

How Taxpayers Benefit When Students Attain Higher Levels of Education

RAND RESEARCH AREAS
 CHILDREN AND FAMILIES
 EDUCATION AND THE ARTS
 ENERGY AND ENVIRONMENT
 HEALTH AND HEALTH CARE
 INFRASTRUCTURE AND TRANSPORTATION
 INTERNATIONAL AFFAIRS
 LAW AND BUSINESS
 NATIONAL SECURITY
 POPULATION AND AGING
 PUBLIC SAFETY
 SCIENCE AND TECHNOLOGY
 TERRORISM AND HOMELAND SECURITY

Meeting the educational demands of the future will be expensive; however, in most states, public schools from kindergarten through the university level already experience budgetary challenges. Policy-makers in many states face the challenge of motivating taxpayers to provide the funds required to meet mounting educational needs. Taxpayers who do not have children in public school may question why they should contribute to the support of public education or why those who stand to benefit the most—the students—should not pay more for their education.

To address these issues, RAND researchers examined the value that taxpayers receive as a result of increases in students’ levels of education. Using statistical modeling methods and data from a nationally representative sample of individuals included in the 2002 Survey of Income and Program Participation, they analyzed how increases in an individual’s educational attainment are associated with tax revenues, expenditures and revenues for social support and insurance programs, and spending for prisons and jails. The researchers examined four levels of educational attainment: some high school, high school graduation, some college, and college graduation. They found that an increase in a student’s educational attainment—for example, completing high school rather than dropping out—is associated with substantial value for taxpayers over time.

The results of this study could serve as a starting point for a subsequent cost-benefit analysis of specific programs or policies that would induce students to complete more school. While the results describe how the public budget benefits when a single student attains a higher level of education, a more complex analysis would be required to draw broader conclusions about the benefits to taxpayers from specific invest-

Abstract

RAND researchers examined how taxpayers benefit from increases in students’ educational attainment. Using statistical modeling and national data, they analyzed how increases in educational attainment are associated with tax revenues, funds for social support and insurance programs, and spending on incarceration. The researchers found that, for all racial/ethnic groups, an increase in a student’s educational attainment—for example, completing high school rather than dropping out—is associated with substantial value for taxpayers over time.

ments in educational programs or policies to raise attainment among groups of students. However, this study demonstrates that there is a value to taxpayers from programs or policies that result in greater educational attainment, even if the taxpayers do not have children in public school.

More Highly Educated People Contribute More in Taxes

Greater educational attainment increases the likelihood that an individual will be employed and raises the level of his or her wages when employed. Although researchers cannot estimate the causal relationship precisely, the available evidence indicates that more education is associated with at least 7 to 10 percent higher earnings per additional year of schooling among those who are employed. The higher earnings realized by more highly educated people result in higher tax payments and higher payments to social support and insurance programs, such as Social Security and Medicare.

The RAND researchers modeled tax and social support and insurance payments as a function

This product is part of the RAND Corporation research brief series. RAND research briefs present policy-oriented summaries of published, peer-reviewed documents.

Headquarters Campus
 1776 Main Street
 P.O. Box 2138
 Santa Monica, California
 90407-2138
 TEL 310.393.0411
 FAX 310.393.4818

© RAND 2009

of education level, age, and demographic characteristics, and they found that, for every population group, increases in an individual's education level were associated with substantial increases in payments into social support and insurance programs. Graduating from college rather than ending schooling with some college was associated with the largest increase in tax payments, followed by obtaining a high school diploma rather than dropping out of high school. The difference between the tax payments made by a person with a high school diploma and a similar person with some college was smaller, but still substantial. The figure shows, by race/ethnic group, the estimated value, in 2002 dollars, of the additional tax payments a native-born man would pay over his lifetime, on average, if he increased his education level as compared with dropping out of high school.

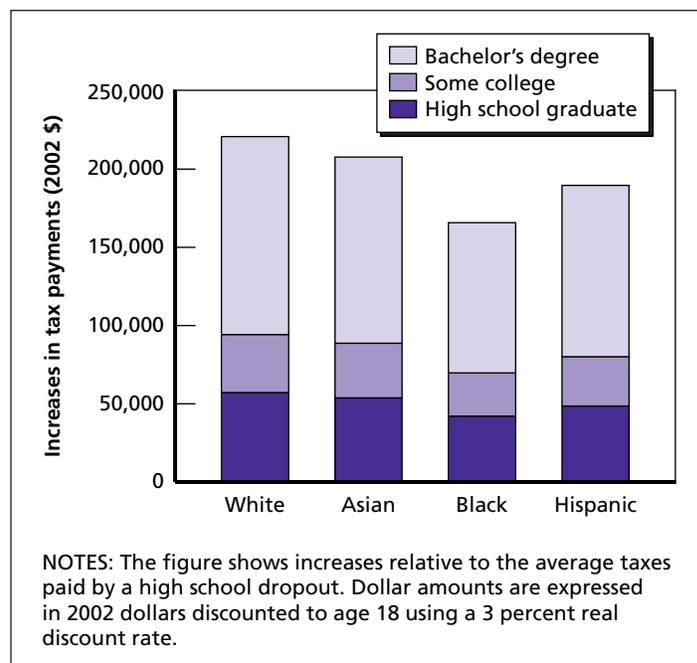
To address the possibility that the analysis might be overstating the relationship between education level and tax payments, the RAND researchers also repeated the analysis while reducing the estimated effect by 25 percent. They found that the value to taxpayers from an increase in education from one level to the next would still be positive, but only two-thirds as large as the original estimate, if the effects of education on public revenues and costs were 25 percent smaller than their original estimates.

