal benefits (after the downward adjustment for net interstate migration of college graduates) and only \$60,500 in public costs. Nationally, the average real fiscal rate of return to individual states is 3.1 percent. The average fiscal return in New England states is generally somewhat higher than in the rest of the nation. The net fiscal payoffs per degree range from \$56,000 in New Hampshire to \$121,000 in Rhode Island, and the fiscal rates of return range from 3.0 percent in Connecticut to 4.7 percent in Rhode Island. (See "Fiscal Effects per Four-Year Equivalent Degree in New England.")

Mistaken Priorities

Despite these fiscal payoffs, public investment in college education is a falling priority in this country. In 1984, nationwide net state funding for higher education was 4.1

percent of total state government spending. In 1994, the proportion was 2.4 percent; and in 2004, it was 1.8 percent. Moreover, investment in public higher education is particularly low in New England. In state support for higher education from 1980 through 2005, the New England states ranked low: 50th (New Hampshire), 49th (Vermont), 48th (Massachusetts), 47th (Connecticut), 44th (Maine), and 41st (Rhode Island).²

In sum, minds are going to waste in this country, and particularly in New England, where the number of private colleges do not make up for the lack of support for public higher education. In not making college education more widely accessible, we are losing out in many dimensions and are paying more taxes. The most sensible taxpayers' bill of rights would emphasize increasing access to college education rather than capping spending growth.

Philip Trostel is a professor of economics and public policy in the School of Economics and the Margaret Chase Smith Policy Center at the University of Maine, and a faculty affiliate at the Wisconsin Center for the Advancement of Postsecondary Education at the University of Wisconsin, Madison. In 2007 he was a visiting scholar with the Federal Reserve Bank of Boston's New England Public Policy Center.

Endnotes

¹ For details on how this and other numbers in the article were estimated, see Philip A. Trostel, "The Fiscal Impacts of College Attainment," <http://www.bos.frb.org/economic/neppc/index.htm>.

² These rankings are from Philip A. Trostel and Justin M. Ronca, "A Simple Unifying Measure of State Support for Higher Education," Wisconsin Center for the Advancement of Secondary Education working paper no. 7, 2007.

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New England's State Support for Higher Education

by Carl Nadler, Federal Reserve Bank of Boston

How does New England's public support for higher education compare with other regions? According to a recent paper by Philip Trostel and Justin Ronca, not well.*

To measure state support for higher education fairly, the authors considered a state's ability to pay and the overall need for support. State income per resident is an established measure of ability to pay, but defining need is trickier. One definition—total students enrolled in the public higher education system—can lead to biased conclusions because a state's investment in higher education may lower tuition and raise quality and therefore affect the number of students who enroll.

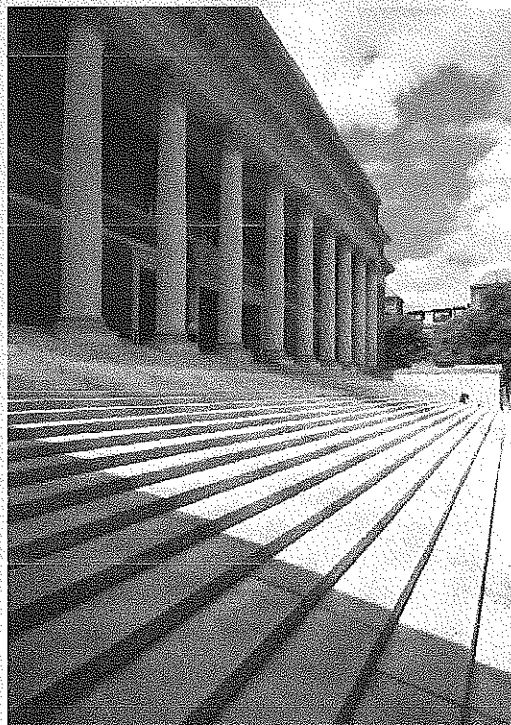
In Connecticut, for instance, if support is defined as average state funding for higher education per full-time enrolled student in its public institutions, the state ranks 4th in the nation. Define support as a percentage of state income, and Connecticut drops to 44th.

Hence the researchers defined need as the total number of high school graduates in the previous four years and assumed that all high school graduates—within classes, among states, and over time—are equal in needing higher education.

They then measured state support as total state funding for higher education (all state and local government appropriations) divided by both a state's average per-resident income and the total number of high school graduates over the previous four years. The result: the New England states ranked dismally low, and as a region the worst in the country.

