Education Pays

Authored for the *Solutions for Our Future* Project
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Investments in higher education have a high pay off both for individuals and for society as a whole

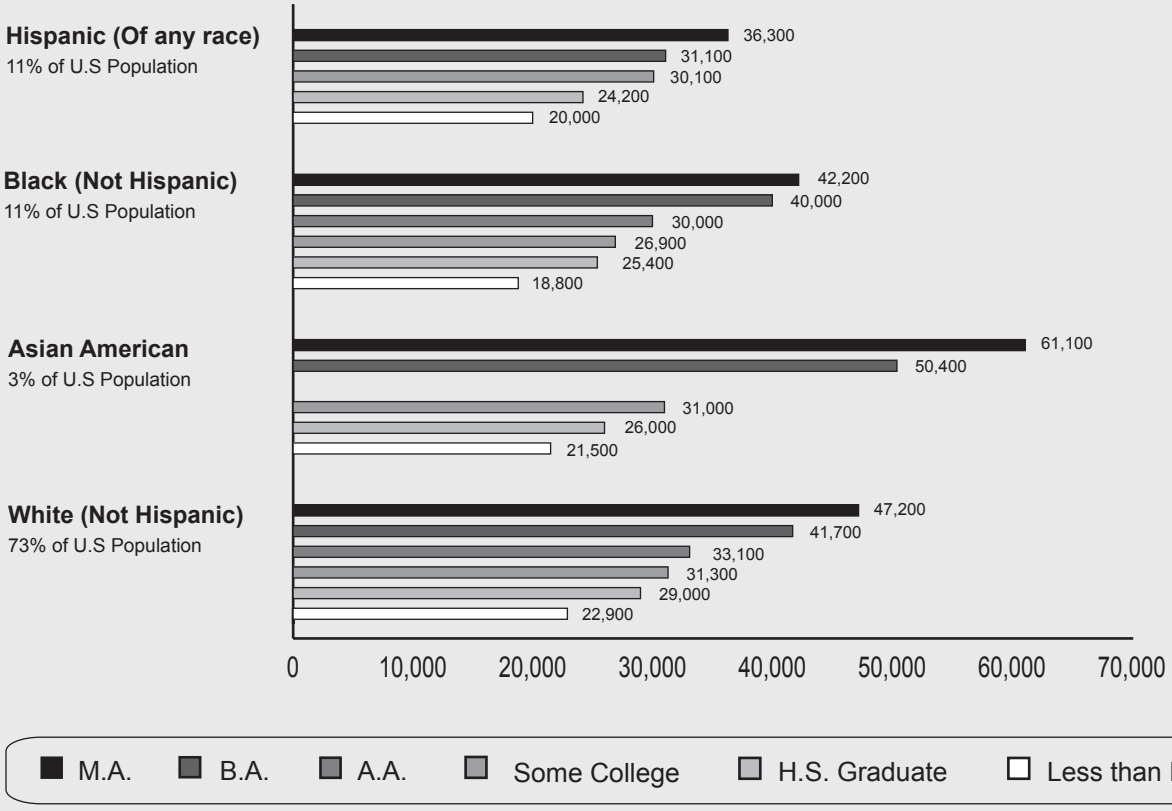
Education pays very well. It has a high rate of return for students from all racial/ethnic groups, for men and for women, for those from all family backgrounds. It also has a high rate of return for society. In addition to the higher earnings enjoyed by individuals who have attended or graduated from college, we all benefit from the higher tax revenues, the lower demands on social support programs, and the higher productivity generated by the highly educated.

Earning a college degree increases earnings.

- Among full-time year-round workers between the ages of 25 and 34, white, black and Hispanic four-year college graduates earn an average of about 60% more than high school graduates in the same demographic groups.
- The earnings premium for Asian Americans is even higher, at about 80%.
- The average annual earnings premium of a four-year college graduate between the ages of 25 and 34 -- almost $15,000 -- equals almost three years of tuition and fees at the average public college or university.
- Median earnings for male college graduates are 60% higher than median earnings for high school graduates. For females, the earnings premium for a college degree is 58%.
- Although the fact that higher earnings are associated with higher levels of education does not prove causation, sophisticated statistical analysis indicates that the descriptive data presented here provide an accurate estimate of average earnings premiums resulting from higher education (See, e.g. Ashenfelter, 1999; Card, 1999; Deschenes, 2001).