Those with More Education Draw Less from Social Support Programs

Because an increase in educational attainment is associated with a higher likelihood of employment and higher wages for an individual when employed, it is also associated with a lower likelihood that the individual will draw on social support programs, such as Temporary Assistance for Needy Families, Unemployment Insurance, housing subsidies, the Supplemental Nutrition Assistance Program (food stamps), and Medicaid. The higher earnings resulting from greater educational attainment also reduce the amount that a more highly educated person is likely to collect when he or she does participate in most social support programs, with the exceptions of Unemployment Insurance and Social Security. These reductions in the costs of social support programs represent a value to taxpayers, who would otherwise have to fund the programs at a higher level. The RAND researchers found that the greatest reductions in spending on social support programs were associated with an individual graduating from high school rather than dropping out.

Again, to address the possibility that the analysis might be overstating the relationship between education and the amount that a person is likely to collect from social support programs, the researchers repeated the analysis while reducing the estimated effect by 25 percent. They found that

Lifetime Increases in Tax Payments Resulting from Increased Education, U.S.-Born Men



even with this reduction in the estimated effects, the lowest estimate of the lifetime savings on social support program spending was about \$15,000 for white, U.S.-born men.

More Highly Educated People Are Less Likely to Incur Incarceration Costs

Although the direct causal relationship is difficult to measure, there is a good deal of evidence that more education is associated with a lower likelihood of criminal activity. Therefore, increases in educational attainment are also associated with a reduced likelihood of an individual becoming incarcerated. Reductions in the size of the prison and jail population decrease the costs of operating and maintaining correctional facilities and thereby reduce demands on the public budget. Focusing on the savings that would be achieved on spending for state prisons and county and municipal jails, the researchers found that increases in educational attainment are associated with the greatest savings in incarceration costs among those who graduate from high school rather than dropping out. The savings to the public budget would be less from those who have some college education rather than just a high school diploma, and relatively little from those who graduated from college with a degree. When the researchers repeated the analysis while reducing the estimated effects by 25 percent, the estimated savings were proportionally lower.

Raising Students' Levels of Education Yields Net Benefits to the Public Budget

To estimate the net benefits to taxpayers of increased educational attainment, the researchers calculated the sum of the increases in public revenues from higher tax contributions and the reductions in spending on social support and incarceration, minus the cost of providing the additional education. For the 2001–2002 school year, the costs to taxpayers per student in a public educational institution were about \$7,700 for K–12, \$7,600 for community college, and \$10,000 for a four-year college or university. (These amounts reflect the then-current operating costs, but not the costs of any programs that might have encouraged students to continue their education to these levels.)

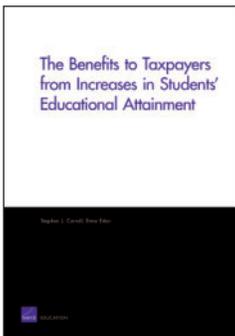
For example, on average, increasing a U.S.-born white male's educational attainment from some high school to high school graduation would be associated with increased tax payments over his lifetime equal to \$54,000 (all figures in this paragraph are in 2002 present-value dollars). The increase in his educational level would also be associated with reduced future demands on social support programs and reduced future incarceration costs equal to about \$22,000 and \$13,000, respectively. Thus, the average total value associated with increasing this individual's educational level from

some high school to high school graduation would equal about \$89,000. Providing the additional education would cost about \$15,000, so the net value to taxpayers would be about \$74,000. Even if the estimated effects are reduced by 25 percent, the estimated savings for this individual would be about \$51,000.

The magnitude of the observed effects were similar for other groups. Therefore, regardless of a student's gender or race/ethnicity, raising the level of education he or she attains is associated with benefits for the public budget.

Policy Implications

While these estimates are subject to the inherent uncertainties of any estimate of future trends, the results of this study show that there is a value to taxpayers when students attain higher levels of education. Therefore, policies and programs that succeed in leading students to increase their educational attainment at least to high school graduation may yield long-term and substantial value to taxpayers and for society at large, in addition to the financial and other benefits for the individuals whose educational attainment is increased. Policy-makers should consider these potential benefits in assessing the importance of finding, funding, and implementing programs aimed at increasing educational attainment. ■



This research brief describes work done for RAND Education documented in *The Benefits to Taxpayers from Increases in Students' Educational Attainment*, by Stephen J. Carroll and Emre Erkut, MG-686-WFHF, 2009, 142 pp., \$30.00, ISBN: 978-0-8330-4742-7, (available at <http://www.rand.org/pubs/monographs/MG686/>). This research brief was written by Jennifer Li. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

RAND Offices

Santa Monica, CA • Washington, DC • Pittsburgh, PA • New Orleans, LA/Jackson, MS • Boston, MA • Doha, QA • Cambridge, UK • Brussels, BE



EDUCATION

THE ARTS
CHILD POLICY
CIVIL JUSTICE
EDUCATION
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INTERNATIONAL AFFAIRS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
SUBSTANCE ABUSE
TERRORISM AND
HOMELAND SECURITY
TRANSPORTATION AND
INFRASTRUCTURE
WORKFORCE AND WORKPLACE

This PDF document was made available from www.rand.org as a public service of the RAND Corporation.

This product is part of the RAND Corporation research brief series. RAND research briefs present policy-oriented summaries of individual published, peer-reviewed documents or of a body of published work.

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

Support RAND

[Browse Books & Publications](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore [RAND Education](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND PDFs to a non-RAND Web site is prohibited. RAND PDFs are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).