

# Analyzing the Social Return on Investment in Youth Mentoring Programs

*A framework for Minnesota*

M A R C H 2 0 0 7

# Analyzing the Social Return on Investment in Youth Mentoring Programs

*A framework for Minnesota*

March 2007

**Prepared by:**

Paul A. Anton, Wilder Research  
Prof. Judy Temple, University of Minnesota

Wilder Research  
1295 Bandana Boulevard North, Suite 210  
Saint Paul, Minnesota 55108  
651-647-4600  
[www.wilder.org](http://www.wilder.org)

# Contents

Executive summary.....	1
Introduction.....	3
Purposes .....	3
Mentoring programs.....	3
Previous studies .....	5
An SROI framework for mentoring programs.....	8
Perceived or likely benefits.....	8
Measuring benefits.....	9
Measuring costs .....	15
Summarizing results.....	16
An illustrative example .....	17
Example: An intensive mentoring program.....	17
Recommended data collection and future studies.....	20
Near-term data collection.....	20
Long-term data collection.....	21
References.....	23

# Figures

1. Costs relevant to juvenile commission of property crimes .....	11
2. Benefits per student of a one point increase in GPA (present value in 2005\$) .....	14
3. Social return on investment: a representative youth mentoring program (benefits and costs per participant, stated in 2005\$).....	18

# Acknowledgments

This study was commissioned by the Mentoring Partnership of Minnesota.

The study received funding from the following organizations:

The Mentoring Partnership of Minnesota, Center for 4-H & Community Youth Development of the University of Minnesota Extension, The Curtis L. Carlson Family Foundation, and IWCO Direct.



**MENTORING  
PARTNERSHIP**  
OF  
MINNESOTA

This study was done at the same time as a companion study of youth intervention programs. The studies share a common methodological framework.

Principal thanks must go to Joellen Gonder-Spacek, Executive Director of the Mentoring Partnership of Minnesota for her role in envisioning this research and in making it a reality. Polly Roach, Vice-President of Strategic Services provided invaluable help in describing individual programs and putting us in touch with program leaders for interviews.

We also wish to thank Dale A. Blyth, Associate Dean of the Extension Division of the University of Minnesota for his role in promoting and shaping the research agenda that eventually led to this study and its companion.

Finally, thanks go to Brent J. Bolstrom, then a graduate research assistant at the Center for 4-H & Community Youth Development of the University of Minnesota Extension, both for his survey work on social return on investment quoted in this study and for supplying us with a database on youth programs that he had compiled.

\*Copies of this report are brought to you by the Center for 4-H & Community Youth Development's Applied Research Collaborative on Youth Development of the University of Minnesota Extension. The Applied Research Collaborative is a network of researchers, evaluators and youth professionals dedicated to stimulating, guiding and conducting applied research and bridging research with practice, program and policy.

*This Study Proudly Sponsored By:*



CARLSON



# Executive summary

Youth mentoring programs perform an increasingly vital function by bringing children and youth into contact with committed, caring adults in order to build attitudes and skills that will help them be productive and fulfilled citizens. This study puts forward a framework for quantifying the value of the benefits of youth mentoring programs and comparing them to program costs in order to calculate the social return-on-investment (SROI) of such programs.

## *Major findings*

- Many organizations in Minnesota offer a spectrum of youth mentoring services, both in the Twin Cities Metropolitan area and in Greater Minnesota.
- While there may be broad, and perhaps increasing, recognition of the value of youth mentoring programs, there have been only limited attempts to analyze that value in economic terms.
- Based on our study of mentoring programs in Minnesota, it is clear that such programs can produce some or all of the following direct benefits whose values can (in principle) be quantified:
  - Improved school attendance and performance – leading to increased graduation rates, increased post-secondary education, and higher lifetime earnings;
  - Reduced truancy – resulting in reduced school costs and, ultimately, reduced high school dropouts and increased lifetime earnings;
  - Improved health outcomes – including reductions in teen pregnancy, reduced or delayed use of tobacco, alcohol, or illicit drugs;
  - Reduced juvenile crime (both violence and property crimes) – saving victim costs, court costs, and costly treatment of juvenile offenders;
  - Reduced costs of adult crime – both the crime losses of victims and the societal costs of prosecuting and incarcerating adult offenders;
  - Reduced needs for social services – both near-term costs of counseling and long-term costs of public assistance;