Median Earnings by Education Level and Race/Ethnicity

Full-time year round workers ages 25-34

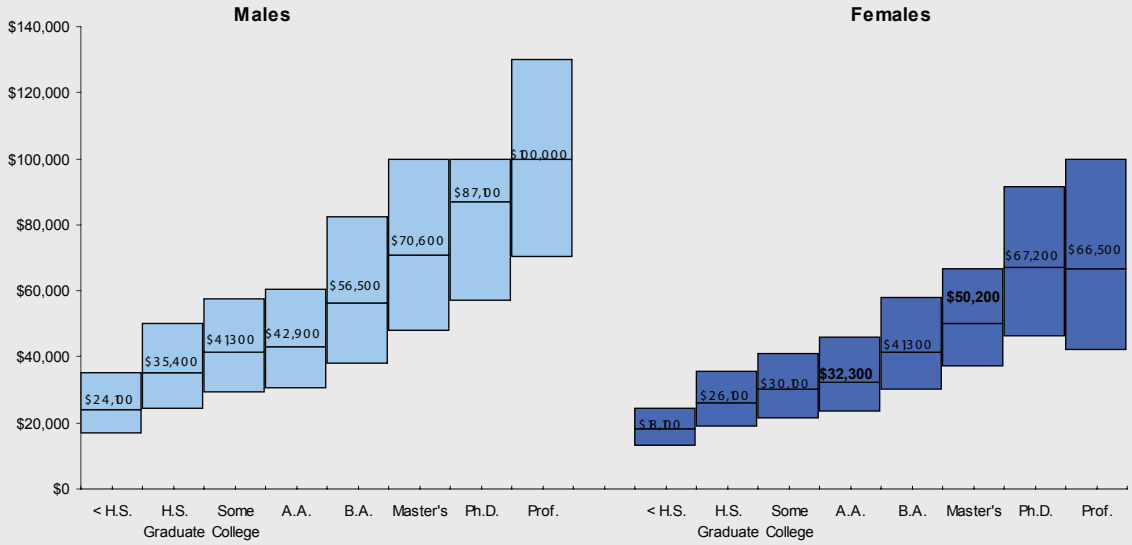


Notes: Data for the professional and PhD categories are not reported because of insufficient cell sizes for racial/ethnic groups. Income for Asian Americans with AA degrees and for Hispanics with MA degrees is not reported becase of small sample sizes.

Source: U.S. Census Bureau, 2004. PINC-03; Annual Social and Economic Supplement, Current Population Reports; S. Baum and K. Payea, *Education Pays 2004*, p. 13.

Earnings by Gender and Education Level, 2003:

25th percentile, median and 75th percentile
Full-time year-round workers age 25 and older



