

WHITE PAPER 3
EDUCATIONAL EXPENDITURES:
PROJECTED PERSONAL & STATE RETURN ON
INVESTMENTS INTO HIGHER EDUCATION

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EXECUTIVE SUMMARY

This white paper is the third in a series of four white papers that look at the role of higher education in Nevada's future. These white papers are designed to objectively assess and evaluate the role of higher education in meeting Nevada's future economic targets. These white papers focus on:

- the role of higher education in promoting and sustaining economic growth and development;
- what the economic value of an education to the individual and community state-wide is; and
- how education impacts economic growth.

The fourth and final white paper will summarize the findings of the first three white papers outlined above.

White Paper 3 studies the relationship between educational expenditures and personal benefits. Additionally, it examines the benefits to the economy and society that are provided by an educated workforce. Higher education enrollment, educational attainment and financing in Nevada are compared to the national average and to other states.

What we learned from the first two white papers can be summarized at a high level as follows:

- Individuals with higher levels of education consistently earn more and, in addition, are more likely than others to be employed during economic downturns.
- Both the financial return associated with additional years of schooling beyond high school and the gaps in earnings by education-level have increased over time¹.

¹ Baum, S., Ma, J., Payea, K. *Education Pays 2010: The Benefits of Higher Education for Individuals and Society* CollegeBoard Advocacy and Policy Center.

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- Efforts related to economic development and diversification through the creation of business clusters, both nationally and in Southern Nevada, and especially high-value clusters independent of the resort industry, require higher education as a foundation for success.
- The evidence and literature on linkages between positive economic growth and education is both consistent with and reinforces the need for a robust higher education component.

Given the observations above, higher education has become vital to state economic and social health. States still provide the largest share of public higher education revenues (although this share has declined during the recent recession). Nowadays, state fiscal distress and declining revenues require wise finance policy.²

As discussed in our earlier paper on the role of higher education in strategies aimed at Nevada's economic diversification, higher education is a critical component of success in cluster development. States in our region, such as Utah, Arizona and Colorado have taken significant steps to build successful business clusters related to, for example, renewable (solar) energy, information technology and software, nanotechnologies and microelectronics, as well as aerospace-related activities. These activities are generally associated with a significant higher education linkage or partnership.

This paper, with a special focus on the state of Nevada, is guided by a related set of questions:

1. What is the economic value of an education (in general and specifically that of "higher education") to the individual and community state-wide?
2. If the State of Nevada invests a dollar in higher education, what return does it generate for an individual through higher personal income and what is the implied public (State) return?

² Shulok, N. *State Financing of Higher Education: Policy Implications. Community College Leadership Development Initiatives (CCLDI) Policy Seminar. Institute for Higher Education Leadership and Policy. February 13, 2004.*

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3. With State of Nevada revenues impacted so strongly by both personal income received directly by households, and through the resultant discretionary spending, what related issues are implied for the state's finances, such as the need for public services?

As discussed in detail below, several points of interest emerge from the analysis:

- Nevada's public (social) rate of return on higher education expenditures of 16.46 percent is significant and, in addition, compares well with other states utilizing a consistent basis of measurement (such as 15.13 percent for New Mexico and 14.36 percent for Missouri). Higher tax collections, lower demands for public services and other social measures all contribute to the positive returns associated with higher education.
- Individuals with higher levels of education consistently use less State-subsidized public services. These differentials in required public expenditures per individual are significant.
 - In 2008, eight percent of high school graduates ages 25 and older lived in households that relied on the Food Stamp Program, compared to just over one percent of those with at least a bachelor's degree. The pattern was similar for the National School Lunch Program.
 - The percentage of high school graduates ages 25 and older living in households qualified for and receiving Medicaid was three times as high as the percentage of those with a bachelor's degree or higher participating in this program (21 versus seven percent).
- With higher participation in either private pension plans or public pension plans by workers with higher educational levels, any potential long-term burden of retirees with higher levels of education on the State is potentially mitigated. The NSHE professional staff and faculty, for example, are in **defined contribution** plans rather than defined benefit retirement programs such as PERS.

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- In 2008, 70 percent of college-educated workers had employer-provided pension plan coverage; only 55 percent of high school graduates had this benefit.
- Eligible full-time year-round workers ages 25 and older with at least a bachelor's degree had a 93-percent participation rate in employer-provided pension plans versus a 85-percent participation rate among high school graduates.
- Median earnings and tax payments for those members of the labor force with higher education credentials are "multiples" of members of the labor force without such educational attainment.
 - The median earnings of bachelor's degree recipients working full-time, year-round in 2008 were \$55,700, \$21,900 more than the median earnings of high school graduates.
 - The median total tax payments of full-time workers with a bachelor's degree in 2008 were over 1.8 times as high as the median tax payments of high school graduates working full-time.
 - The median total tax payments of full-time workers with a professional degree in 2008 were over 3.5 times as high as the median tax payments of high school graduates working full-time.
- Reinforcing our earlier paper on the role of higher education in Nevada economic growth:
 - The top 10 states in terms of personal income per capita are 18 percent above the national average in the share of their workforce with a bachelor's degree or higher.

Conversely, the lowest 10 states, in terms of personal income, are 17 percent below the national average in the share of their workforce with a bachelor's degree.

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KEY TRENDS IN STATE FINANCE OF HIGHER EDUCATION

Under the federal system, responsibility for education is with the states. As shown in Chart 1 in the Appendix to this paper, the largest share (approximately 30 percent) of total revenues of public postsecondary degree-granting institutions in fiscal year (“FY”) 2006-07 was from state governments. Public higher education must compete with other state services for its share of available funds. Because all the states but one are required to have a balanced budget, a gain for a state service (e.g., Medicaid) means less for another (e.g., higher education)³.

According to the results of the annual survey conducted by the Center for the Study of Education Policy at Illinois State University and State Higher Education Executive Officers, many states will provide less money for higher education this year from appropriations and other revenue sources as they face budget gaps⁴. The significant reduction of state revenue collections, along with increased demand for state services during the current recession, such as Medicaid and public assistance, is reflected in the fact that states will have faced \$296.6 billion in budget gaps between FY 2009 and FY 2012. Of this \$296.6 billion, states still face \$127.4 billion in gaps for the remainder of FY 2010, FY 2011, and FY 2012⁵.

When states face fiscal constraints, the impacts on state services vary across states, within states, and among service sectors. When revenue shortfalls are allocated among state services, “higher education is likely to be required to absorb proportionately larger cuts than other sectors. When this happens, the state and higher education institutions are likely to

³ Callan, P. M. *Coping with Recession: Public Policy, Economic Downturns and Higher Education*. The National Center for Public Policy and Higher Education. February 2002.

⁴ <http://chronicle.com/article/Interactive-Map-Many-States/63567/>

For the first time in the history of this annual survey, the figures reflect total state fiscal support for operating expenses for colleges and universities, for student aid, and for state higher-education agencies. This money includes appropriations from state taxes as well as from lotteries, interest income, and other nontax funds. In previous years, the survey reported only appropriations from state taxes. The new methodology introduced this year was applied to all years shown. These figures do not include appropriations for capital outlays and debt service, nor do they include appropriations from local governments. The data were collected from September to December 2009 and are subject to change; particularly this year as many states face budget gaps and may cut financing for higher education. Different budgeting practices among the states make it impossible to ensure that all figures are perfectly comparable.

⁵ National Governors Association. *National Association of State Budget Officers. The Fiscal Survey of States: June 2010*. This edition of *The Fiscal Survey of States* reflects actual fiscal 2009, estimated fiscal 2010, and recommended fiscal 2011 figures. The data were collected during spring 2010. This report captures only state general fund spending.

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shift shortfalls to students and their families by raising tuition”.⁶ According to the *Fiscal Survey of States* (June 2010)⁷, for FY 2010, 37 states plan higher education budget cuts. For FY 2011, 31 states plan budget cuts for higher education.

An analysis of state spending, by function, as a percent of total state expenditures shows that, nationally, higher education as a share of state spending declined over the last 5 years from 10.8 percent in FY 2003 to 10.5 percent in FY 2007 (see Chart 2 in the Appendix section at the end of this paper). Higher education as a share of Nevada’s state spending remained the same over the period.

Higher education’s declining share of state expenditures is not a result of overt punitive policy decisions; it lies in the nature of the competition for state funds, the growth of other state services and state priorities⁸. In his study of public policy and higher education, Callan (2002) states that:

“Higher education's competitive position is also weakened by the perceptions of governors, legislators, and key executive and legislative staff members. Relative to other state services and agencies, colleges and universities are seen as having fiscal and programmatic flexibility. Unlike other state agencies, many higher education institutions have separate budgets and reserves of their own... Unlike state agencies whose programs have relatively fixed spending levels..., colleges and universities can save money by increasing class sizes and changing course offerings--and even by reducing enrollments. Higher education can also shift costs to students and their families by raising tuition.”⁹

In 1999, Harold Hovey, one of the leading analysts of public finance, examined the consequences of the inelasticity of state revenue structures. The findings described in his study can shed some light on the nature of the relationship between personal incomes, state tax revenues and state expenditures on higher education. As personal incomes rise, people spend incrementally less on taxed goods and more for nontaxed services. This creates a situation where increases in state revenues do not keep pace with increases in personal income. At the same time, due to demographic changes, inflation and other factors, the costs of maintaining state services increase at a faster rate than the revenues

⁶ As further discussed in Callan, P. M. *Coping with Recession: Public Policy, Economic Downturns and Higher Education*. The National Center for Public Policy and Higher Education. February 2002.

⁷ Source: National Association of State Budget Officers.

⁸ Callan, P. M. *Coping with Recession: Public Policy, Economic Downturns and Higher Education*. The National Center for Public Policy and Higher Education. February 2002.

⁹ Callan, P. M. *Coping with Recession: Public Policy, Economic Downturns and Higher Education*. The National Center for Public Policy and Higher Education. February 2002.

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available to support them. As a result, for every increase of 10 percent in personal income, state and local tax revenues rise only by about 9.5 percent¹⁰.

Another interesting finding is discussed in a study conducted by *The Nelson A. Rockefeller Institute of Government at the University of Albany* in March 2010 that analyzed how higher education institutions are working to revitalize their regional and state economies. The study concluded that a state's spending on higher education does not correlate closely with its overall tax burden. "It seems to be a matter of priorities, not revenues"¹¹.

ECONOMIC VALUE OF HIGHER EDUCATION

The role of education in economic development and growth is discussed in detail in White Papers 1 and 2. Overall, the literature suggests that there are many avenues that the production of college degrees can take in influencing economic activity.

- Pencavel (1991)¹² estimates that from 1913 to 1950, only 1.3 percent of total growth was directly attributable to higher education, but higher education accounted for 14.6 percent of the growth from 1973 to 1984.
- Jorgensen and Storch (2000)¹³ estimate that a significant portion of the late-1990s growth was directly attributable to roles played by research innovation at institutions of higher education.
- Wang (2005)¹⁴, in a study of the impact of universities on surrounding cities, finds that proximity to institutions of higher learning induce greater rates of job growth.

A more recent study published by the Martin Prosperity Institute at the University of Toronto¹⁵ in September 2010 examined the effects of educational attainment on

¹⁰ Hovey, H.A. *State Spending for Higher Education*.

¹¹ Shaffer, D. F. and Wright, D. J. *A New Paradigm for Economic Development. The Nelson A. Rockefeller Institute of Government. University of Albany, State University of New York. March 2010.*

¹² Pencavel, J. *Higher Education Productivity and Earning: A Review. Journal of Economic Education, Vol. 22, No. 4, 1991, pp 331-359.*

¹³ Jorgensen, D. and Storch, K. *Raising the Speed Limit: U.S. Economic Growth in the Information Age. Brooking Papers on Economic Activity, 2000.*

¹⁴ Wang, H. *Long-term Effects of Institutions of Higher Education on the Regional Economy. PhD Dissertation manuscript, University of Michigan, 2005.*

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metropolitan-level GDP and earnings per capita. The study describes a model that focuses on GDP per capita and excludes fixed effects related to the metropolitan areas' knowledge-based clusters. The results suggest that college attainment has a positive and statistically significant effect on regional productivity. A one-standard deviation increase in the share of the metropolitan area population with a college degree is associated with a 0.56-standard deviation increase in GDP per capita. The results of the study suggest that the educational attainment measure alone explains about 33 percent of the variation observed in regional productivity.

The study's results on the effects of educational attainment on earnings per capita reveal similar patterns. In the model without the fixed effects, educational attainment has a positive and statistically significant effect on regional earnings. More specifically, regression results show that a one-standard deviation increase in college attainment is associated with a 0.47-standard deviation increase in earnings per capita. Educational attainment explains less than 25 percent of the variation in earnings per capita observed across metropolitan areas¹⁶.

The question of benefits of investment in higher education has been addressed in a variety of studies. These studies demonstrated that students who attend institutions of higher education obtain a wide range of personal, financial and other lifelong benefits. Additionally, taxpayers and society as a whole "derive a multitude of direct and indirect benefits when citizens have access to postsecondary education"¹⁷.

Our discussion of the economic value of education, specifically higher education, for both individuals and society draws heavily on the College Board Advocacy and Policy Center's report titled "*Education Pays 2010*". The report states that compared to a high school graduate, the typical four-year college graduate who enrolled at age 18 has earned enough by age 33 to compensate for being out of the labor force for four years, and for borrowing the full amount required to pay tuition and fees without any grant assistance¹⁸.

¹⁵ Gabe, T., Abel, J., Ross, A., and Stolarick, K. (September 2010). *Knowledge in Cities*. Martin Prosperity Institute. Rotman School of Management. University of Toronto.

¹⁶ *Ibid.*

¹⁷ Baum, S., Ma, J., Payea, K. *Education Pays 2010: The Benefits of Higher Education for Individuals and Society* CollegeBoard Advocacy and Policy Center.

¹⁸ *Ibid.*

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Benefits of Higher Education to Individuals

a. Wage Premiums

As discussed in our White Paper 2, individual earnings are strongly related to educational attainment:

- Persons with high school diploma earn more than those who do not have one;
- Those with a bachelor's degree earn more than those with only a high school diploma; and
- Those with a graduate education earn more than those with only an undergraduate education.