- This paper explains a framework for comparing the dollar value of costs and benefits of youth mentoring programs in Minnesota. This framework can be used to calculate the social return-on-investment (SROI) of such programs.
- The formal application of this framework to estimate the SROI of a particular program would require either data from a complete, scientific program evaluation that included an unmentored control group or, at a minimum, detailed contemporaneous and follow-up data on program participants that could be compared to norms for youth of similar age and background.
- The applied practice of valuing the benefits of youth programs (when sufficient outcomes data is available) is a rapidly evolving field of inquiry. More and more of these potential benefits can be included in analyses as SROI analysis becomes more widespread and as necessary data becomes available.
- Based on very limited outcomes data available for Minnesota youth programs, the results of a few national program evaluations, and conservative assumptions in line with the experience of Minnesota youth programs, we provide an SROI analysis of a fictional composite representative mentoring program. We estimate that:
  - **Based on conservative assumptions about outcomes and valuations, our representative program returns benefits of \$2.72 for every dollar of resources used.**
  - **The program returns \$2.08 for every dollar of cost if the value of mentors' time is excluded from the estimated benefits.**
  - **The program returns \$1.87 of public benefits (public cost savings and increased tax revenues) for every dollar actually spent on the program.**
- The actual returns for a particular program would depend on the outcomes and expenses of that particular program. We believe that returns in the example presented here fairly represent the returns that are achievable for well-run, effective mentoring programs. In some cases, it is certainly possible that returns could be higher than these examples, especially when a program deals with very high-risk populations.
- To produce more accurate and detailed analyses of individual programs, more detailed data on program participants will need to be kept in order to measure and document juvenile and adult outcomes more precisely. This data collection could include an intermediate-term (5- to 10-year) longitudinal study of participants and similar youth who do not participate in mentoring programs.

# Introduction

This study puts forward a method for analyzing the Social Return on Investment (SROI) of youth mentoring programs in Minnesota. In doing so, it applies the tools of economics, more specifically benefit-cost analysis, to delineate and compare the societal benefits of youth mentoring programs to the cost of operating those programs.

## *Purposes*

The purposes of this study are threefold:

- To explain how SROI analysis of mentoring programs in Minnesota can be done;
- To provide illustrative examples using conservative, yet realistic, estimates of outcomes and costs to give a good understanding of the SROI that is achievable in such programs; and
- To recommend additional data collection and retention strategies that can enable individual programs to provide more detailed specific calculations of their SROI in the future.

## *Mentoring programs*

Mentoring is the time-honored activity of providing adult guidance and friendship to children and youth. Research and experience both support the positive effects of a caring adult on a young person's life. Formal mentoring programs seek to recruit and train interested adults and place them in committed relationships with young people who could benefit from a mentor. These programs are especially needed in cases where a child does not have the informal mentoring help of a relative, neighbor, teacher or coach.

While mentoring programs have a common thread of helping get prepare children and youth for later life, the emphasis and typical activities may vary a great deal from program to program. In particular, there are at least three different types of programs that differ in their focus:

- *Community-based programs* are more likely to encourage engagement in cultural and social activities and may coordinate with a child's family or guardian.
- *School-based programs* are likely to have a greater focus on academic attendance and achievement, oftentimes working closely with teachers to improve school success.



- *Faith-based programs* sponsored by a religious organization will often include closer contact with a faith leader to affect social and spiritual outcomes.

Not only are there different types of sponsors, the actual format of mentoring may differ dramatically between programs. Here are the main recognized types of mentoring experiences.

- *One to One*: This is the traditional format where one adult and one child are paired together to build a relationship. This is the format used in the Big Brothers Big Sister program, for instance.
- *Team mentoring*: This style involves a team of two or more people working with a young person or group of young people.
- *Group mentoring*: Group mentoring includes programs where a single individual works with a group of young people. Scouting programs fit this model.
- *Family mentoring* can mean two different things:
  - In some instances, a whole family mentors an individual young person. Kinship of Greater Minneapolis uses such a model.
  - In other cases, the term applies to situations where a single individual acts as mentor to an entire family that includes young people. The Salvation Army's Project Breakthrough is one such program.

Mentoring relationships also vary by the length of commitment by both parties.

- Short-term programs require a commitment of less than a year. Mentors and mentees may work on a well-defined problem or limited time duration or may only be able to commit for a shorter period of time. For example, school-based programs often operate only during the school year.
- Long-term mentoring programs are those that last a year or longer. These programs are usually deemed to have the most lasting effects on young people and, in some cases, lead to the formation of attachments that continue for many years after the formal program may have ended.