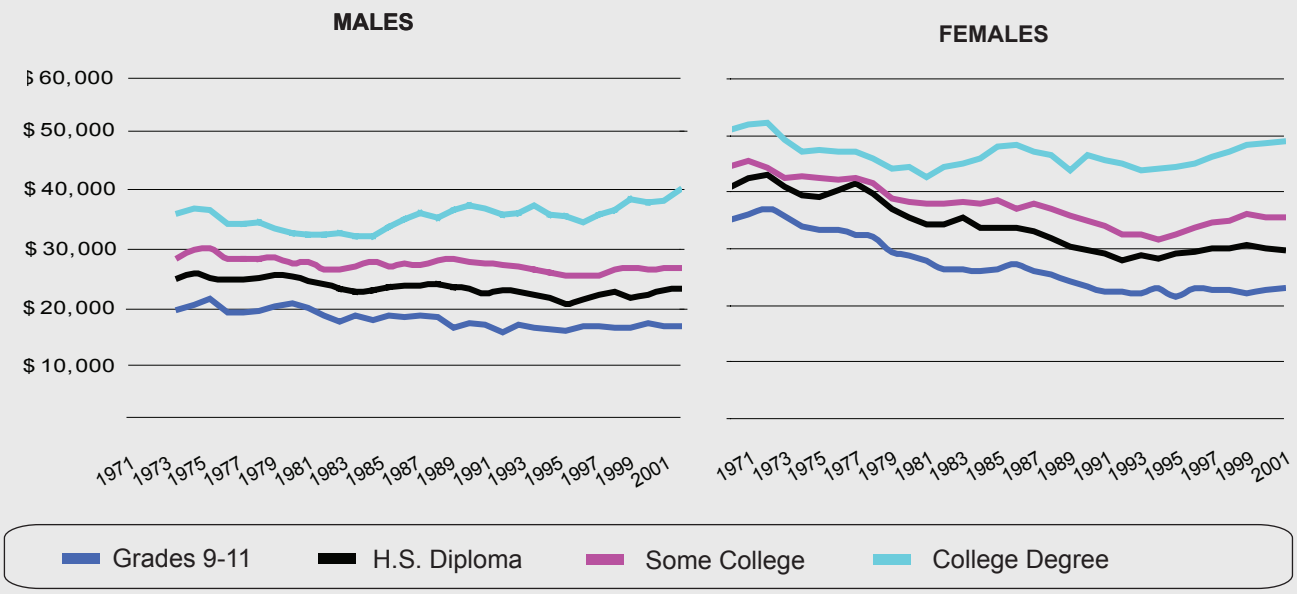
Source: U.S. Census Bureau, 2004, PNC-03, Annual Social and Economic Supplement, Current Population Reports ; S. Baum and K. Payea, *Education* Pays, p.14.

The earnings differential between individuals with four-year college degrees and those with lower levels of educational attainment has increased over time.

- Although inflation-adjusted earnings levels remained constant or increased only slightly for most groups in the 1990s, men and women with four-year college degrees saw their earnings increase by 7% and 11%, respectively, between 1992 and 2002.
- Real earnings have declined over the past thirty years for men at all levels of education. For men with a bachelor's degree or higher, that decline has been 6%, compared to declines ranging from 22% to 37% for those with lower levels of education.
- Women with a B.A. or higher degree earned 9% more in inflation-adjusted dollars in 2002 than in 1972. Women with lower levels of education experienced earnings declines of 10% to 17%.
- Full-time male workers between the ages of 25 and 34 with four-year college or graduate degrees earned 22% more than high school graduates in 1972. The earnings differential increased to 25% in 1982, 57% in 1992, and 65% in 2002. For women, the increase over 30 years was from a 42% difference to a 71% difference.