It needs to be noted, however, that the benefits to an individual from a university education vary with the quality of the institution attended.¹⁹ Several studies attempted to determine whether the earnings benefits of a college education depend on the quality of the college attended. In these studies, college quality was measured either in terms of inputs, such as instructional expenses per student or average faculty salaries, or in terms of peer quality, using variables such as the average SAT score of the entering class. The general finding in these studies is that college quality matters (see White Paper 2 for more discussion on the importance of quality of education).

Higher (or "postsecondary"²⁰, used interchangeably throughout this paper) education provides great accumulated earnings over a worker's lifetime. A Bachelor's degree is worth about \$1.1 million more than an Associate's degree. A Master's degree is worth \$457,000 more than a Bachelor's degree. A Doctoral degree is worth about \$193,000 more than a

¹⁹ *Ibid.*

²⁰ *Postsecondary education is defined as the provision of formal instructional programs with a curriculum designed primarily for students who have completed the requirements for a high school diploma or equivalent. This includes programs of an academic, vocational, and continuing professional education purpose, and excludes avocational and adult basic education programs.*

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Master's degree²¹. The expected lifetime earnings of a person with a bachelor's degree are estimated to be 1.66 times higher than those of high school graduates (see Chart 3).

Research by MIT economist David Autor²² indicates that each year of education adds more to wages than previous years²³ (this concept is visually demonstrated in Chart 4 at the end of the paper).

The differential in earnings based on educational attainment has also increased over time. For example, for full-time workers over 25 years old, the earnings premium associated with having a bachelor's degree versus a high school diploma has risen from 57.3 percent in the 1996 to 63.7 percent in 2009²⁴.

b. Employment and Other Benefits

College-educated workers are more likely to be employed. The number of college graduates who were employed in the first three months of 2010 was two percent higher than the number three years earlier. The number of persons employed at all lower levels of education declined over this time period²⁵. The four percent poverty rate in 2008 for bachelor's degree recipients was 33 percent of the 12-percent poverty rate for high school graduates²⁶.

College-educated workers are also more likely than others to be offered pension plans by their employers (see Chart 5). Among those to whom these plans are available, participation rates are higher for individuals with higher education levels²⁷ (see Chart 6). In 2008, for example, 68 percent of four-year college graduates working at least half-time in

²¹ Source: Bureau of Labor Statistics, Current Population Survey. Georgetown University Center on Education and the Workforce.

²² Autor, David. (2010). "The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings." Center for American Progress and the Hamilton Project.

²³ Baum, S., Ma, J., Payea, K. Education Pays 2010: The Benefits of Higher Education for Individuals and Society CollegeBoard Advocacy and Policy Center.

²⁴ Source: Bureau of Labor Statistics.

²⁵ Baum, S., Ma, J., Payea, K. Education Pays 2010: The Benefits of Higher Education for Individuals and Society CollegeBoard Advocacy and Policy Center.

²⁶ Ibid.

²⁷ Ibid.

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the private sector were covered by employer-provided health insurance. Only 50 percent of high school graduates had this benefit²⁸.

Moreover, individuals with higher levels of education are more likely to be very satisfied with their jobs and to report that the most important job characteristics for them are that their work seems important and gives them a sense of accomplishment²⁹ (see Chart 7).

To properly assess the economic value of a college education, the benefits realized in terms of higher future earnings must be discounted to adjust for the time value of money. The discounted earnings must then be weighed against the full costs of acquiring a college education, including not only the tuition paid by the student, but the earnings foregone while the student is in college and the appropriations of state and local governments. When these calculations are made, the benefits of a college education are seen to be three times higher than the costs.³⁰

If the value of a college education is expressed on the same basis as the return on a financial investment, the net return is on the order of 12 percent per year, over and above inflation. This compares favorably with annual returns on stocks that historically have averaged 7 percent.³¹

c. Return on Investment in Education

If education is looked at as an investment in human capital (as discussed in White Paper 2), then it is possible to calculate rates of return from investment in education, and to do so by level and type of education. The work of Psacharopoulos (1994)³² has become particularly well known in this domain³³. Chart 8 at the end of this paper illustrates the findings from a number of studies that analyzed rates of return to investment in education. Estimated

²⁸ *Ibid.*

²⁹ *Ibid.*

³⁰ Hill, K., Hoffman, D., and Rex, T. *The Value of Higher Education: Individual and Societal Benefits (With Special Consideration for the State of Arizona)*. L. William Seidman Research Institute. W. P. Carey School of Business. Arizona State University. October 2005.

³¹ *Ibid.*

³² Psacharopoulos, G. (1994). *Returns to Investment in Education: A Global Update*. *World Development*, 22(9), pp. 1325-43.

³³ *Asian Development Bank. Education in Developing Asia. Economic Justification for Investment in Education*. Available online at:
http://www.adb.org/Documents/Books/Education_NatDev_Asia/Costs_Financing/economic_justification.pdf

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private returns shown in the chart accrue to individuals, while social returns accrue to the whole society (including the individuals). In most cases, private returns are greater than social returns, because governments give more in subsidies than they take away in taxes³⁴.

Based on the findings of this study, private returns on investment in higher education range from 5.1 percent in Zimbabwe to 40.0 percent in Peru. At the same time, social returns on investment in higher education range from -4.3 percent in Zimbabwe to 21.4 percent in Brazil. While analyzing these findings, it is important to remember that “sufficient data are rarely available to take account in an econometrically sound manner, of all the key factors other than education that influence individual incomes”³⁵.

Although the very concept of rate-of-return analysis in education has been subject to criticism (that, for example, the presentation of exact numbers gives the illusion of precision or that rates of return that are calculated on past data cannot necessarily predict what will happen in the future), it helps to understand the value of investments in education and the reasons for earnings differentials at different levels of education³⁶.

In their study of public rates of return on higher education expenditures, Courtright and Fry (2007) estimated FY 2000-01 states' rate of returns on investments in higher education using income differentials of high school and bachelor or advanced degree graduates, total tax rates and migration-adjusted college graduate population. According to the study, Nevada's public rate of return on investments in higher education was 16.46 percent. Thus, according to these estimates, Nevada's economy gains \$16.46 each year for every dollar spent on higher education (where, excluding outliers, the U.S. average dollar figure is in the range of \$13-\$14).³⁷ For complete results of this study and information on how Nevada compares to other states, see Chart 9 at the end of this paper. As indicated in Chart 9, the

³⁴ *Ibid.*

³⁵ Bennell, P. (1998). *Rates of Return to Education in Asia: A Review of the Evidence*. *Education Economics*, 6(2): 107-120.

³⁶ *Asian Development Bank Education in Developing Asia. Economic Justification for Investment in Education*. Available online at:

http://www.adb.org/Documents/Books/Education_NatDev_Asia/Costs_Financing/economic_justification.pdf

³⁷ *In our opinion, these types of studies provide general indicators and should not be considered as precise calculations. For example, enrollment in private institutions in a state can often be difficult to disentangle in the enrollment numbers so highly technical private institutions tend to skew the numbers in a positive direction (as Massachusetts).*

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rate of return to Nevada's expenditures is above the mid-point and is higher than comparable figures for states such as New Mexico, Missouri, Nebraska, etc.³⁸

Societal Benefits of Higher Education

a. Monetary Benefits

The portion of the state's workforce holding a bachelor's degree correlates closely with its overall prosperity — as measured by personal income per capita. The top 10 states in terms of personal income per capita are 18 percent above the national average in the share of their workforce with a bachelor's degree or higher — while the bottom 10 states, in terms of personal income, are 17 percent below the national average in the share of their workforce with a bachelor's³⁹.

As mentioned above, individuals with higher levels of education are more likely to have higher earnings, and more likely to work full-time year round. Eighty percent of college graduates ages 25 or older had earnings in 2008 and 60 percent worked full-time year-round. Sixty-three percent of high school graduates ages 25 or older had earnings, and 44 percent worked full-time year-round⁴⁰.

Higher levels of education lead to both higher levels of earnings for individuals and higher tax revenues for federal, state and local governments. The median earnings of bachelor's degree recipients working full-time, year-round in 2008 were \$55,700, \$21,900 more than the median earnings of high school graduates. About \$5,900 of the additional \$21,900 in earnings of four-year college graduates went to federal, state and local governments in the form of higher tax payments. Median after-tax earnings were \$16,000 higher for those with a bachelor's degree than for those with only a high school diploma⁴¹. The median total tax payments of full-time workers with a professional degree in 2008 were over 3.5 times as

³⁸ It should also be noted that these types of analyses are often based on total expenditures across all supported colleges and universities in a state, by headcount, without taking into account any differential programs at designated research universities. For example, Texas has a large number of supported institutions and students, but directed money to research programs at The University of Texas are simply lumped into the totals.

³⁹ Shaffer, D. F. and Wright, D. J. *A New Paradigm for Economic Development*. The Nelson A. Rockefeller Institute of Government. University of Albany, State University of New York. March 2010.

⁴⁰ The above mentioned statistics is borrowed from Baum, S., Ma, J., and Payea, K. *Education Pays 2010: The Benefits of Higher Education for Individuals and Society*. College Board Advocacy and Policy Center.

⁴¹ As noted in the report, "all of the differences in earnings reported here may not be attributable to education level. Education credentials are correlated with a variety of other factors that affect earnings, including, for example, parents' socioeconomic status and some personal characteristics".

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high as the median tax payments of high school graduates working full-time. After-tax earnings were almost three times as high (see Chart 10).

Spending on social support programs is much lower for college graduates than for high school graduates⁴² (see Chart 11 in the Appendix section). In 2008, eight percent of high school graduates ages 25 and older lived in households that relied on the Food Stamp Program, compared to just over one percent of those with at least a bachelor's degree. The pattern was similar for the National School Lunch Program. Estimated reductions in lifetime public expenditures per person associated with increases in educational attainment are presented in Chart 12 at the end of this paper.

Thus, enhanced worker productivity associated with greater educational attainment translates into higher output and incomes for the economy. An extensive econometric analysis done by Hill, Hoffman, and Rex (2005), found that after controlling for other factors, *"a 1 percentage point increase in the labor force share of college graduates in a metropolitan area yields:*

- *a 1.9 percent increase in the wages of labor participants without a high school diploma,*
- *a 1.6 percent gain in the wages of high school graduates, and*
- *a 0.4 percent rise in the wages of the graduates themselves, over and above the average wage differential between individuals with college degrees and those with less education".*⁴³

b. Non-Monetary Benefits

There are also a variety of non-monetary societal benefits of investing in education that include⁴⁴:

⁴² Baum, S., Ma, J., and Payea, K. *Education Pays 2010: The Benefits of Higher Education for Individuals and Society*. College Board Advocacy and Policy Center.

⁴³ Hill, K., Hoffman, D., and Rex, T. *The Value of Higher Education: Individual and Societal Benefits (With Special Consideration for the State of Arizona)*. L. William Seidman Research Institute. W. P. Carey School of Business. Arizona State University. October 2005.

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- *Lower Crime Rates:* Several studies on the topic demonstrated that less criminal behavior and lower incarceration rates occur among the more highly educated⁴⁵.
- *Greater and More Informed Civic Participation:* Social cohesion is higher among the more highly educated, as reflected in higher voting rates⁴⁶.
- *Improved Performance across Various Socioeconomic Indicators:*
 - Fringe benefits and the quality of working conditions are positively affected by educational attainment levels.
 - Additionally, consumer choices are more rational and efficient among educated consumers.
 - Savings rates tend to be higher among the more highly educated.
 - Research and development activities are more common and numerous in regions with higher educational attainment.
 - Charitable giving increases with educational attainment.
 - The health of the individual, their spouse, and their children are positively related to educational attainment.
 - Desired family size is more commonly attained among those with higher educational attainment⁴⁷.
 - The percentage of high school graduates ages 25 and older living in households qualified for and receiving Medicaid was three times as high as the percentage of those with a bachelor's degree or higher participating in this program⁴⁸.

Also, as several⁴⁹ studies concluded, degree attainment today means higher probabilities of degree attainment in future generations. The educational attainment and cognitive

⁴⁴ *Ibid.*

⁴⁵ Wolfe, B. and Haveman, R. *Accounting for the Social and Non-Market Benefits of Education. The Contributions of Human and Social Capital to Sustained Economic Growth and Well-Being*, ed. J. Helliwell, *International Symposium Report, OECD and HRDC*, pp. 221-250, 2002.

⁴⁶ *Ibid.*

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

⁴⁹ For example:

(1) Murnane, R. J. (1981). *New Evidence on the Relationship between Mother's Education and Children's Cognitive Skills. Economics of Education Review*, 1 (2), pp. 245-52.

(2) Sandefur, G. D., McLanahan, S. and Wojtkiewicz, R. A. (1989). *Race and Ethnicity, Family Structure, and High School Graduation. Discussion Paper 893-89, Institute for Research on Poverty, University of Wisconsin-Madison.*

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development of children are positively affected by the educational attainment of parents (first-generation effects)⁵⁰.

LOCALLY EDUCATED RESIDENTS VS. EDUCATED INDIVIDUALS FROM OTHER REGIONS

To get a high share of college graduates in its population, a region must either graduate a large number of people from local institutions of higher education or attract college graduates from other regions. Overall, labor force participants with university degrees are highly mobile when it comes to their residence; they migrate in search of occupations that match their skill sets. Thus, the number of university graduates from local institutions of higher education is not necessarily highly related to the number of college graduates living in a community.

According to the U.S. Department of Education, National Center for Education Statistics, the U.S. estimated rate of high school graduates going to college in 2006 was 62 percent, while the national estimated rate of high school graduates going to college in home state was 50.1 percent. For Nevada, the estimated rate of high school graduates going to college in 2006 was 52.2 percent, while the estimated rate of high school graduates going to college in home state was 39.9 percent.