# Previous studies

In 2005 and 2006, Brent J. Bolstrom of the University of Minnesota Extension's Center for 4-H Community Youth Development conducted a literature review that focused on the analysis of mentoring programs and other youth programs (see Bolstrom [2006]). We relied on that review and did additional searches for SROI analyses of programs that might be relevant to our task in this paper.

Bolstrom points out that while there have been many evaluations of the effectiveness of different youth programs, actual SROI analyses that attempt to measure the value and compare the costs and benefits of programs are quite rare. This situation is quite likely to change as more funders and agencies see the value of such analyses, but, at the time of his study, Bolstrom could only find four SROI studies of relevant youth-related programs, though one study was quite extensive.

The ability to produce precise estimates of the costs and benefits of particular programs is hampered by the lack of thorough, rigorous evaluations of the programs that provide enough raw data, especially data from the participants' later lives, to confidently estimate the impact of specific programs on their participants. As a result, various approximations were made in all of the papers cited by Bolstrom.

In one report produced for The After School Corporation, (Levine and Zimmerman (2003), two economists did a benefit-cost analysis of after school programs based on secondary analysis of the available research. While stressing the preliminary nature of their results, they produced what they deemed a conservative estimate of \$3.19 of benefit for every dollar of program cost. The most important benefits they cited were reduction in crimes committed by teens and increased high school graduation rates.

A second study (Newman, Smith and Murphy [1999]), examined cost figures from a number of youth programs (including Big Brothers/Big Sisters, Boys and Girls Clubs, and Girl Scouts of America) to estimate rough costs of these programs. Those costs were then compared with the benefits of increased high school completion by participants to arrive at an estimate of \$10.51 of benefit for every dollar of program cost. However, their assumed effect on graduation rates is larger than that used by Levine and Zimmerman and may, in fact, overstate the impact of the programs somewhat.

A third study of the Big Brothers Big Sisters (BBBS) program by Clive Belfield of Columbia University did not include a conventional benefit-cost ratio. Belfield does use outcomes data from evaluations of the BBBS program to estimate separate benefits for

reduced drug use, reduced truancy, and reduced crime which, if added together, indicate benefits of over four dollars for every dollar of program cost.

This fourth study cited by Bolstrom is a careful and detailed analysis of a variety of different types of youth programs. It was conducted by the Washington State Institute for Public Policy, (WSIPP) (see Aos et al, 2003), to provide state policymakers with background on over 60 different programs so that available dollars could be directed to those that offered the best return. The programs ran the entire gamut from pre-kindergarten education programs and child welfare programs to substance abuse prevention, teen pregnancy prevention, and juvenile offender programs. In many cases, the programs studied by WSIPP were programs that implemented a particular treatment protocol, often a national model that was being applied somewhere in Washington state.

To estimate the effects of youth programs they evaluated, economists at the Institute performed meta-analyses of available studies of the programs themselves or studies of similar programs in other states to infer likely impacts of particular programs. This approach is the best available to researchers where a formal evaluation of a particular program has not been made and outcomes data on the specific program are not available.

Of the programs studied by WSIPP, two were classified as mentoring programs. The first program was Big Brothers Big Sisters, a well-known national program of intensive one-on-one mentoring for children between the ages of 5 and 18 living in one-parent families. Using outcomes data from a national evaluation of the program (see Grossman and Tierney, 1998), WSIPP calculated that the program produced \$1.01 for every dollar of identified cost. The costs analyzed included the estimated value of the time donated by volunteer mentors among other non-cash items. WSIPP also compared the total benefits of the program to the public cash costs and found \$3.28 of benefit for every dollar spent.

The second program classified as a mentoring program in the WSIPP study was the Quantum Opportunities Program. QOP is not a pure mentoring program like those we are considering here. Rather, it is an intensive program designed to serve disadvantaged high school students by providing an array of services and support in the form of a cash stipend over four years of high school. Mentoring was only one component of the services provided. WSIPP estimated that the program produced \$10,900 of benefit per student but at a cost of over \$25,000 per student. Thus, although it produced two and a half times the per student benefit of Big Brothers Big Sisters, it did so at a much higher cost. Not only did the program provide stipends to participants who stayed in the program, it also included funds for college in some cases.

It should be noted that the rigorous protocol of WSIPP only includes non-zero estimates of benefits in a given category of potential benefit if sufficiently rigorous evaluations can

be found which show statistically significant impacts. So WSIPP is very careful not to ascribe any benefits until they can be conclusively documented. So the estimates cited above should be considered conservative.