Median Earnings of Males and Females Ages 25-34 by Education Level

1971-2002 (Constant 2002 dollars) Full-time year-round workers

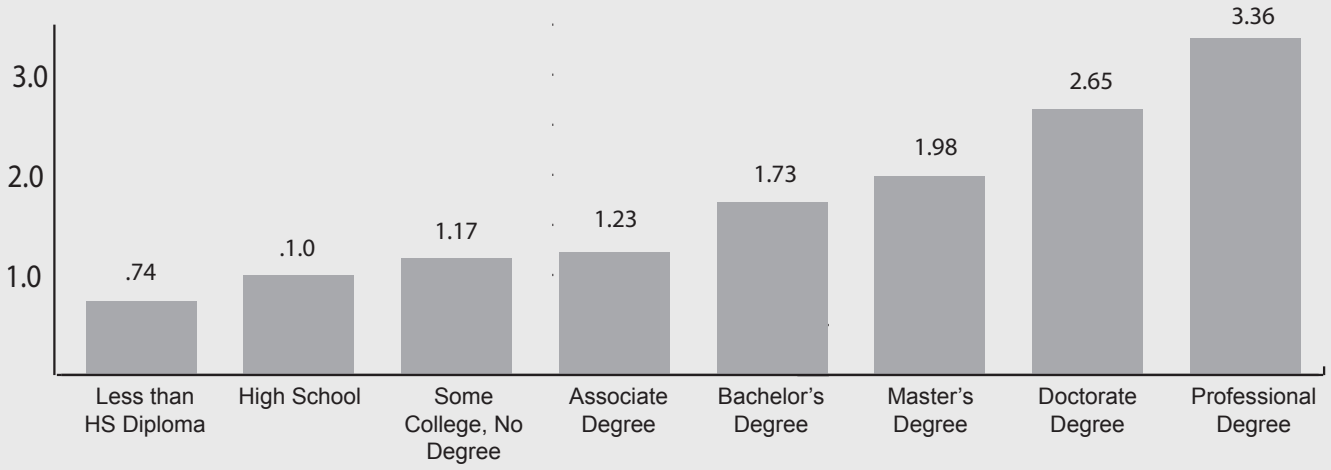


Source: National Center for Education Statistics, *Condition of Education*, 2004. Indicator 14
(based on U.S. Census Bureau, Current Population Survey, March Supplement, 1997-2003; S. Baum and K. Papyea, *Education Pays, 2004,* p. 15.

Annual earnings premiums add up to larger differences in lifetime earnings.

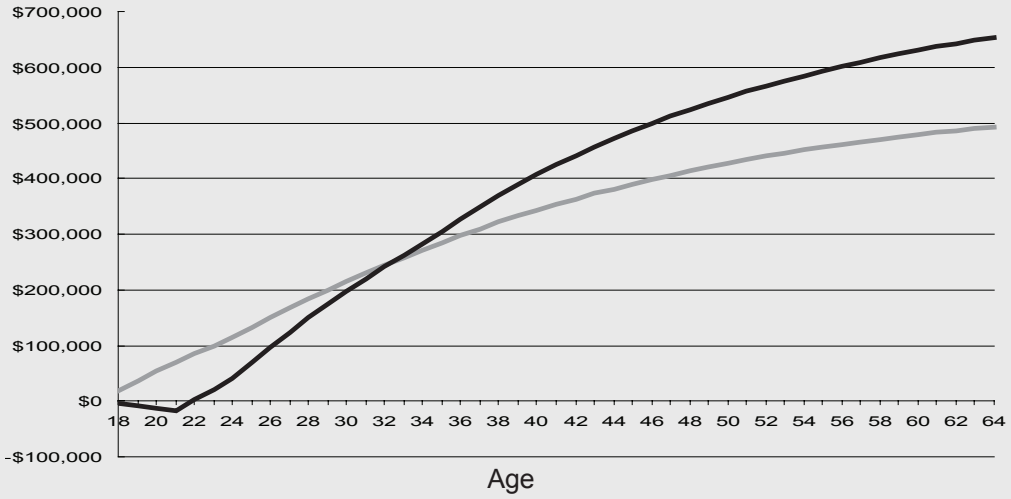
- The typical bachelor's degree recipient can expect to earn 73% more over a 40 year working life than the typical high school graduate.
- By the age of about 33, the typical college graduate has earned enough to compensate for both paying full tuition and fee charges at the average public four-year college and forgoing earnings for four years. From that point on, each year increases the lifetime earnings benefit of a college degree.

Expected Lifetime Earnings Relative to High School Graduates



Notes: Based on sum of mean annual 2003 earnings from ages 25 to 64. Future earnings are discounted using a 5 percent age
Source: G.C. Day and E.D. Newburger, .*The Big Payoff* , 2002; S. Baum and K. Payea,Education Pays 2004, p.11.