In any community, the retention of locally educated individuals and the attraction of highly educated people from other regions are heavily dependent on the availability of job opportunities appropriate for those with college degrees (discussed in more detail in White Paper 1).

(3) Dawson, D. (1991). *Family Structure and Children's Health and Well-Being: Data from the 1988 National Health Interview Survey on Children's Health*. *Journal of Marriage and the Family*, 53 (3), pp. 373–84.

(4) Haveman, R. H., Wolfe, B. L. and Spaulding, J. (1991). *Childhood Events and Circumstances Influencing High School Completion*. *Demography*, 28 (1), pp. 133–57.

(5) Haveman, R. H. and Wolfe, B. L. (1994). *Succeeding Generations: On the Effects of Investments in Children*. New York: Russell Sage.

⁵⁰ (1) Wolfe, B. and Haveman, R. *Accounting for the Social and Non-Market Benefits of Education. The Contributions of Human and Social Capital to Sustained Economic Growth and Well-Being*, ed. J. Helliwell, *International Symposium Report, OECD and HRDC*, pp. 221-250, 2002. and

(2) Macerinskiene, I. and Vaiksnoraite, B. (2006). *The Role of Higher Education to Economic Development*. *Vadyba/Management*, 2 (11).

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Using national data, studies find that if an additional 100 college-bound students choose to attend college in a given state, the long-run effect of raising the college-educated workforce in that state will be only 5-to-10 workers.

Evidence does not exist that local production of graduates, in isolation, will be an effective economic development strategy. **Instead, a portfolio approach — one that incorporates higher education and that is aimed at quality workforce development, quality public infrastructure, an emphasis on quality of life and amenities as well as efforts to attain and maintain business climate conducive to attracting quality employment opportunities — may yield the highest returns⁵¹.** It is important to note that this concept is directly supported by the results of White Papers 1 and 2. Higher education does not exist in isolation from Nevada’s economic development strategy or from its future rate of growth.

NEVADA ANALYSIS

Data from *2009 American Community Survey⁵²*, by educational attainment, shows that in Nevada, a person with less than a high school education made, on average, \$22,774 (in 2009 inflation-adjusted dollars), where as a person with a bachelor’s degree made 97.2 percent more than that, or \$44,918. And, a person with a graduate/professional degree made 2.7 times more than a less than high school graduate (or \$60,497).

⁵¹ Hill, K., Hoffman, D., and Rex, T. *The Value of Higher Education: Individual and Societal Benefits (With Special Consideration for the State of Arizona)*. L. William Seidman Research Institute. W. P. Carey School of Business. Arizona State University. October 2005.

⁵² Data for persons 25 years and over.

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*Higher Education Enrollment in Nevada*⁵³

Data provided by the U.S. Department of Education, National Center for Education Statistics, shows that the total number of first-time freshmen in degree-granting⁵⁴ institutions of higher education (public and private) in Nevada increased from 10,490 in Fall 2000 to 18,536 in Fall 2008 (or by 76.7 percent). By comparison, the national Fall enrollment of first-time freshmen increased by 24.6 percent over the same period⁵⁵. This trend could partially be attributed to the depth of the current recession in Nevada. At the national level, according to the U.S. Department of Education, the increase in the size of freshman classes at postsecondary institutions has been driven largely from minority freshman enrollment growth.

Such a significant increase in freshman enrollments can partially be explained by diminished job opportunities. Some empirical studies conclude that U.S. college enrollments in modern times have behaved countercyclically (Betts and McFarland, 1995; Dellas and Sakellaris, 2003)⁵⁶. By many labor market indicators, youths have been among the groups most severely affected by this recession (Hipple, 2010)⁵⁷. Additionally, the nation's high school graduating class in 2008 is estimated to have been the largest in history⁵⁸.

⁵³ Data used in this section of the paper are for degree-granting institutions, which are defined as postsecondary institutions that grant an associate's or higher degree and whose students are eligible to participate in the Title IV federal financial aid programs. Degree-granting institutions include almost all 2- and 4-year colleges and universities; they exclude institutions offering only career and technical programs of less than two years' duration and continuing education programs. The degree-granting institution classification is very similar to the higher education institution classification that the National Center for Education Statistics (NCES) used prior to 1996–97. Included among degree-granting institutions are some institutions (primarily 2-year colleges) that were not previously designated as higher education institutions. Excluded from degree-granting institutions are a few institutions that were previously designated as higher education institutions even though they did not award an associate's or higher degree. Institutions of higher education were accredited by an agency or association recognized by the U.S. Department of Education, or recognized directly by the Secretary of Education. Institutions of higher education offered courses that led to an associate's or higher degree, or were accepted for credit towards a degree.

⁵⁴ Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Data are for first-time degree/certificate-seeking undergraduates.

⁵⁵ Source: U.S. Department of Education, National Center for Education Statistics, 2000 through 2008 Integrated Postsecondary Education Data System (IPEDS), Spring 2001 through Spring 2009. (This table was prepared September 2009.)

⁵⁶ (1) Betts, J. R., and McFarland, L. L. (Fall 1995). *Safe Port in a Storm: The Impact of Labor Market Conditions on Community College Enrollments*. *The Journal of Human Resources*, 30 (4).

(2) Dellas, H., and Sakellaris, P. (January 2003). *On the Cyclicity of Schooling: Theory and Evidence*. *Oxford Economic Papers*, 55 (1).

⁵⁷ Hipple, S. F. (March 2010). *The Labor Market in 2009: Recession Drags On*. *Monthly Labor Review*, 133 (3).

⁵⁸ National Center for Education Statistics.

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Total enrollment in degree-granting institutions of higher education in Nevada increased from 87,893 students in Fall 2000 to 116,276 students in Fall 2007, or by 32.3 percent. Over the same period, the national enrollment increased by 19.2 percent (see Chart 13). Total enrollment in degree-granting institutions of higher education in Nevada as a percentage of the state's population remained the same over the 2000-2007 period, at 4.3 percent.

Approximately 45 percent of all the degrees conferred by postsecondary degree-granting institutions in Nevada in FY 2007–08 were bachelor's degrees (see Chart 14).

According to data compiled by U.S. Department of Education, Nevada benefits from the in-migration of college-educated residents. However, the state also experiences a large net in-migration of people with less than a high school diploma or a high school diploma but no college, as discussed in our white paper 1.

Higher Education Finance in Nevada

Revenues and expenditures in higher education have often been measured in three alternative but related ways:

- Per FTE student
- Per FTE student relative to per capita personal income and
- Per FTE student relative to per capita gross state product⁵⁹.

These three measures basically result in a consistent narrative for Nevada. Considering public institutions only, total educational revenues per FTE student at Nevada institutions of higher education were below the national averages in 2009 (\$11,010 in U.S. versus \$10,865 in Nevada) (see Charts 15 and 16 in the Appendix section).

Chart 17 at the end of this paper shows state support for higher education in FY 2005, 2008-2010, by state. In terms of state fiscal support⁶⁰ for higher education in FY 2009-10

⁵⁹ Hill, K., Hoffman, D., and Rex, T. *The Value of Higher Education: Individual and Societal Benefits (With Special Consideration for the State of Arizona)*. L. William Seidman Research Institute. W. P. Carey School of Business. Arizona State University. October 2005. There is some debate over the "optimal" measure of the three, but as a matter for public discussion the alternative measures generally provide broadly consistent results.

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per \$1,000 in personal income, Nevada ranks 39th and is 21.9 percent below the national average (see Chart 18 at the end of the paper). Nevada ranks 37th when it comes to FY 2009-10 state fiscal support for higher education per capita based on state monies only and is 22.7 percent below the U.S average based on all sources of support to include federal stimulus funds (\$259.17 in U.S versus \$224.53 in Nevada) (see Chart 18).

The above data are of interest given the reductions in Nevada higher education appropriations over the last two years. With current budget stress in Nevada, it will take direct public policy action to alter any possible path to permanently lower levels of support.

CONCLUSIONS & OBSERVATIONS

The data presented in this paper demonstrate the difference higher education can make to the prosperity of a state. The trends in the data presented herein are essential to the discussion of the role of higher education in Nevada's future. The individual and societal benefits associated with higher education are compelling. College graduates experience more stable employment and earn more money. A variety of studies show that states with higher rates of college graduates are more prosperous than those with lower rates.

Both average earning and average tax payments are higher for people with higher levels of education. "Federal, state, and local governments enjoy increased tax revenues from college graduates and spend less on income support programs for them, providing a direct financial return from investments in postsecondary education".⁶¹

"Investing in more and better-distributed education in the labor force helps create conditions that could lead to higher productivity and higher economic growth, but this is by no means sufficient. It is also necessary to adopt policies that lead to the creation of diversified, dynamic, and competitive sectors capable of absorbing the more educated labor force to translate human capital into higher economic growth. The evidence supports the

⁶⁰ *State monies only, does not include federal stimulus and government service funds.*

⁶¹ *Baum, S., Ma, J., and Payea, K. Education Pays 2010 : The Benefits of Higher Education for Individuals and Society. College Board Advocacy and Policy Center.*

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view that countries that combine both do better on average than those that do one without the other”⁶².

College-educated adults are more likely than others to receive health insurance and pension benefits from their employers and be satisfied with their jobs. College education leads to healthier lifestyles, reducing health care costs for individuals and for society. College-educated parents engage in more educational activities with their children, who are better prepared for school than other children. Substantial evidence indicates that the associations described here are the result of increased educational attainment, not just of individual characteristics⁶³.

The data presented in this paper, as in any study on the topic, are not a precise measure of causation and is only used to demonstrate relationships between education and outcomes. A large body of reliable research, however, provides evidence that most of the differences in outcomes discussed above are, in fact, the result of individuals’ education. The evidence is compelling that “postsecondary education not only provides valued credentials, but also increases skills and knowledge and changes the way people approach their lives”.⁶⁴ Therefore, higher education becomes essential to states’ efforts to succeed in the knowledge-based economy. This conclusion is reinforced by the important effects of higher education on economic development/diversification and Nevada’s future economic growth as discussed in our previous white papers.

⁶² MENA Development Report. *The Road Not Traveled: Education Reform in the Middle East and North Africa*. Chapter 2 “Economic Returns to Investment in Education”. The World Bank, Washington, D.C.

⁶³ Baum, S., Ma, J., and Payea, K. *Education Pays 2010 : The Benefits of Higher Education for Individuals and Society*. College Board Advocacy and Policy Center.

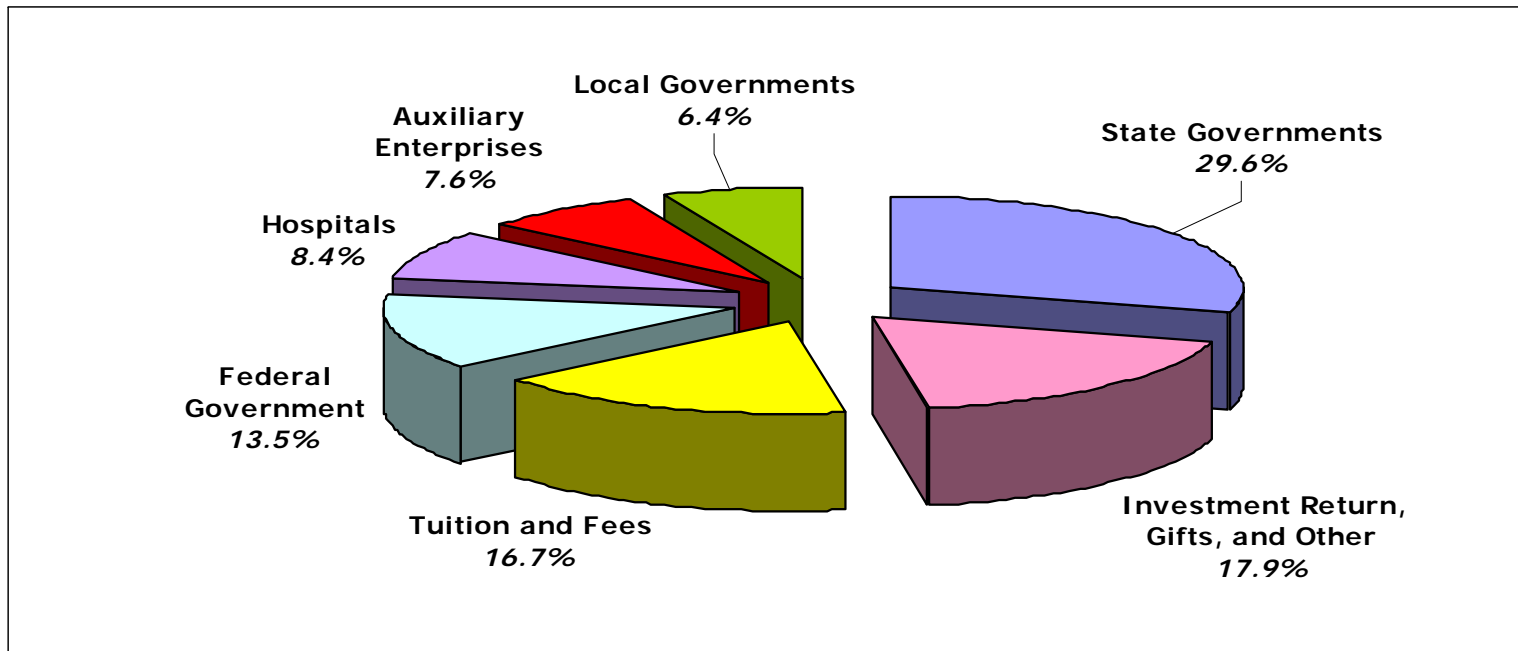
⁶⁴ *Ibid.*

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Appendix

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CHART 1: PERCENTAGE DISTRIBUTION OF TOTAL REVENUES OF PUBLIC POSTSECONDARY DEGREE-GRANTING INSTITUTIONS, BY SOURCE OF FUNDS 2006–07



Source: U.S. Department of Education, National Center for Education Statistics, 2006–07 Integrated Postsecondary Education Data System (IPEDS), Spring 2008.