There have been no SROI analyses of youth mentoring programs in Minnesota to date, according to Bolstrom's literature search and our own efforts. But there have been a few detailed evaluations of some programs where sufficient outcomes data have been collected to facilitate such analysis. In particular, there have been several evaluations of the effects of the Mentor Duluth program operated by the YMCA in that city (see Persons, 2003, Sullivan, 2004, and Moyer, 2006). The program has done periodic surveys with students and parents and has sought some school achievement information and graduate students at the University of Minnesota, Duluth, have analyzed the data in a series of Plan B papers. These analyses did not include an SROI analysis but do provide examples of the types of evaluations that will help to facilitate such analyses in the future.

In the next section, we go on to describe how analyses of youth mentoring programs in Minnesota can be done.

# An SROI framework for mentoring programs

To build a practical SROI framework for analyzing youth mentoring programs, we need to first enumerate the list of perceived or likely benefits produced by the programs. Then we analyze existing research to see which of those outcomes can be valued with sufficient precision to be included in the benefits calculation. Then we measure the actual costs of operating the programs. Finally, we compare the estimated value of the benefits with the costs of the program.

## *Perceived or likely benefits*

To compile a list of possible benefits of youth mentoring programs, we studied written descriptions and materials from representative programs, examined printed materials and program evaluations where they existed, and interviewed administrators of several mentoring programs. From that information, we compiled a list of potential benefits of mentoring programs. The list includes:

- Improved school attendance and performance
  - Increased school graduation rates
  - Lowered school costs (less grade retention, lowered truancy)
- Reduced crime (both juvenile crime and adult crime)
  - Reduced administrative costs of arrest and conviction
  - Reduced costs of treatment and/or incarceration
  - Reduced costs of post-treatment probation
  - Reduced losses by crime victims
  - Reduced risk of crime
- Reduced need for social services
  - Reduced near-term cost of family counseling and services
  - Reduced long-term cost of public assistance and services
- Enhanced hope for the future (reflected in increased lifetime earnings)
- Improved health outcomes
  - Teen pregnancy reduction
  - Reduced or delayed use of alcohol, tobacco, illicit drugs
  - Greater fitness and reduced healthcare costs
- Increased workforce preparedness

Some of these benefits are realized immediately or soon after the mentoring program is completed. For example, if teen violence and property crimes are reduced by the program

the savings will be felt immediately. If a program lowers truancy, the schools may realize immediate savings in a number of ways. Their costs of dealing with truants will fall. The schools may also experience reduced costs if grade retention is reduced because of better attendance. If teenage pregnancy rates are reduced, some of the economic benefits are realized immediately while others unfold during the later life of the teens.

On the other hand, some of these benefits are only realized in the long-term. Improved school performance will lead to higher lifetime earnings for students. Likewise, the monetary value to individuals and society of improved health if teens do not begin to smoke would also be realized over an entire lifetime.

After this list of potential benefits is compiled, we must analyze existing research to ascertain which benefits can be valued using market data and other sources to make inferences about the value of certain outcomes. In the following section, we detail how several of these outcomes could be valued in dollar terms.

## *Measuring benefits*

Benefits of crime prevention, with a focus on property crime

The benefits of preventing a juvenile crime include cost savings in a number of categories. These estimates typically are reported by type of crime. Larceny is the most prevalent type of property crime committed by juveniles. Larceny includes shoplifting, theft of bicycles, theft of contents from motor vehicles, and thefts of purses or items such as iPods. Other types of property crimes include burglary and motor vehicle theft.

To determine the benefits of a reduction in juvenile crime, a number of estimates are needed. These categories include:

- administrative costs associated with arrest and conviction
- costs of treatment
- costs of post-treatment probation
- costs to crime victims

It is difficult to obtain information on criminal justice processing costs on a per crime basis. Many studies use costs by crime originally reported in Cohen, Miller and Rossman (1994), which are based on data from 1987 of administrative costs at various stages of processing (arrests, arraignment, sentencing, etc.) for crimes committed in a particular city. More recently, researchers at the Washington State Institute for Public Policy conducted a study of the marginal operating costs of the criminal justice system at the

state and local level. They estimate that the administrative costs associated with property crime are \$1,360 per arrest for police and sheriff offices and \$1,522 per conviction for court and prosecution costs in 1996 dollars. Assuming that the individual is arrested and convicted, the total cost in terms of investigation, arrest, court and prosecution costs is \$2,883 per crime (Aos, et al.; 2004; Table E.2a). Converted to 2005 dollars using the CPI, the administrative costs for police and sheriff offices and for courts and prosecution are \$1,651 and \$1,847, respectively, for a total of \$3,498. One option for youth offenders is to send them to special juvenile courts. These courts have much lower expenses than the ones reported above. One county court surveyed by the Minnesota Youth Intervention Program Associations (YIPA) reports a cost of \$381 per case in juvenile court. Another Twin Cities metro area court supplied an estimate of \$1,500 several years ago.

