

An Economic Perspective on the Financial Impact on Society of Educational Attainment

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We know that there are benefits to the individual that completes their high school diploma vs. the individual that does not, and we know that those benefits are even greater for those individuals attaining postsecondary education (associates certificates and 4-year and advanced degrees). But in addition to the benefits to the individual, we also believe that increased educational attainment provides a tremendous value to society as a whole. We became interested in quantifying this value, or at least estimating it, as a means to understand the ROI (Return on Investment) of our Foundation's grants to various educational programs in the Twin Cities. In order to estimate the value of these programs, we complete an analysis that includes the assessment of the impact of the program, not only on the individual, but also on society as a whole.

The first step in this process is to define the financial value to society of increased educational attainment.

The table below from the Institute of Higher Education Policy categorizes the impact on individuals as well as the ripple effect on society of increasing the level of education attainment. The table breaks the benefits into "Public" and "Private" benefits as well as "Economic" and "Social" benefits. The "Social" benefits increase the quality of life of our society and of the individual, and we believe they also provide an economic stimulus, for example, in the decreased cost to society of reduced crime rates.

	Public	Private
Economic	<ul style="list-style-type: none">- Increased Tax Revenues- Greater Productivity- Increased Consumption- Increased Workforce Flexibility- Decreased Reliance on Government Financial Support	<ul style="list-style-type: none">- Higher Salaries and Benefits- Employment- Higher Savings Levels- Improved Working Conditions- Personal/Professional Mobility
Social	<ul style="list-style-type: none">- Reduced Crime Rates- Increased Charitable Giving/Community Service- Increased Quality of Civic Life- Social Cohesion/Appreciation of Diversity- Improved Ability to Adapt and Use Technology	<ul style="list-style-type: none">- Improved Health/Life expectancy- Improved Quality of Life for Offspring- Better Consumer Decision Making- Increased Personal Status- More Hobbies and Leisure Activities

Source: Institute of Higher Education Policy

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The Economic Value to Society of Educational Completion:

Our analysis attempts to quantify the financial value of the “Public,” “Economic,” and “Social” impacts of educational attainment. Each level of attainment increases the value delivered to the individual and to society. On average, high school graduates attain greater benefits than high school dropouts. People earning associates degrees and 2-year certificates attain even greater benefits, and 4-year and advanced degrees deliver proportionately more. For the sake of this analysis, we look at the average incremental financial value to society per person completing a high school diploma vs. a high school dropout and the value per person completing a 4-year college degree.

According to a recent report from the US Census Bureau, a person with a high school diploma earns about \$300,000 more over their lifetime than a high school dropout, and a person with a 4-year college degree earns about \$1,000,000 more over their lifetime. In addition to the value to the individual, we believe that the value to society is at least \$350,000 more per high school diploma over their lifetime, and at least \$1.6 million for a college degree. The components of these financial values are listed below.

- Increase Lifetime Personal Tax Revenues –\$100,000 more for a diploma and \$600,000 for a degree: Increased taxes are one of the more obvious and quantifiable areas of financial impact. The incremental income tax alone on lifetime earnings will deliver at least \$50,000 more to federal, state, and local governments for a high school graduate and on average about \$300,000 per college graduate. In addition, people with greater incomes will pay more sales tax, property tax, and taxes on investment income which will dramatically increase the total amount of taxes paid over their working lives, and even through their retired lives. We estimate that these additional taxes will provide at least another \$50,000 over the lifetime of high school graduates and at least \$300,000 over the lifetime of college graduates. So, our estimate of the average total incremental taxes paid by a person with a diploma over a high school dropout is at least \$100,000, and the lifetime value in taxes of per person achieving a higher education will be at least \$600,000.
- Value of Contribution to GDP Growth – at least \$50,000 for a diploma and \$600,000 for a degree: Over the last 40 years, our nation’s GDP grew from less than \$1 trillion to around \$14 trillion per year which is almost triple the rate of inflation (US Department of Commerce). According to a 2008 study by the Council of Economic Advisors to the White House, a large portion of that GDP growth is attributable to people in the US with higher education. Since total tax collections are between 25% and 30% of GDP (US Dept. of Commerce), this GDP growth resulted in incremental tax revenues of about \$30 trillion over the last 40 years (including the discount for inflation).