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CHART 2: U.S. AND NEVADA SPENDING BY FUNCTION AS A PERCENT OF TOTAL STATE EXPENDITURES
FY 2003-2007

U.S. Average

	Elementary & Secondary Education	Higher Education	Public Assistance	Medicaid	Corrections	Transportation	All Other	Total
FY 2003	21.7%	10.8%	2.2%	21.4%	3.5%	8.2%	32.2%	100.0%
FY 2004	21.4%	10.9%	2.1%	22.3%	3.5%	8.0%	31.7%	100.0%
FY 2005	21.8%	10.6%	2.0%	22.9%	3.5%	8.6%	30.8%	100.0%
FY 2006	21.4%	10.4%	1.8%	21.5%	3.4%	8.1%	33.4%	100.0%
FY 2007	21.2%	10.5%	1.7%	21.2%	3.4%	8.4%	33.6%	100.0%

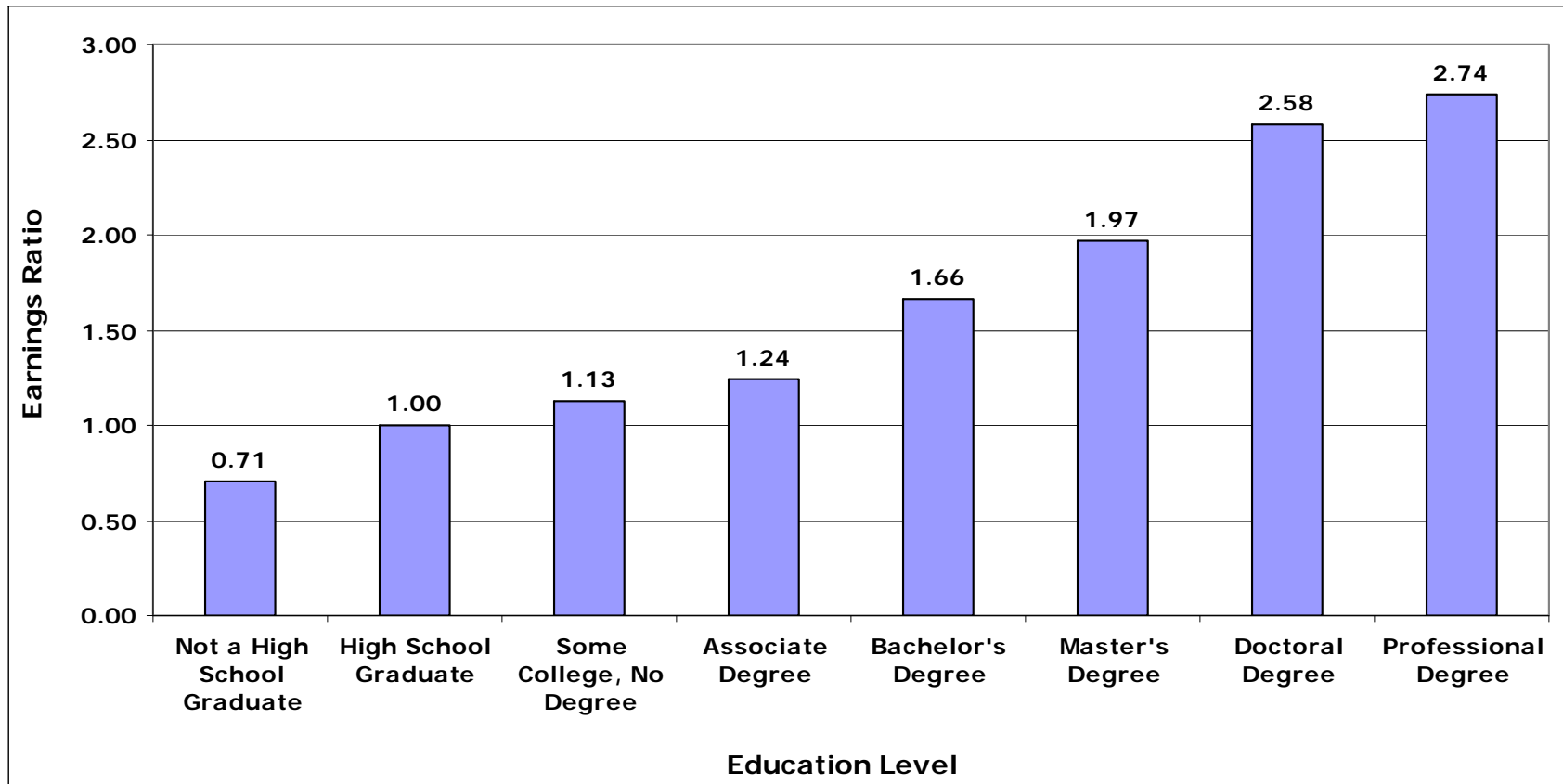
Nevada

	Elementary & Secondary Education	Higher Education	Public Assistance	Medicaid	Corrections	Transportation	All Other	Total
FY 2003	18.6%	10.1%	1.1%	20.2%	4.0%	9.2%	36.8%	100.0%
FY 2004	16.9%	10.8%	0.8%	18.2%	3.2%	10.0%	40.2%	100.0%
FY 2005	16.0%	9.6%	0.7%	16.2%	3.9%	9.7%	43.9%	100.0%
FY 2006	16.0%	9.4%	0.7%	15.7%	3.4%	7.9%	46.9%	100.0%
FY 2007	16.8%	10.1%	0.6%	15.2%	3.8%	9.7%	43.8%	100.0%

Source: National Association of State Budget Officers.

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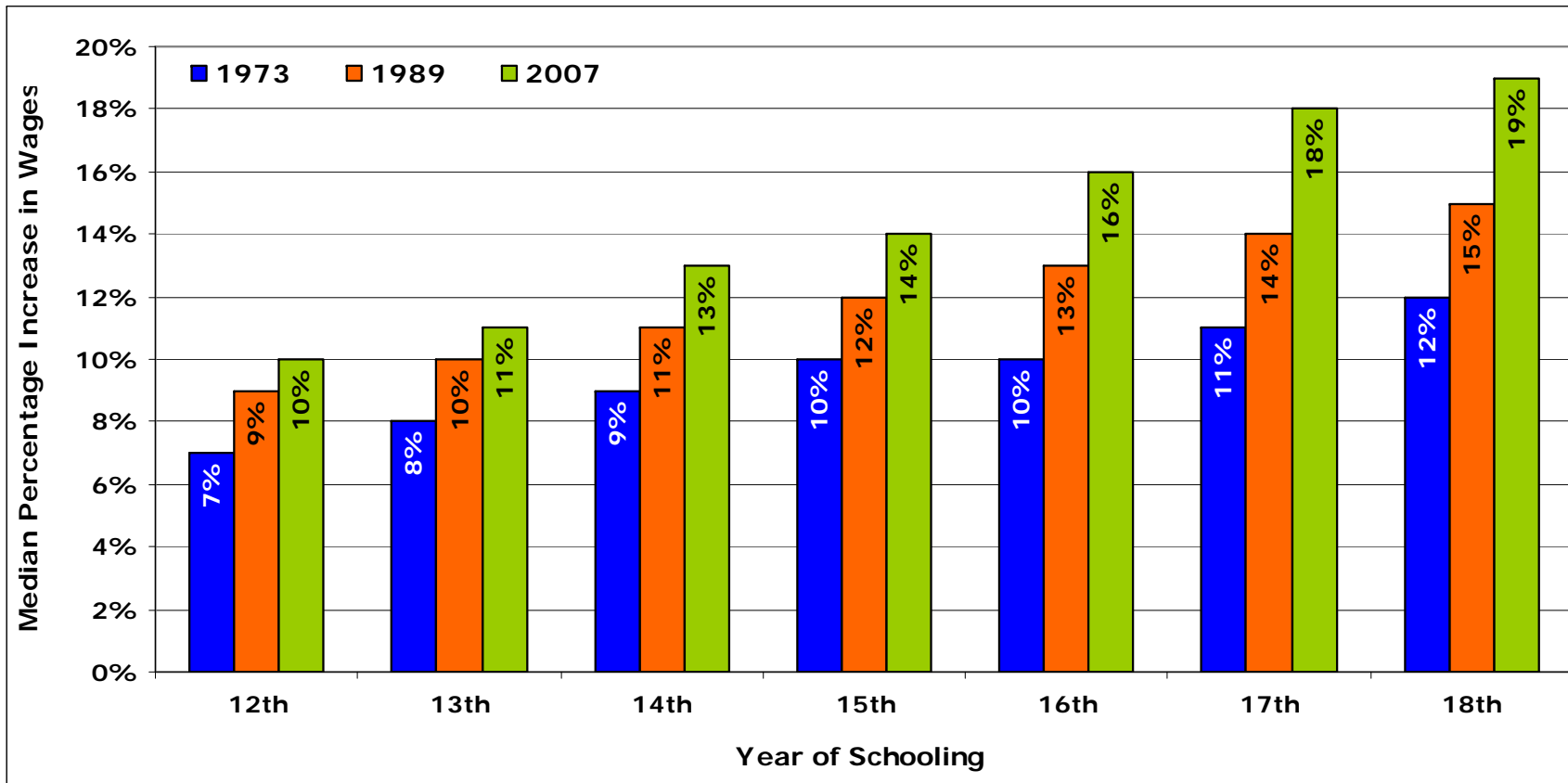
**CHART 3: EXPECTED LIFETIME EARNINGS RELATIVE TO HIGH SCHOOL GRADUATES,
BY EDUCATION LEVEL, 2008**



Source: U.S. Census Bureau, 2009; CollegeBoard Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society".

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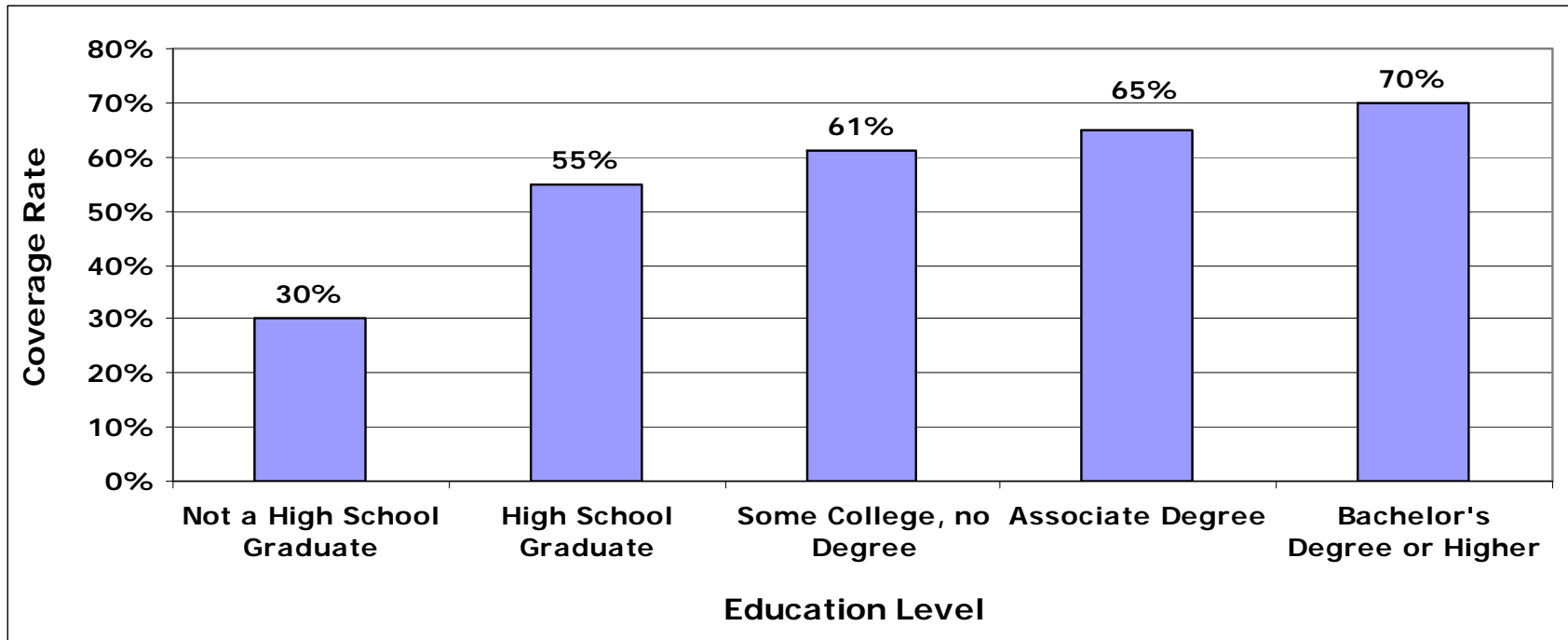
CHART 4: MEDIAN HOURLY WAGE GAIN PER YEAR OF SCHOOLING, 1973, 1989, AND 2007



Source: Center for American Progress and the Hamilton Project, "The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings" by David Autor (2010).