Why does New England rank so poorly? Old habits are hard to break, and past research suggests that the level of state funding in 1994 is related to the 1929 level.** Many states founded public colleges and universities during the mid 19th century with the large land grants of the 1862 and 1890 Morrill Acts, created to support the development of mechanical and agricultural industries. Yet, in the northeastern states, home to the nation's oldest private colleges and universities, a few of the grants were given entirely to private colleges (Cornell) or were divided among public and private colleges (University of Massachusetts in Amherst and MIT).

An analysis by Claudia Goldin and Lawrence Katz suggests that during the early 20th century, financing of public higher education increased in wealthier states with higher shares of mining, manufacturing, and agriculture. However, states with higher shares of private college enrollments, like the New England states, invested less. Higher education appears to have been publicly supported where there was greater demand for technical training and research that couldn't be supplied by preexisting higher-education infrastructure. Though the need has since broadened, the pattern persists to this day.



Photograph: iStockphoto

* Philip A. Trostel and Justin M. Ronca, "A Simple Unifying Measure of State Support for Higher Education" (working paper, Wisconsin Center for the Advancement of Secondary Education, 2007) uses 2005 estimates.

** Claudia Goldin and Lawrence F. Katz, "The Shaping of Higher Education: The Formative Years in the United States, 1890 to 1940," *The Journal of Economic Perspectives* 13, no. 1 (1999): 37-62.

WHITE PAPER 4
RETURN ON INVESTMENT IN HIGHER
EDUCATION IN NEVADA:
A SUMMARY OF IMPLICATIONS FOR
ECONOMIC GROWTH, ECONOMIC
DEVELOPMENT AND PUBLIC FINANCE

December 2010

Prepared for the:



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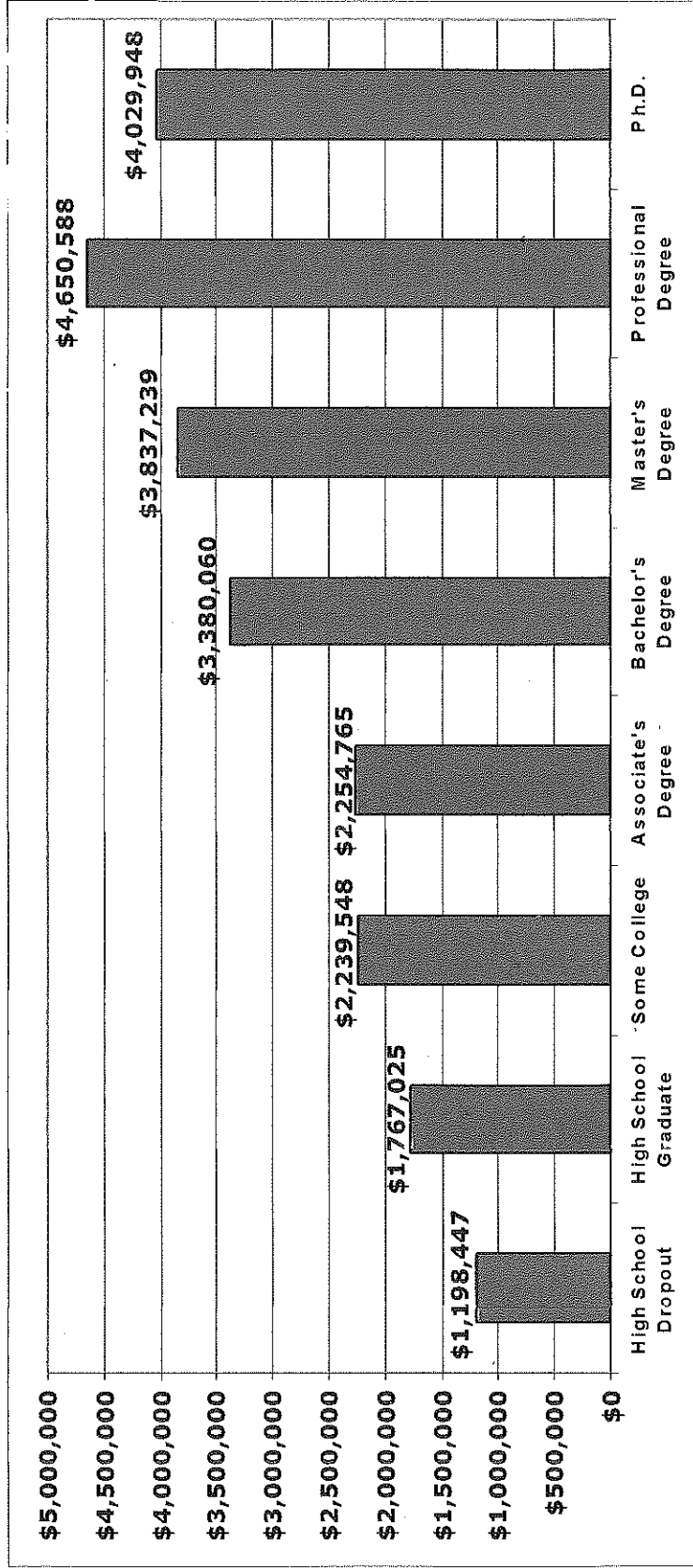
CHART 1: RATES OF RETURNS ON INVESTMENTS IN HIGHER EDUCATION,
 BY STATE: 2000-2001
 (USING INCOME DIFFERENTIALS, TOTAL TAX RATES AND MIGRATION-ADJUSTED COLLEGE
 GRADUATE POPULATION)