Once convicted, juveniles can be sentenced to a variety of treatments. In Minnesota, the cost of a year of residential treatment at the Red Wing Correctional Facility is estimated to be \$75,300. The cost of assigning a youth to a group home for a year is \$56,100, according to Lutheran Social Services. A year in a juvenile correctional facility has an estimated cost of \$40,200 per youth. After being released from a facility or group home, a juvenile may be put on probation. Aos et al. (2004) estimates the cost of a year of juvenile probation to be \$2,340 in 2005 dollars.

Finally, crime imposes costs on victims. Cohen (1998) reports the cost to crime victims of a larceny crime to be \$519 in 2005 dollars. Other types of property crimes have larger costs to victims. Based on national studies, Cohen estimates that the average total cost to the victim of a burglary is \$1,945 and the average total cost of a motor vehicle theft is \$5,303 in 2005 dollars.

In summary, the categories of crime costs resulting from a juvenile committing a property crime and the associated estimates are reported below. These estimates can be used to estimate the benefit of preventing a single crime. Currently we do not include the lifetime consequences of preventing a life of crime.

---

## 1. Costs relevant to juvenile commission of property crimes

	<b>Costs</b>
Administrative costs of arrest and conviction	\$3,498
<b>Costs to crime victims (per occurrence)</b>	
larceny	\$519
burglary	\$1,945
motor vehicle theft	\$5,303
<b>Costs of treatment (per year)</b>	
juvenile correctional facility	\$40,200
placement in group home	\$56,100
residential treatment	\$75,300
Cost of post-treatment probation	\$2,340

### Benefits of reducing truancy

Preventing truancy is an important first step in the prevention of high school dropout. Attendance is a problem for some students all through their school careers, and a number of longitudinal studies have found that attendance in elementary school can predict high school completion. However, for obvious reasons there are no randomized studies of the effect of truancy on high school dropout in which truancy rates are randomly assigned across students. While no one doubts that successful interventions to reduce truancy can reduce the high school dropout rate, there appear to be relatively few studies that quantify the effects of such programs.

In our review, we focused on studies of school completion that include measures of school attendance in the years before high school, as these studies are more likely to provide evidence on the causal connection between days missed and eventual dropout. The high school dropout decision typically is viewed as a process of disengagement from school over time. While high truancy rates later in high school can cause dropout, high truancy rates in high school may also be viewed as the manifestation of the ongoing dropout process. We found three well-controlled studies of the determinants of high school completion that included attendance or days missed measured sometime between grades six and nine. Rumberger (1995) uses a nationally representative data set to estimate the determinants of middle school dropout, which has a rate of occurrence of 6 percent in his sample. Neil, Stoner-Eby and Furstenberg (2001) use data from Philadelphia to estimate the determinants of dropout in grade nine. While controlling for a large number of student, family, and school characteristics that can also explain dropout, the results in both studies suggest that better attendance is associated with lower rates of early school dropout.



A third paper by Our and Reynolds (2006) uses data from the Chicago Longitudinal Study, which follows a cohort of 1,500 urban minority students from kindergarten to adulthood. We base our estimates of the benefits of truancy reduction on results reported in this latter study because Our and Reynolds estimate the relationship between truancy and the determinants of a measure of high school completion measured in early adulthood. Rumberger (1995) and Neil et al. (2001) only focus on early dropout occurring by grades eight or nine. Similar to students from other urban school districts, the Chicago students have high dropout rates. Only 52.6 percent graduated from high school or earned a GED by age 21.

Ou and Reynolds (2006) use data on average days missed for any reason per year at age 11 and age 12. The mean number of absences is 7.2, and the maximum reported is 17 and above. The regression analyses of the determinants of high school dropout include a large number of variables on student and family characteristics. These controls include measures of participation in preschool, special education enrollment, student mobility, and measures of students' educational expectations.