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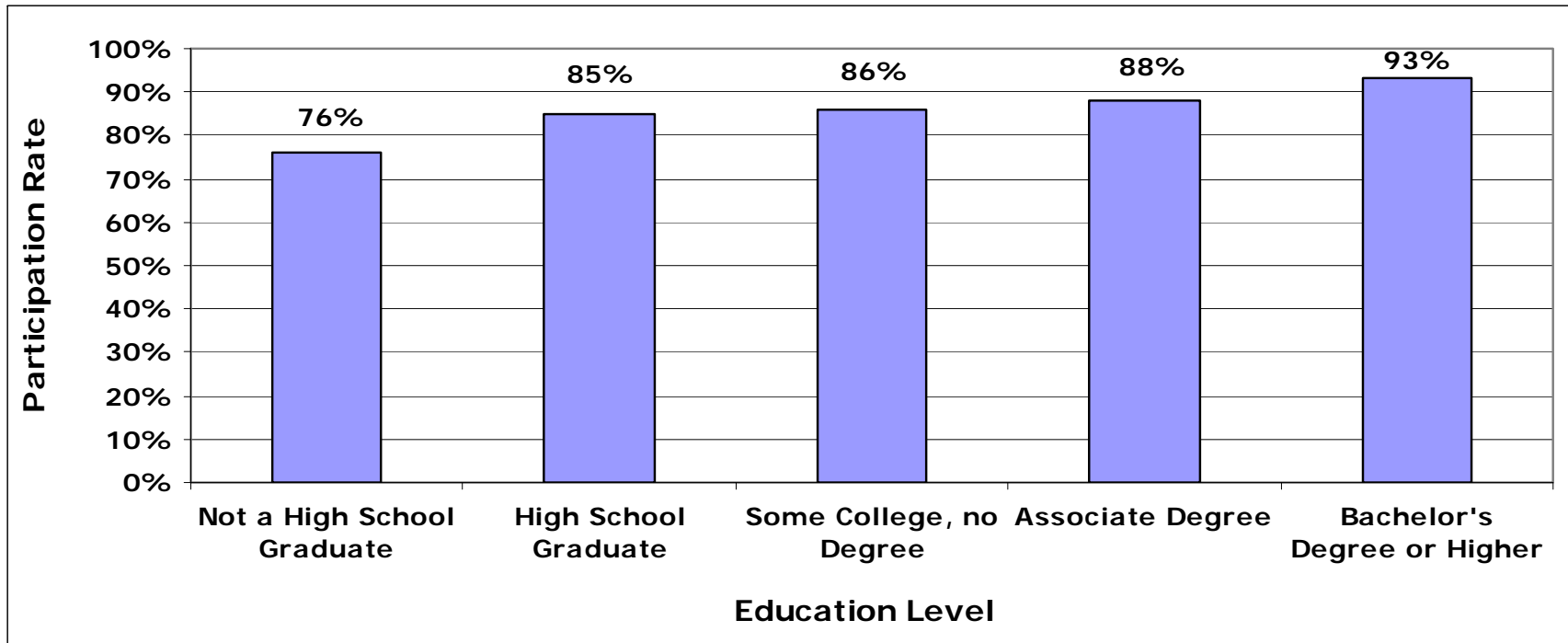
**CHART 5: EMPLOYER-PROVIDED PENSION PLAN COVERAGE AMONG FULL-TIME YEAR-ROUND WORKERS
AGES 25 AND OLDER, BY EDUCATION LEVEL, 2008**



Source: CollegeBoard Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society"; U.S. Census Bureau, 2009.

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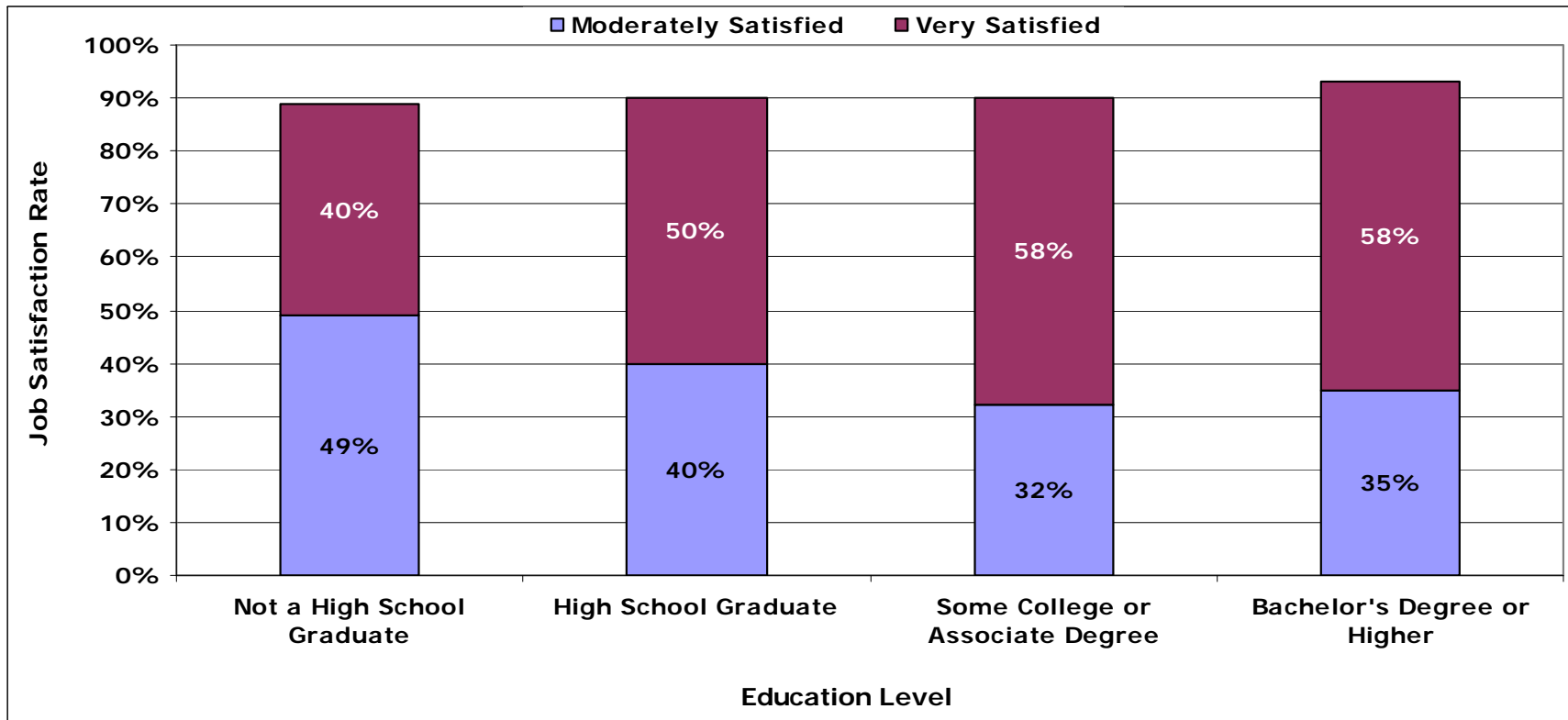
CHART 6: PARTICIPATION RATES IN EMPLOYER-PROVIDED PENSION PLANS AMONG ELIGIBLE FULL-TIME YEAR-ROUND WORKERS AGES 25 AND OLDER, BY EDUCATION LEVEL, 2008



Source: CollegeBoard Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society"; U.S. Census Bureau, 2009.

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**CHART 7: JOB SATISFACTION RATES AMONG EMPLOYED INDIVIDUALS AGES 25 AND OLDER,
BY EDUCATION LEVEL, 2008**



Source: National Opinion Research Center, 2008; CollegeBoard Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society".

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CHART 8: ESTIMATED RATES OF RETURN TO INVESTMENT IN EDUCATION: SELECTED STUDIES

Economy	Year	Private			Social		
		Primary	Secondary	Higher	Primary	Secondary	Higher
Argentina	1989	10.1	14.2	14.9	8.4	7.1	7.6
Australia	1976	-	8.1	21.1	-	-	16.3
Bolivia	1989	9.8	8.1	16.4	9.3	7.3	13.1
Botswana	1983	99.0	76.0	38.0	42.0	41.0	15.0
Brazil	1989	36.6	5.1	28.2	35.6	5.1	21.4
Canada	1985	æ	20.7	8.3	-	10.6	4.3
Chile	1989	9.7	12.9	20.7	8.1	11.1	14.0
Colombia	1989	27.7	14.7	21.7	20.0	11.4	14.0
Hong Kong, China	1976	-	18.5	25.2	-	15.0	12.4
India	1978	33.4	19.8	13.2	29.3	13.7	10.8
Indonesia	1989	-	11.0	5.0	-	-	-
Jamaica	1989	20.4	15.7	17.7	7.9	-	-
Japan	1976	13.4	10.4	8.8	9.6	8.6	6.9
Korea, Republic of	1986	-	10.1	17.9	-	8.8	15.5
Malaysia	1978	-	32.6	34.5	-	-	-
Mexico	1984	21.6	15.1	21.7	19.0	9.6	12.9
New Zealand	1966	-	20.0	14.7	-	19.4	13.2
Nepal	1982	-	15.0	21.7	-	-	-
Pakistan	1975	20.0	11.0	27.0	13.0	9.0	8.0
Papua New Guinea	1986	37.2	41.6	23.0	12.8	19.4	8.4
Paraguay	1990	23.7	14.6	13.7	20.3	12.7	10.8
Peru	1990	13.2	6.6	40.0	-	-	-
Philippines	1988	18.3	10.5	11.6	13.3	8.9	10.5
Senegal	1985	33.7	21.3	23.0	8.9	-	-
Singapore	1966	-	20.0	25.4	6.6	17.6	14.1
South Africa	1980	22.1	17.7	11.8	-	-	-
Sri Lanka	1981	-	12.6	16.1	-	-	-
Taipei, China	1972	50.0	12.7	15.8	27.0	12.3	17.7
Thailand	1970	56.0	14.5	14.0	30.5	13.0	11.0
United Kingdom	1978	-	11.0	23.0	-	9.0	7.0
United States	1987	-	10.0	12.0	-	-	-
Zimbabwe	1987	16.6	48.5	5.1	11.2	47.6	-4.3

Source: Psacharopoulos 1994, pp. 1340-1.

- Data is not available.

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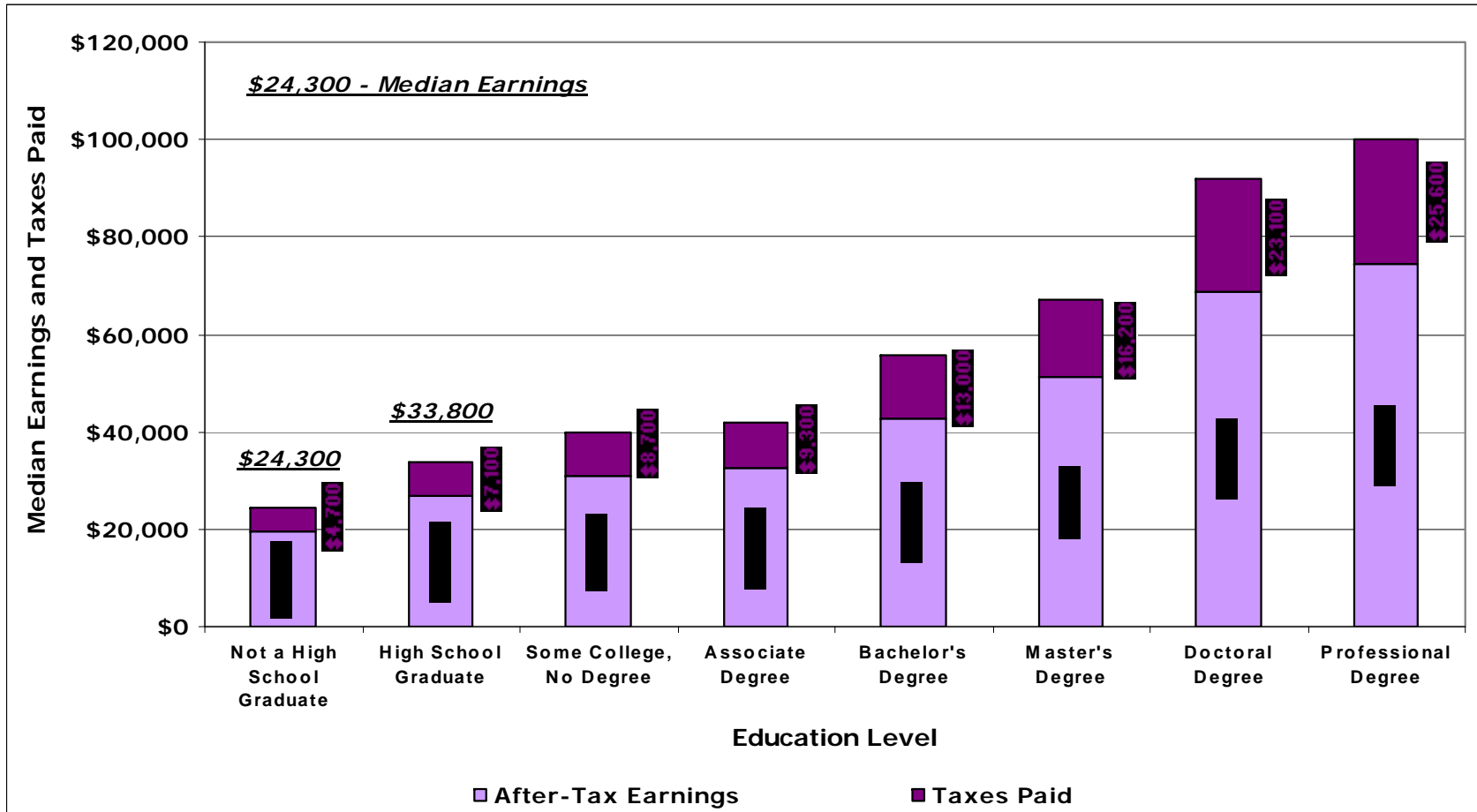
CHART 9: MONETARY RETURNS AND RATES OF RETURNS ON INVESTMENTS IN HIGHER EDUCATION USING INCOME DIFFERENTIALS, TOTAL TAX RATES, AND MIGRATION-ADJUSTED COLLEGE GRADUATE POPULATION, BY STATE: 2000-2001

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 10: MEDIAN EARNINGS AND TAX PAYMENTS OF FULL-TIME YEAR-ROUND WORKERS AGES 25 AND OLDER, BY EDUCATION LEVEL, 2008