State	Total Monetary Return	Total Expenditures	Estimated Rate of Return
Alabama	\$320,600,970.73	\$2,720,196,000	11.79%
Alaska	6,167,616,445.05	487,283,000	12.66
Arizona	47,318,457,319.21	2,702,906,000	17.51
Arkansas	19,549,495,387.57	1,438,001,000	13.59
California	637,420,121,967.14	20,375,753,000	31.28
Colorado	46,710,065,417.75	2,856,236,000	16.35
Connecticut	72,935,024,617.46	1,554,972,000	46.90
Delaware	13,648,445,620.61	629,493,000	21.68
Florida	122,857,165,691.87	5,791,614,000	21.21
Georgia	94,286,641,465.45	3,890,955,000	24.23
Hawaii	19,670,819,749.60	792,210,000	24.83
Idaho	12,294,529,665.13	692,076,000	17.76
Illinois	152,845,313,000.50	6,506,274,000	23.49
Indiana	46,286,306,144.66	3,614,096,000	12.81
Iowa	21,365,862,267.64	2,327,927,000	9.81
Kansas	26,195,917,070.85	1,770,463,000	14.80
Kentucky	31,831,873,165.95	2,402,629,000	13.25
Louisiana	28,890,086,377.43	2,092,465,000	13.81
Maine	11,989,195,641.75	559,307,000	21.44
Maryland	89,062,555,396.79	3,531,280,000	25.22
Massachusetts	121,645,388,497.63	2,516,945,000	48.33
Michigan	134,905,862,902.45	7,296,108,000	18.49
Minnesota	72,257,955,011.87	2,946,707,000	24.52
Mississippi	18,089,673,714.90	1,841,358,000	9.82
Missouri	37,992,726,392.91	2,645,247,000	14.36
Montana	5,826,305,286.76	506,367,000	11.51
Nebraska	13,503,468,617.42	1,192,051,000	11.33
Nevada	13,339,075,551.99	810,417,000	16.46
New Hampshire	10,276,981,926.23	560,879,000	18.32
New Jersey	154,999,147,840.16	4,027,545,000	38.48
New Mexico	22,119,486,162.61	1,461,831,000	15.13
New York	290,876,815,562.95	7,982,926,000	36.44
North Carolina	52,957,271,018.56	5,147,632,000	10.29
North Dakota	4,593,149,471.53	510,270,000	9.00
Ohio	100,240,201,121.52	5,833,807,000	17.18
Oklahoma	26,098,812,315.79	2,227,866,000	11.71
Oregon	30,451,470,080.74	2,538,085,000	12.00
Pennsylvania	130,411,801,252.73	5,770,486,000	22.60
Rhode Island	13,073,475,480.03	479,719,000	27.25
South Carolina	28,959,823,123.31	2,130,103,000	13.60
South Dakota	3,283,474,095.23	362,050,000	9.07
Tennessee	38,122,911,504.10	2,957,768,000	12.89
Texas	173,907,931,358.80	12,481,739,000	13.93
Utah	23,522,667,744.72	2,131,325,000	11.04
Vermont	7,447,347,545.37	428,518,000	17.38
Virginia	116,277,784,316.54	4,154,135,000	27.99
Washington	64,902,164,156.53	3,982,261,000	16.30
West Virginia	12,646,841,117.16	1,000,161,000	12.64
Wisconsin	53,899,897,936.76	3,710,116,000	14.53
Wyoming	3,032,184,592.32	360,402,000	8.41

Source: Courtright, S. H. and Fry, C. G. (August 2007). *Public Rates Of Return On Higher Education Investments, By State. Journal of College Teaching & Learning*, Vol. 4 (8).

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**CHART 2: U.S. ESTIMATED AVERAGE LIFETIME EARNINGS BY EDUCATION LEVEL
 (IN CURRENT DOLLARS)**



Source: Bureau of Labor Statistics, Current Population Survey, Georgetown University Center on Education and the Workforce.