Estimated Cumulative Earnings Net of Tuition Fees



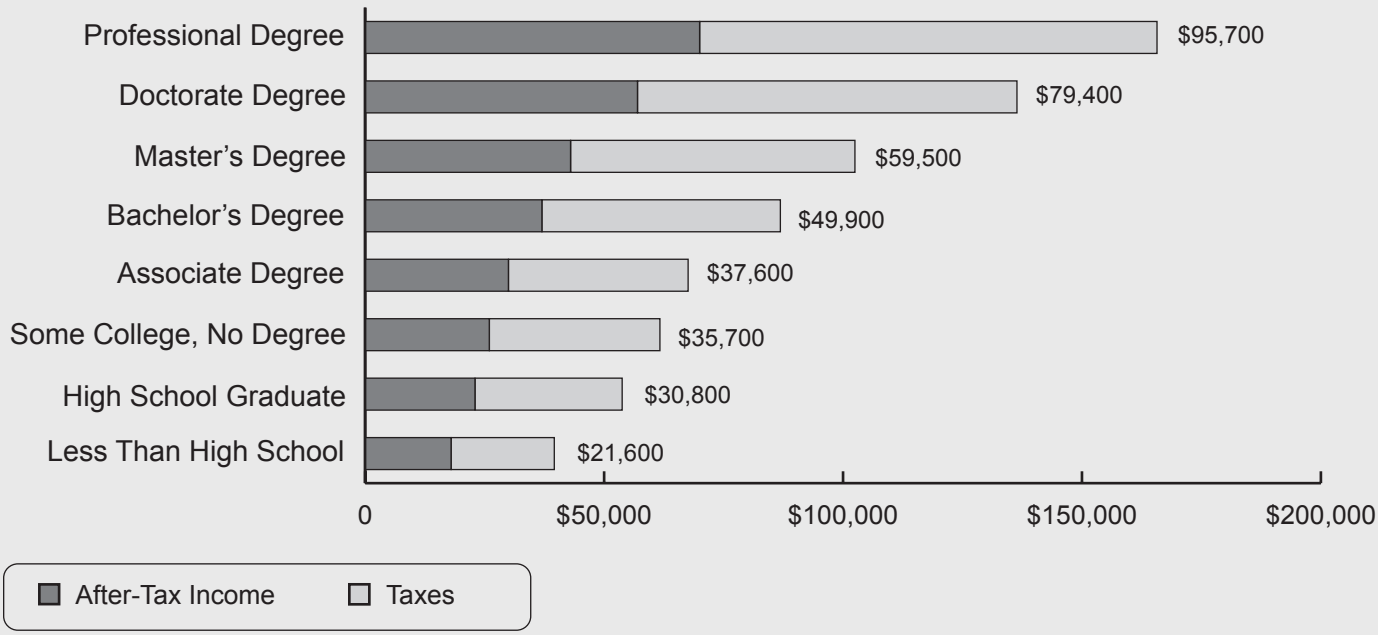
Notes: Based on median 2003 earnings for high school graduates and college graduates at each age and discounted using a 5 percent rate. Earnings for B.A. recipients include only those with no advanced degree.
Source: U.S. Census Bureau, 2004-PINC-03, PINC-04 Annual Social and Economic Supplement, Current Population Reports; The College Board. *Trends in College Pricing, 2003;* S. Baum and K. Payea, *Education Pays, 2004,* p.12.

The higher incomes of college graduates generate more tax revenues for federal, state and local governments.

- The typical high school graduate paid taxes of about $6,700 on an income of $30,800 in 2003. The average associate degree recipient earned about $6,800 more and paid $900 of this premium in additional taxes to federal, state and local governments.
- College graduates earned, on average $19,100 more than high school graduates. About 27% of this earnings premium was paid in taxes, increasing public resources rather than private consumption opportunities.

Median Earnings and Tax Payments

2003, by educational attainment



Notes: Tax payments are based on 2002 tax rates and do not incorporate the 2003 federal income tax reductions.
Source: U.S. Census Bureau, 2004, PINC-03, Annual Social and Economic Supplement, Current Population Reports;
Internal Revenue Service, 2003, Table 3; R. McIntyre, et al, Who Pays? 2003; S. Baum and K Payea, Education Pays 2004, p. 10.

Government expenditures on social programs are significantly lower for college graduates than for others.