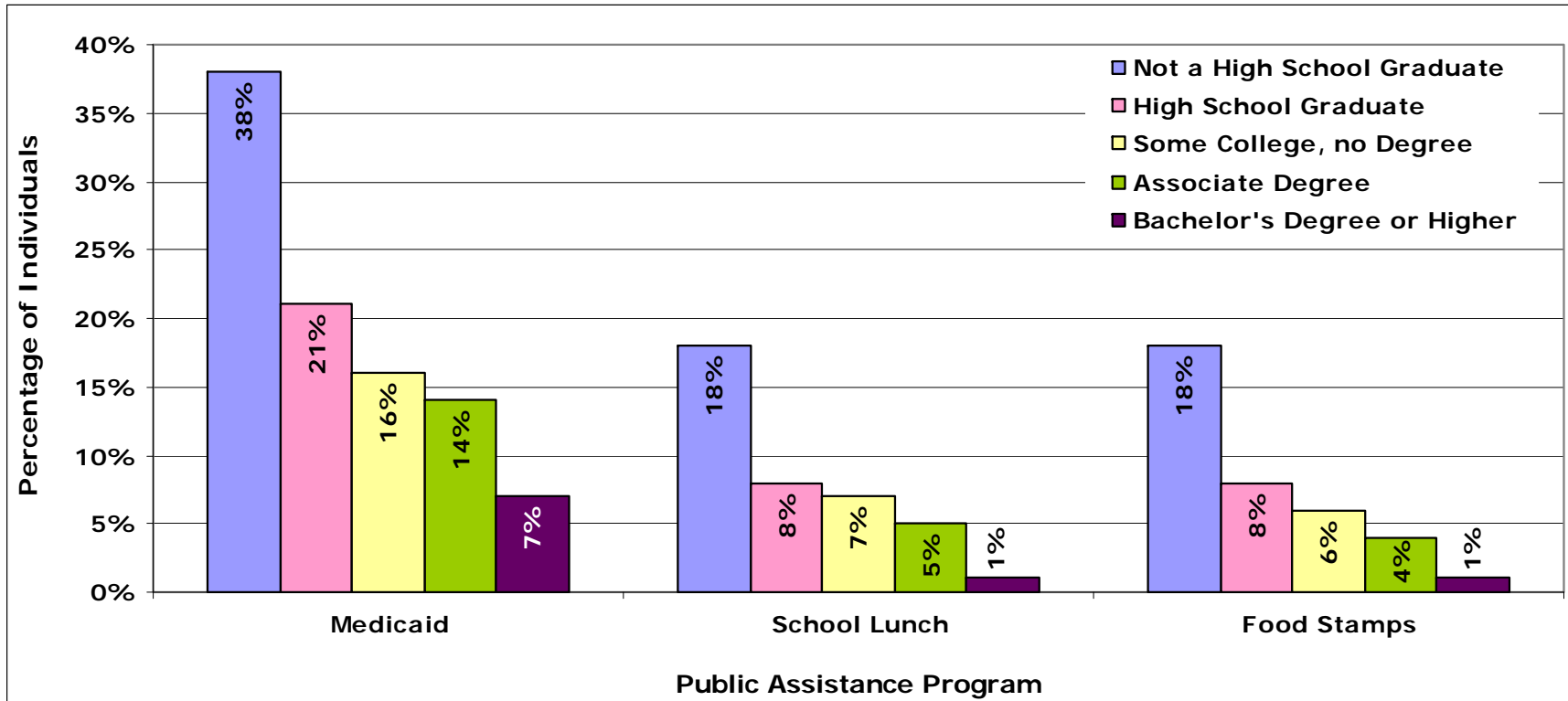


Source: U.S. Census Bureau, 2009; Internal Revenue Service, 2008; College Board Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society".

Note: Taxes paid include federal income, Social Security, Medicare, state and local income, sales, and property taxes.

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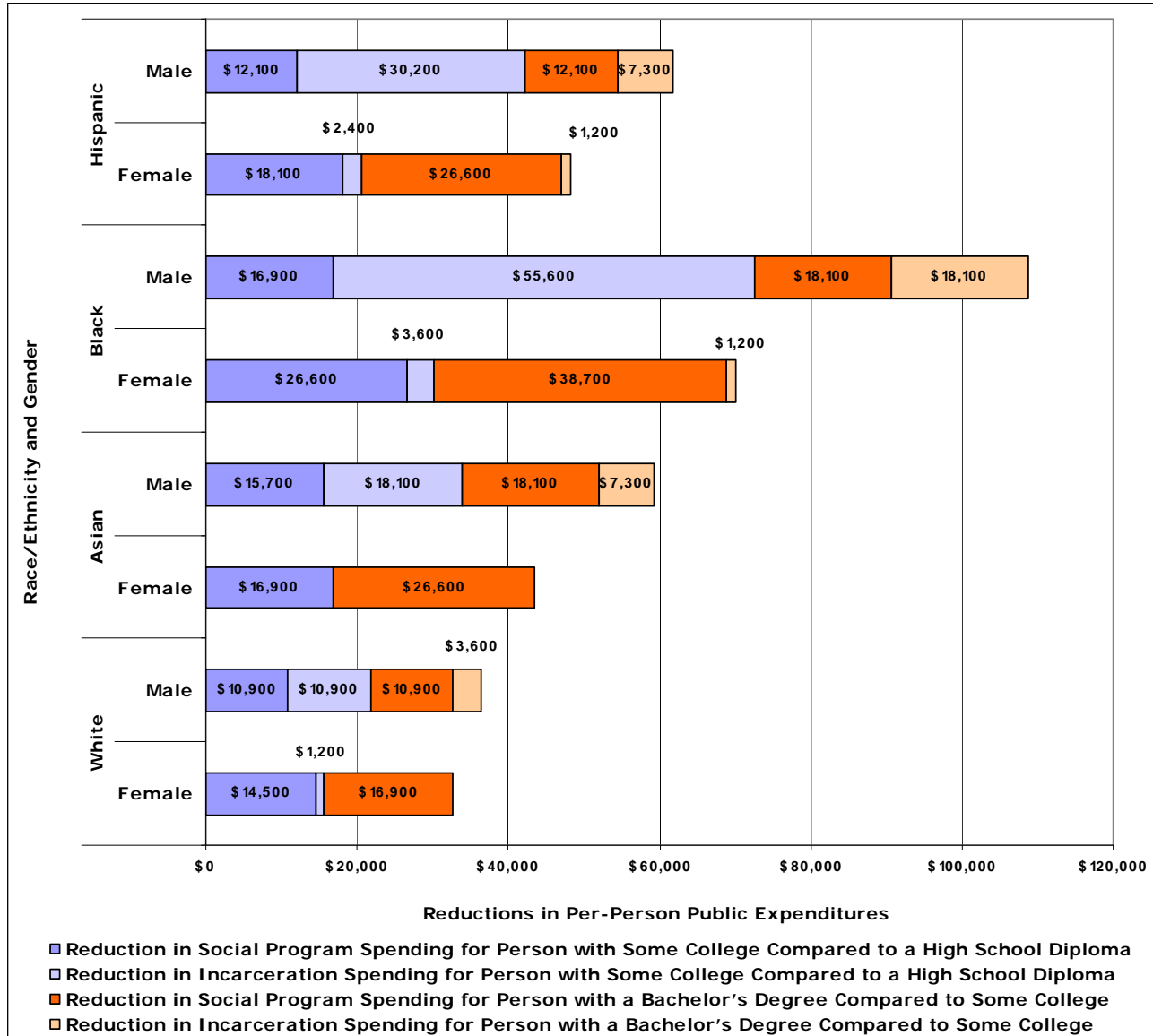
CHART 11: PERCENTAGE OF INDIVIDUALS AGES 25 AND OLDER LIVING IN HOUSEHOLDS THAT PARTICIPATED IN VARIOUS PUBLIC ASSISTANCE PROGRAMS, BY EDUCATION LEVEL, 2008



Source: College Board Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society"; U.S. Census Bureau, 2009.

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CHART 12: ESTIMATED REDUCTIONS IN LIFETIME PUBLIC EXPENDITURES PER PERSON ASSOCIATED WITH INCREASES IN EDUCATIONAL ATTAINMENT, IN 2010 DOLLARS



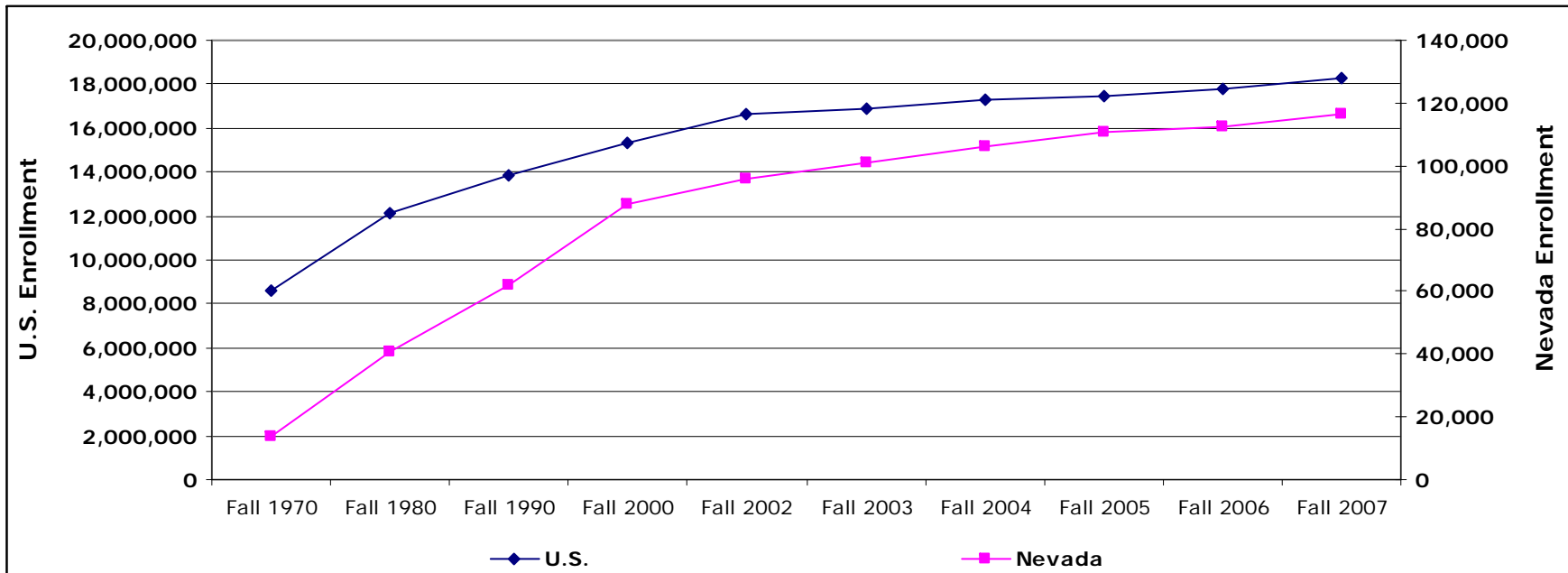
Source: CollegeBoard Advocacy and Policy Center - "Education Pays 2010: The Benefits of Higher Education for Individuals and Society"; "The Benefits to Taxpayers from Students' Educational Attainment" by Stephen Carroll and Emre Erkut (2009), Santa Monica, CA: RAND Education.

Note: Average spending on each social support program differs by personal characteristics. For example, expenditures on welfare programs are higher for women than for men with similar demographic traits. Expenditures on Medicare are higher for older people. Estimates of social support program savings cited here are based on 2002 participation and average benefit levels by race, gender, and age. The estimates include spending on welfare programs, housing benefits, food stamps, Supplemental Security Income, Medicare, Medicaid, unemployment insurance, and Social Security. Estimates of incarceration costs are based only on state and local incarceration costs. Expenditures are discounted at an annual rate of 3% to estimate their value at the time the individual is age 18.

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CHART 13: TOTAL FALL ENROLLMENT IN POSTSECONDARY DEGREE-GRANTING INSTITUTIONS (PUBLIC & PRIVATE)
U.S. AND NEVADA: SELECTED YEARS, 1970 THROUGH 2007

	Fall 1970	Fall 1980	Fall 1990	Fall 2000	Fall 2002	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007
U.S.	8,580,887	12,096,895	13,818,637	15,312,289	16,611,711	16,911,481	17,272,044	17,487,475	17,758,870	18,248,128
% Change		41.0%	14.2%	10.8%	8.5%	1.8%	2.1%	1.2%	1.6%	2.8%
Nevada	13,669	40,455	61,728	87,893	95,671	100,849	105,961	110,705	112,270	116,276
% Change		196.0%	52.6%	42.4%	8.8%	5.4%	5.1%	4.5%	1.4%	3.6%