To quantify the impact per person, we assume that 75% of tax revenue from GDP growth is attributable to the US labor force with higher education, and 20% to those with a diploma. We attain a lifetime value estimate by dividing the incremental tax revenue due to GDP growth by the average number in the labor force with each level of education (provided by the US Bureau of Labor Statistics and US Census). These calculations yield a value of \$50,000 per person with a high school diploma and around \$600,000 per person with a college degree. We believe this estimate is conservative as it only considers incremental tax revenue due to GDP growth and not other beneficial results to the economy such as job creation, increased consumption, and increased employment due to workforce flexibility.

- Reduced Crime Rates – around \$150,000 per high school diploma and \$300,000 per college degree:
The annual cost of crime in the US is estimated to be \$1.7 trillion (Economic Policy Institute), and the cost of fighting crime is estimated to be another \$600 billion (\$2.3 trillion total). Dividing the total cost of crime by the population of the US yields an average cost per capita of about \$7700 per year. It is difficult to quantify the value of education completion in terms of reducing the cost of crime, but we offer an approach. Since around half of US inmates do not have a high school diploma, and the vast majority do not have higher education, we will assume that 50% of the per capita cost of crime is attributable to people without diplomas (\$3850 per capita), 48% of the cost of crime is attributable to people with a diploma but without higher education (\$3700 per capita) and 2% is attributable to people with higher education (\$150 per capita). The difference between these costs, results in a 40 year cost difference of around \$150,000 per diploma and \$300,000 per degree. We believe this estimate to be reasonable based on the cost per crime in the US, which is roughly \$176,000 per crime committed (US Bureau of Justice Statistics).
- Decreased Reliance on Social Services – around \$50,000 for a diploma and \$100,000 for a degree:
The US budget for health and social services is \$737 Billion for 2009 (US Dept of Health and Human Services). This budget is about \$2460 per capita in the US. We use similar assumptions as with crime to quantify to value of higher education, 50% consumption by people without a high school education, 48% of people with a diploma but no high school education, and 2% to those with a college degree or certificate. The difference between these costs is an average of about \$50,000 over 40 years for a person with a diploma and \$100,000 per person over 40 years for a person with higher education. Again, we feel this number is conservative in that it only looks at the reduced burden on the government cost of human services and does not include the value of the improved health and life expectancy.

Adding these categories brings our estimate of the incremental value to society per person for education completion to at least \$350,000 for a high school diploma over the life of the person and \$1.6 million for a college degree or certificate.

Return on Investment of Educational Program:

The next step of our ROI analysis includes assessing the cost of an educational program per person it services and its impact on increasing the likelihood of educational attainment. Then, we can determine the ROI based on the value to society of the increase in attainment.

Example, the cost of a tutoring program: For programs in the Tutoring Partnership for Academic Excellence, the average incremental cost per student of a partner is approximately \$750 per year. Students typically are in these programs for approximately 3 years, which is a total cost of \$2250.

The Impact on Educational Attainment: Our assessment shows that students receiving tutoring from a partner program are more than twice as likely to pass their core classes and show a 20% increase in MCA test score growth than their demographic peers who are not receiving tutoring. A conservative estimate is that the graduation rate for students receiving these services will increase by 25%. In other words, today, only 50 out of 100 from lower income families are likely to earn a diploma, but we estimate that 75 out of 100 students from similar backgrounds who received tutoring will graduate high school. Since about 25 more students out of 100 will succeed in high school with tutoring, we presume an efficiency ratio of 50% for the program.

The Return on Investment of Tutoring: To consider the return on investment, we multiply this efficiency ratio by the average financial impact to society of a high school diploma. Multiplying the ratio (25%) by the incremental value of a diploma (\$350,000) yields a return on investment per student of \$87,500 over the life of the student. An investment of \$2250 per student for tutoring over 3 years can yield up to \$87,500 in return of incremental economic value to society. This return represents about a 3800% ROI in today's dollars. This return is even greater when you consider that at least some of the students will go on to attain postsecondary education as well.

Final Analysis

Education is the great equalizer in our society, and high school diplomas and especially postsecondary attainment can have a transformative effect on a person's ability to break the cycle of poverty. On the merits of social justice alone, we find educational programs to be a most worthy investment as a means to support the individual.

However, when you also consider the financial impact of effective educational programs on society as a whole, we find them to be a compelling investment. We realize that our analysis is cursory and presumptive, but we believe it to be directionally correct. Helping lower-income and underserved populations attain higher education, at relatively low costs of investment, is highly valuable to our society.