- Every dollar spent on equalizing college entrance rates across racial/ethnic groups would yield more than $1.00 in savings on social programs.

Annual Savings on Social Programs from Increased Education:

Savings for 30-Year-Old Men and Women Relative to High School Dropouts,
2003 Dollars; Native-born men and women

Notes: Social programs include unemployment compensation, Medicare and Medicaid, food programs, welfare, criminal justice, and other social programs.
Source: G. Vernez, R.A. Krop and C.P. Rydell, Closing the Education Gap, 1999; S. Baum and K. Payea, Education Pays, 2004, p. 25.

Higher levels of education in the workforce lead to greater productivity and higher wages for all workers.

- Highly educated workers have a positive impact on the productivity of others in the same workforce, generating higher wages for all workers in the area. When there are more college graduates, wages rise most for workers with the lowest levels of education.
- In addition to contributing disproportionately to innovation and technological progress, educated workers may share knowledge and skills with others. (See Enrico Moretti, 2004)
- Higher concentrations of college graduates have a positive impact on the rate of growth of the economy. (See Fatima and Paulsen, 2004).

Conclusion

People who earn college degrees generally enjoy a higher standard of living than similar individuals who do not continue their education after high school. The average earnings premium to a college education is high enough to assure a significant return to the investment in education. This earnings premium has been increasing over time, even as the percentage of the population holding college degrees has risen. But it is not only students who are better off as a result of this investment. An educated population generates significant positive spillovers, increasing the economic well-being of society as a whole. Higher levels of participation in college lead to increased productivity and growth, higher levels of wages throughout the economy, increased tax revenues, and reduced public expenditures on social support programs.

References

- Ashenfelter, Orley et al (1999). "A Review of Estimates of the Schooling/Earnings Relationship with Tests for Publication Bias." *Labor Economics.* 6:453-70.
- Baum, Sandy and Kathleen Payea (2004). *Education Pays: The Benefits of Higher Education for Individuals and Society*. New York: The College Board. http://www.collegeboard.com/prod_downloads/press/cost04/EducationPays2004.pdf.
- Card, David (1999). "The causal Effect of education on Earnings." O. Ashenfelter and D. Card, eds. *Handbook of Labor Ecoomics.* Vol; 3A. New York: Elsevier Science.
- Day, G.C. and Newburger, E.C. (2002). *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*. P23-210. Current Population Reports. Washington, DC: U.S. Census Bureau. http://www.census.gov/prod/2002pubs/p23-210.pdf.
- Deschenes, O. (2001). "Unobserved Ability, Comparative Advantage, and the Rising Return to Education in the United States, 1979-2000." U.C. Santa Barbara Working Paper #1043.
- Fatima, Nasrin and Michael Paulsen (2004). "Higher Education and State Workforce Productivity in the 1990s." *Thought and Action: The NEA Higher Education Journal.* Summer. http://www2.nea.org/he/heta04/s04p75.pdf.
- Internal Revenue Service (2003). *Statistics of Income 2000-2002.* http://www.irs.ustreas.gov/pub/irs-soi/02in03at.xls
- McIntyre, Robert, et al (2003). *Who Pays? A Distributional Analysis of the Tax Systems of All Fifty States.* Second Edition. Washington: Institute on Taxation and Economic Policy. www.itepnet.org/wp2000.text.pdf.
- Moretti, Enrico (2004). "Estimating the Social Return to Higher Education: Evidence from Longitudinal and Repeated Cross-Sectional Data." *Journal of Econometrics.* 121: 175-212.
- National Center for Education Statistics (2004). *The Condition of Education.* http://nces.ed.gov/programs/coe/
- U.S. Census Bureau (2004). *Annual Social ad Economic Supplement.* Current Population Reports. http://ferret.bls.census.gov/macro/032004/perinc/toc.htm.
- Vernez, G., R.A. Krop and C.P. Rydell (1999). *Closing the Education Gap.* Santa Monica, CA: RAND Corporation. http://www.rand.org/publications/MR/MR1036.