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

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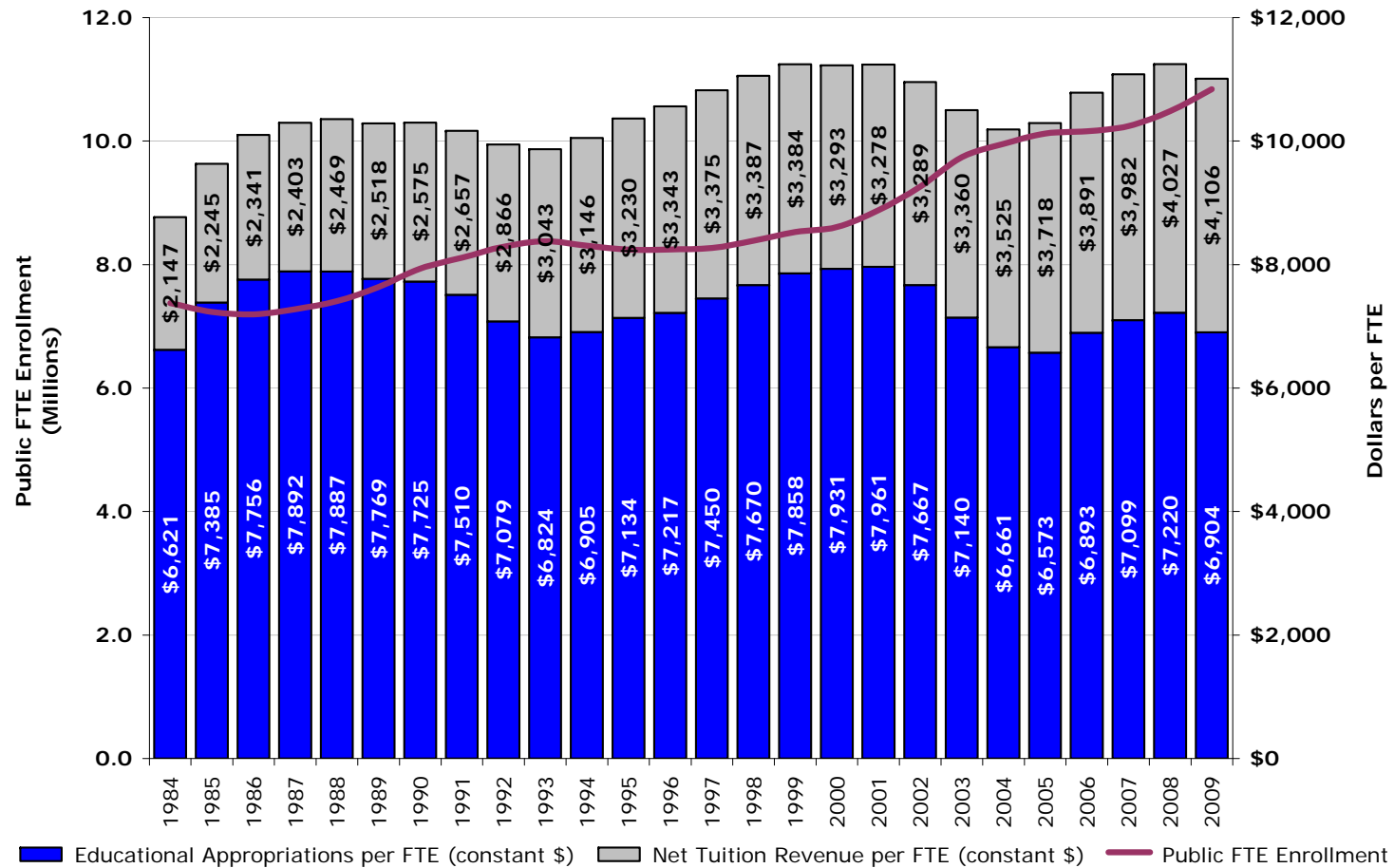
**CHART 14: DEGREES CONFERRED BY POSTSECONDARY DEGREE-GRANTING
INSTITUTIONS, BY LEVEL OF DEGREE
U.S. AND NEVADA: 2007–08**

	U.S.	<i>% of Total</i>	Nevada	<i>% of Total</i>
Public				
Associate's Degree	578,520	18.7%	2,735	20.4%
Bachelor's Degree	996,435	32.2%	6,058	45.3%
Master's Degree	299,923	9.7%	1,980	14.8%
Firstprofessional Degree	37,278	1.2%	248	1.9%
Doctor's Degree	38,315	1.2%	173	1.3%
Private				
Associate's Degree	171,644	5.5%	680	5.1%
Bachelor's Degree	566,634	18.3%	802	6.0%
Master's Degree	325,100	10.5%	588	4.4%
Firstprofessional Degree	54,031	1.7%	123	0.9%
Doctor's Degree	25,397	0.8%	0	0.0%

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

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CHART 15: U.S. PUBLIC HIGHER EDUCATION FTE ENROLLMENT, EDUCATIONAL APPROPRIATIONS AND TOTAL EDUCATIONAL REVENUE PER FTE, FY 1984-2009

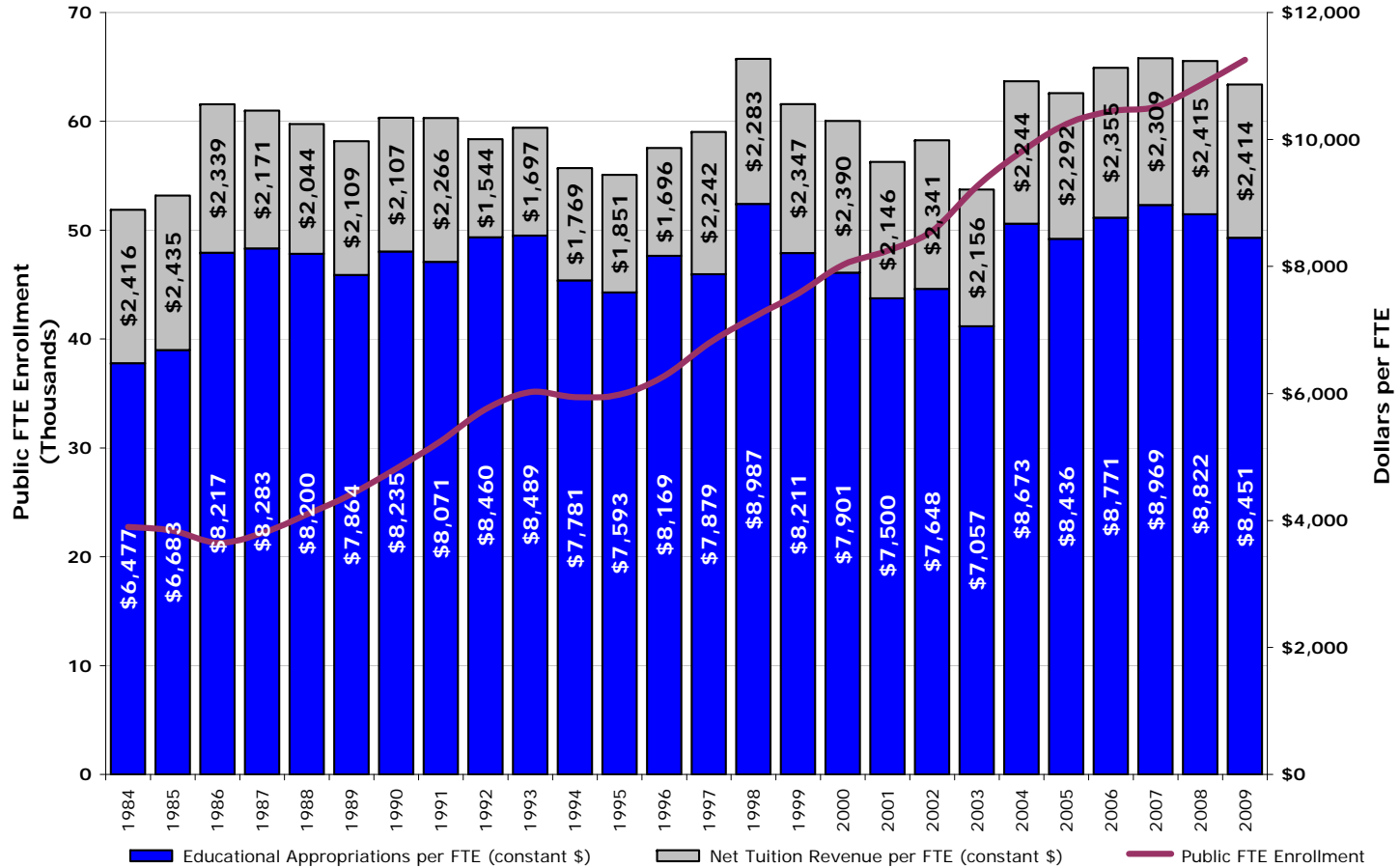


Note: Constant 2009 dollars adjusted by SHEEO Higher Education Cost Adjustment. 2009 Educational Appropriations include ARRA funds. (HECA)

Source: State Higher Education Executive Officers. State Support for Higher Education Database.

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CHART 16: NEVADA PUBLIC HIGHER EDUCATION FTE ENROLLMENT, EDUCATIONAL APPROPRIATIONS AND TOTAL EDUCATIONAL REVENUE PER FTE, FY 1984-2009



Note: Constant 2009 dollars adjusted by SHEEO Higher Education Cost Adjustment. 2009 Educational Appropriations include ARRA funds. (HECA).

Source: State Higher Education Executive Officers. State Support for Higher Education Database.

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CHART 17: STATE SUPPORT FOR HIGHER EDUCATION
FY 2005, 2008, 2009, AND 2010
(RANKED BY THE "FY 09 TOTAL SUPPORT" COLUMN)

	Rank	FY05	FY08	FY09			Total Support
		State Monies ^b	State Monies ^b	State Monies ^b	Federal Stimulus Monies: Stabilization funds ^c	Federal Stimulus Monies: Government Services Funds ^d	
Alabama	18	\$1,214,819,772	\$1,961,808,342	\$1,581,762,667	\$0	\$0	\$1,581,762,667
Alaska	42	\$235,022,000	\$299,228,000	\$320,079,200	\$0	\$0	\$320,079,200
Arizona	20	\$987,367,600	\$1,315,406,400	\$1,154,957,900	\$182,808,000	\$0	\$1,337,765,900
Arkansas	31	\$655,270,998	\$879,882,230	\$887,321,221	\$0	\$0	\$887,321,221
California	1	\$9,067,072,000	\$11,814,421,000	\$10,433,297,200	\$1,489,000,000	\$0	\$11,922,297,200
Colorado	32	\$597,921,311	\$747,481,054	\$682,248,254	\$150,676,055	\$288,000	\$833,212,309
Connecticut	26	\$787,966,647	\$1,034,480,989	\$1,045,313,922	\$0	\$0	\$1,045,313,922
Delaware	45	\$203,478,000	\$243,130,000	\$243,840,165	\$0	\$0	\$243,840,165
Florida	4	\$3,581,416,362	\$4,448,930,438	\$4,112,453,565	\$0	\$0	\$4,112,453,565
Georgia	6	\$2,466,928,208	\$2,953,507,623	\$3,144,002,253	\$19,304,452	\$0	\$3,163,306,705
Hawaii	38	\$409,727,000	\$554,292,000	\$612,780,000	\$0	\$0	\$612,780,000
Idaho	40	\$350,952,700	\$410,595,600	\$416,493,100	\$0	\$0	\$416,493,100
Illinois	7	\$2,685,920,700	\$2,948,632,100	\$2,997,136,935	\$0	\$0	\$2,997,136,935
Indiana	17	\$1,417,478,385	\$1,528,494,000	\$1,575,568,000	\$44,260,192	\$0	\$1,619,828,192
Iowa	30	\$743,121,766	\$873,709,364	\$914,197,000	\$0	\$0	\$914,197,000
Kansas	33	\$727,534,311	\$825,697,884	\$806,010,141	\$9,599,299	\$0	\$815,609,440
Kentucky	22	\$1,076,740,400	\$1,320,540,000	\$1,270,507,000	\$0	\$0	\$1,270,507,000
Louisiana	14	\$1,287,848,788	\$1,707,668,337	\$1,706,364,806	\$0	\$0	\$1,706,364,806
Maine	43	\$240,691,333	\$275,867,961	\$267,980,820	\$13,123,287	\$0	\$281,104,107
Maryland	15	\$1,185,321,898	\$1,555,048,366	\$1,651,765,103	\$0	\$0	\$1,651,765,103
Massachusetts	25	\$1,131,092,793	\$1,335,981,876	\$1,032,129,048	\$25,997,534	\$0	\$1,058,126,582
Michigan	10	\$1,947,744,600	\$2,033,709,000	\$2,051,065,300	\$0	\$0	\$2,051,065,300
Minnesota	19	\$1,273,328,000	\$1,574,499,000	\$1,542,056,000	\$0	\$30,546,000	\$1,572,602,000
Mississippi	29	\$761,417,563	\$1,045,937,317	\$978,760,459	\$0	\$0	\$978,760,459
Missouri	23	\$925,045,604	\$1,021,705,137	\$1,108,021,377	\$0	\$0	\$1,108,021,377
Montana	46	\$152,582,000	\$196,547,880	\$207,471,410	\$0	\$0	\$207,471,410
Nebraska	36	\$519,741,659	\$657,011,774	\$651,703,765	\$0	\$0	\$651,703,765
Nevada	37	\$502,023,883	\$620,032,581	\$623,227,269	\$0	\$0	\$623,227,269
New Hampshire	49	\$115,367,000	\$133,093,000	\$138,531,000	\$0	\$0	\$138,531,000
New Jersey	11	\$1,890,323,000	\$2,044,508,000	\$1,984,924,000	\$0	\$0	\$1,984,924,000
New Mexico	27	\$762,379,374	\$1,058,394,058	\$994,039,650	\$0	\$0	\$994,039,650
New York	3	\$3,641,640,500	\$4,748,469,680	\$4,875,336,234	\$0	\$0	\$4,875,336,234
North Carolina	5	\$2,780,767,364	\$3,837,233,489	\$3,658,785,872	\$126,962,971	\$0	\$3,785,748,843
North Dakota	44	\$201,545,000	\$253,901,000	\$253,901,000	\$0	\$0	\$253,901,000
Ohio	8	\$2,102,153,594	\$2,288,294,736	\$2,474,062,613	\$0	\$0	\$2,474,062,613
Oklahoma	24	\$787,076,396	\$1,098,881,179	\$1,078,158,766	\$0	\$0	\$1,078,158,766
Oregon	35	\$585,749,933	\$725,761,919	\$663,145,428	\$55,636,352	\$0	\$718,781,780
Pennsylvania	9	\$2,015,637,000	\$2,193,274,000	\$2,165,882,000	\$64,652,000	\$0	\$2,230,534,000
Rhode Island	47	\$188,033,394	\$191,329,662	\$165,149,649	\$0	\$0	\$165,149,649
South Carolina	28	\$976,616,957	\$1,211,068,342	\$980,754,273	\$0	\$0	\$980,754,273
South Dakota	48	\$162,783,467	\$196,133,172	\$152,130,082	\$10,262,056	\$0	\$162,392,138
Tennessee	16	\$1,301,578,400	\$1,598,765,500	\$1,560,274,800	\$82,334,800	\$0	\$1,642,609,600
Texas	2	\$5,110,262,835	\$6,343,669,747	\$6,104,326,402	\$0	\$0	\$6,104,326,402
Utah	34	\$646,914,100	\$812,337,500	\$749,737,500	\$28,800,000	\$0	\$778,537,500
Vermont	50	\$78,008,810	\$90,801,444	\$87,189,483	\$0	\$0	\$87,189,483
Virginia	12	\$1,480,522,000	\$1,885,553,314	\$1,899,464,085	\$0	\$0	\$1,899,464,085
Washington	13	\$1,411,664,000	\$1,767,760,000	\$1,809,447,000	\$0	\$0	\$1,809,447,000
West Virginia	39	\$426,408,695	\$562,253,000	\$520,693,910	\$0	\$0	\$520,693,910
Wisconsin	21	\$1,121,729,480	\$1,228,373,932	\$1,276,923,830	\$0	\$0	\$1,276,923,830
Wyoming	41	\$217,638,250	\$290,504,588	\$327,917,291	\$0	\$0	\$327,917,291
Totals		\$65,140,375,830	\$80,744,607,515	\$77,939,288,748	\$2,303,416,998	\$30,834,000	\$80,273,539,746

Continued on the next page

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CHART 17: STATE SUPPORT FOR HIGHER EDUCATION, FISCAL YEARS 2005, 2008, 2009, AND 2010 (CONT.)
(RANKED BY THE "FY 10 TOTAL SUPPORT" COLUMN)

	Rank	FY10				Total Support
		State Monies ^b	Federal Stimulus Monies: Stabilization funds ^c	Federal Stimulus Monies: Government Services Funds ^d		
Alabama	18	\$1,449,111,433	\$118,743,545	\$0	\$1,567,854,978	
Alaska	41	\$332,535,400	\$0	\$0	\$332,535,400	
Arizona	22	\$1,103,840,000	\$84,192,000	\$0	\$1,188,032,000	
Arkansas	29	\$905,301,021	\$13,641,365	\$0	\$918,942,386	
California	1	\$10,792,625,750	\$313,000,000	\$0	\$11,105,625,750	
Colorado	31	\$679,624,934	\$150,676,055	\$0	\$830,300,989	
Connecticut	26	\$1,031,930,508	\$0	\$19,262,063	\$1,051,192,571	
Delaware	45	\$226,645,560	\$15,873,000	\$0	\$242,518,560	
Florida	5	\$3,713,526,788	\$217,868,090	\$34,586,325	\$3,965,981,203	
Georgia	7	\$2,977,189,312	\$108,024,135	\$0	\$3,085,213,447	
Hawaii	37	\$575,366,000	\$32,000,000	\$0	\$607,366,000	
Idaho	40	\$389,144,700	\$17,683,900	\$0	\$406,828,600	
Illinois	6	\$3,039,940,000	\$40,426,300	\$53,510,100	\$3,133,876,400	
Indiana	15	\$1,564,352,025	\$75,491,326	\$0	\$1,639,843,351	
Iowa	32	\$721,515,000	\$103,380,000	\$2,500,000	\$827,395,000	
Kansas	33	\$753,700,801	\$40,000,000	\$0	\$793,700,801	
Kentucky	20	\$1,203,786,000	\$70,000,000	\$0	\$1,273,786,000	
Louisiana	17	\$1,410,621,395	\$189,700,000	\$0	\$1,600,321,395	
Maine	44	\$263,679,427	\$8,162,583	\$0	\$271,842,010	
Maryland	13	\$1,668,917,365	\$3,969,128	\$0	\$1,672,886,493	
Massachusetts	25	\$842,009,308	\$227,730,463	\$0	\$1,069,739,771	
Michigan	11	\$1,837,465,800	\$68,238,000	\$0	\$1,905,703,800	
Minnesota	19	\$1,427,469,000	\$137,342,000	\$601,000	\$1,565,412,000	
Mississippi	28	\$1,006,477,155	\$0	\$0	\$1,006,477,155	
Missouri	23	\$1,036,350,818	\$106,212,100	\$33,572,812	\$1,176,135,730	
Montana	46	\$179,045,306	\$29,762,223	\$8,220,637	\$217,028,166	
Nebraska	36	\$622,962,181	\$0	\$0	\$622,962,181	
Nevada	38	\$501,051,371	\$92,389,311	\$0	\$593,440,682	
New Hampshire	49	\$137,770,000	\$4,087,000	\$0	\$141,857,000	
New Jersey	10	\$2,009,930,000	\$70,805,876	\$2,864,124	\$2,083,600,000	
New Mexico	30	\$877,411,145	\$15,538,400	\$0	\$892,949,545	
New York	3	\$4,878,684,434	\$45,954,666	\$118,098,991	\$5,042,738,091	
North Carolina	4	\$3,847,511,480	\$137,815,944	\$0	\$3,985,327,424	
North Dakota	43	\$300,891,000	\$0	\$0	\$300,891,000	
Ohio	8	\$1,968,410,935	\$309,874,026	\$0	\$2,278,284,961	
Oklahoma	24	\$1,017,923,491	\$68,792,477	\$0	\$1,086,715,968	
Oregon	35	\$662,600,919	\$30,000,000	\$0	\$692,600,919	
Pennsylvania	9	\$2,038,948,000	\$96,403,000	\$0	\$2,135,351,000	
Rhode Island	47	\$162,721,156	\$16,106,895	\$0	\$178,828,051	
South Carolina	27	\$924,156,917	\$99,922,339	\$3,364,440	\$1,027,443,696	
South Dakota	48	\$151,646,853	\$11,474,935	\$0	\$163,121,788	
Tennessee	16	\$1,474,163,400	\$165,092,900	\$0	\$1,639,256,300	
Texas	2	\$6,542,926,661	\$0	\$326,907,500	\$6,869,834,161	
Utah	34	\$687,315,900	\$58,466,800	\$0	\$745,782,700	
Vermont	50	\$91,223,426	\$0	\$0	\$91,223,426	
Virginia	12	\$1,575,576,980	\$126,744,967	\$0	\$1,702,321,947	
Washington	14	\$1,576,199,000	\$81,421,000	\$0	\$1,657,620,000	
West Virginia	39	\$503,089,382	\$9,863,806	\$4,883,915	\$517,837,103	
Wisconsin	21	\$1,191,512,368	\$0	\$0	\$1,191,512,368	
Wyoming	42	\$305,457,760	\$8,400,000	\$0	\$313,857,760	
Totals		\$75,182,255,565	\$3,621,270,555	\$608,371,907	\$79,411,898,027	

Source: State Higher Education Executive Officers. Grapevine Survey, Illinois State University's Center for the Study of Education Policy.

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Notes for Chart 17:

^a*FY 2010 figures represent initial allocations or estimates as of December 15, 2009 and are subject to change.*

^b*State monies include state tax appropriations and other state funds allocated to higher education.*

^c*Includes education stabilization funds used to restore the level of state support for public higher education.*

^d*Excludes government services funds used for modernization, renovation, or repair.*

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**CHART 18: STATE FISCAL SUPPORT FOR HIGHER EDUCATION IN FY 2009-10,
PER \$1,000 IN PERSONAL INCOME AND PER CAPITA
(RANKED BY THE "STATE MONIES ONLY PER CAPITA" COLUMN)**

States	Rank	State Monies Only ^a per \$1,000 in			State Monies Plus Federal Stimulus and Government Service Funds ^b per \$1,000 in		
		FY10 Total	Personal Income ^c	per Capita ^d	FY10 Total	Personal Income	per Capita
Alabama	11	\$1,449,111,433	\$9.25	\$307.75	\$1,567,854,978	\$10.01	\$332.97
Alaska	2	\$332,535,400	\$11.21	\$476.09	\$332,535,400	\$11.21	\$476.09
Arizona	44	\$1,103,840,000	\$5.07	\$167.36	\$1,188,032,000	\$5.45	\$180.12
Arkansas	10	\$905,301,021	\$9.83	\$313.31	\$918,942,386	\$9.98	\$318.03
California	15	\$10,792,625,750	\$6.91	\$292.00	\$11,105,625,750	\$7.11	\$300.46
Colorado	48	\$679,624,934	\$3.29	\$135.26	\$830,300,989	\$4.02	\$165.24
Connecticut	13	\$1,031,930,508	\$5.35	\$293.30	\$1,051,192,571	\$5.45	\$298.78
Delaware	22	\$226,645,560	\$6.45	\$256.06	\$242,518,560	\$6.90	\$273.99
Florida	34	\$3,713,526,788	\$5.29	\$200.32	\$3,965,981,203	\$5.65	\$213.94
Georgia	12	\$2,977,189,312	\$8.95	\$302.89	\$3,085,213,447	\$9.28	\$313.88
Hawaii	4	\$575,366,000	\$10.54	\$444.24	\$607,366,000	\$11.13	\$468.94
Idaho	23	\$389,144,700	\$7.96	\$251.74	\$406,828,600	\$8.32	\$263.18
Illinois	29	\$3,039,940,000	\$5.68	\$235.46	\$3,133,876,400	\$5.86	\$242.74
Indiana	26	\$1,564,352,025	\$7.18	\$243.55	\$1,639,843,351	\$7.53	\$255.30
Iowa	27	\$721,515,000	\$6.45	\$239.88	\$827,395,000	\$7.40	\$275.08
Kansas	20	\$753,700,801	\$7.04	\$267.39	\$793,700,801	\$7.41	\$281.58
Kentucky	16	\$1,203,786,000	\$8.95	\$279.03	\$1,273,786,000	\$9.47	\$295.26
Louisiana	9	\$1,410,621,395	\$8.86	\$314.02	\$1,600,321,395	\$10.05	\$356.25
Maine	35	\$263,679,427	\$5.45	\$200.01	\$271,842,010	\$5.61	\$206.21
Maryland	14	\$1,668,917,365	\$6.00	\$292.82	\$1,672,886,493	\$6.02	\$293.52
Massachusetts	49	\$842,009,308	\$2.56	\$127.70	\$1,069,739,771	\$3.25	\$162.24
Michigan	39	\$1,837,465,800	\$5.38	\$184.30	\$1,905,703,800	\$5.58	\$191.15
Minnesota	19	\$1,427,469,000	\$6.49	\$271.06	\$1,565,412,000	\$7.12	\$297.26
Mississippi	8	\$1,006,477,155	\$11.28	\$340.95	\$1,006,477,155	\$11.28	\$340.95
Missouri	42	\$1,036,350,818	\$4.85	\$173.08	\$1,176,135,730	\$5.50	\$196.43
Montana	40	\$179,045,306	\$5.39	\$183.64	\$217,028,166	\$6.54	\$222.60
Nebraska	7	\$622,962,181	\$9.06	\$346.74	\$622,962,181	\$9.06	\$346.74
Nevada	37	\$501,051,371	\$4.89	\$189.57	\$593,440,682	\$5.80	\$224.53
New Hampshire	50	\$137,770,000	\$2.43	\$104.01	\$141,857,000	\$2.50	\$107.10
New Jersey	31	\$2,009,930,000	\$4.58	\$230.82	\$2,083,600,000	\$4.75	\$239.28
New Mexico	5	\$877,411,145	\$13.22	\$436.59	\$892,949,545	\$13.45	\$444.33
New York ^e	24	\$4,878,684,434	\$5.27	\$249.66	\$5,042,738,091	\$5.45	\$258.05
North Carolina	6	\$3,847,511,480	\$11.86	\$410.14	\$3,985,327,424	\$12.29	\$424.83
North Dakota	3	\$300,891,000	\$11.76	\$465.17	\$300,891,000	\$11.76	\$465.17
Ohio	43	\$1,968,410,935	\$4.81	\$170.53	\$2,278,284,961	\$5.57	\$197.38
Oklahoma	18	\$1,017,923,491	\$7.87	\$276.08	\$1,086,715,968	\$8.40	\$294.74
Oregon	41	\$662,600,919	\$4.83	\$173.20	\$692,600,919	\$5.05	\$181.04
Pennsylvania	45	\$2,038,948,000	\$4.07	\$161.76	\$2,135,351,000	\$4.26	\$169.41
Rhode Island	46	\$162,721,156	\$3.76	\$154.50	\$178,828,051	\$4.13	\$169.79
South Carolina	33	\$924,156,917	\$6.37	\$202.61	\$1,027,443,696	\$7.08	\$225.26
South Dakota	38	\$151,646,853	\$5.03	\$186.67	\$163,121,788	\$5.41	\$200.79
Tennessee	30	\$1,474,163,400	\$6.76	\$234.13	\$1,639,256,300	\$7.51	\$260.35
Texas	21	\$6,542,926,661	\$7.24	\$264.02	\$6,869,834,161	\$7.60	\$277.21
Utah	25	\$687,315,900	\$7.98	\$246.83	\$745,782,700	\$8.66	\$267.83
Vermont	47	\$91,223,426	\$3.80	\$146.72	\$91,223,426	\$3.80	\$146.72
Virginia ^f	36	\$1,575,576,980	\$4.57	\$199.88	\$1,702,321,947	\$4.94	\$215.96
Washington	28	\$1,576,199,000	\$5.66	\$236.52	\$1,657,620,000	\$5.95	\$248.74
West Virginia	17	\$503,089,382	\$8.53	\$276.46	\$517,837,103	\$8.78	\$284.56
Wisconsin	32	\$1,191,512,368	\$5.69	\$210.71	\$1,191,512,368	\$5.69	\$210.71
Wyoming	1	\$305,457,760	\$12.30	\$561.22	\$313,857,760	\$12.64	\$576.66
Totals		\$75,182,255,565	\$6.26	\$245.37	\$79,411,898,027	\$6.62	\$259.17

Source: State Higher Education Executive Officers. Grapevine Survey, Illinois State University's Center for the Study of Education Policy.

Notes:

^a Includes both tax and nontax monies. Data were reported by the states from September through December 2009 and are subject to change.

^b Excludes government services funds used for modernization, renovation, or repair.

^c Based on personal income data for the 2nd quarter of 2009, retrieved from the Bureau of Economic Analysis, U.S. Department of Commerce, January 15, 2010 from <http://www.bea.gov/regional/sqpi/default.cfm?selTable=SQ1>.

^d Based on July 2009 population estimates retrieved on January 5, 2010, from the U.S. Census Bureau, <http://www.census.gov/popest/states/NST-ann-est.html>.

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^e NY data include only state support for CUNY, SUNY, and state student financial aid. NY data on file in earlier Grapevine reports for FY05, FY08, and FY09 include monies for additional items and may not be consistent with the data reported here.

^f Virginia data for FY10 are based on the budget approved by the 2009 General Assembly and are subject to change.