The results for attendance indicate that an increase in the number of days missed by one day per year at age 11 or 12 is associated with a reduction in the probability of high school completion by 1.8 percentage points. While a 1.8 percentage point reduction in the probability of high school dropout is not a huge effect given the average dropout rate in the Chicago study of approximately 47 percent, this 1.8 percentage point reduction would represent a very large effect in a state such as Minnesota where the overall dropout rates are lower (although the dropout rate in Minnesota for some minority groups is estimated to be near 50%). Many programs for at-risk youth are targeted to students who have multiple risk factors for dropout. Accordingly, we provide two estimates of the benefits of reducing truancy. At the higher end of the benefit range, we assume that reductions in truancy by one day a year will reduce high school dropout rates by 1.8 percentage points or 0.018. On the lower end of the range, we somewhat arbitrarily reduce this effect by half and calculate the benefit of truancy reduction programs that reduce high school dropout by 0.9 percentage points or 0.009.

Economists frequently estimate the benefit of completing high school based on data on annual earnings for high school dropouts and high school graduates. A recent estimate has been provided by Rouse (2005), who projects lifetime earnings differences between high school completers and dropouts. To understand the value at the time of high school completion of this future stream of higher earnings, she computes the present discounted value of the lifetime earnings benefit of completing high school. Assuming 2 percent productivity growth and a 3.5 percent discount rate, the present value at age 18 of completing high school is estimated to be \$263,000. The present value of the additional taxes paid due to the higher income earned is estimated to be \$98,000. These estimates

of the benefits of completing high school are conservative because we do not include the additional benefit in terms of income and tax revenues earned when the high school graduate continues his or her education by going on to college.

Assuming that a truancy reduction program reduces truancy by one day a year, we can place a dollar value on the benefit of this reduction in truancy. From the estimates of Ou and Reynolds (2006), we can estimate the benefit in terms of dollars of reducing truancy per day. Multiplying the present value of the earnings gains of \$263,000 and the tax revenue gain of \$98,000 by 0.018 results in a total benefit due of truancy reduction of \$4,734 plus \$1,764 for a total of \$6,498. A more conservative estimate is that the benefit of reducing truancy by five days leads to a lifetime earnings gain of \$2,367 along with increased tax revenues of \$882 for a total of \$3,249 per person served by a successful truancy reduction program.

In summary, there are few studies of the effects of truancy on high school dropout. In this report, we rely on the estimates from a large sample of youth considered to be at high risk of dropout. Research by Ou and Reynolds (2006) reports that a reduction in days of school missed at age 11 or 12 is associated with a reduction in eventual high school dropout by 1.8 percentage points. We multiply this effect (0.018) by existing estimates of the present value of the lifetime earnings and tax revenue benefits of completing high school.

Preventing one day of truancy per year is associated with higher lifetime earnings (in present value terms) in the range of \$2,367 to \$4,734 per child. Preventing one day of truancy per year is associated with higher tax revenues collected by the government in the range of \$882 to \$1,764 per child.

#### Benefits of school achievement – future income

Beyond simply reducing the dropout rate among students, mentoring programs go further in helping students to greater academic achievement. An increase in test scores and/or grades has been shown to lead to higher lifetime earnings.

Crawford, Johnson, and Summers (1997) report estimates of the determinants of adult earnings for students in a nationally representative data set called High School and Beyond. They focus on the earnings of students who did not go on to college measured three years after high school. They show that a one point increase in the student's grade point average is associated with an increase in annual earnings of \$800. In another study also using High School and Beyond, Rose and Betts (2004) find that an increase in GPA of one point is associated with an increase in annual earnings of approximately 4 to 7 percent for all students regardless of college attendance measured ten years after high school. The GPA included in their study is based on courses in mathematics only. The results reported by Rose and Betts translate into an annual earnings gain of \$800 to

\$1,400. Given the results of these two studies, we assume that an increase in GPA of one point is associated with an earnings gain of \$800 per year. We follow Rouse (2005) in assuming that individuals will work for 50 years and that the discount rate applied to future earnings is 3.5 percent. We also follow Rouse in assuming that the combined tax rate for social security and federal and state incomes taxes is approximately 37 percent.

---

**2. Benefits per student of a one point increase in GPA (present value in 2005\$)**

	<b>Value</b>
Higher lifetime earnings	\$19,421
Higher lifetime taxes paid	<u>\$7,186</u>
<b>TOTAL BENEFITS</b>	<b>\$\$26,607</b>

Grossman and Tierney (1998) report that participation in a mentoring program is associated with an increase in self-reported GPA of 0.08. Hence the benefits to participants in terms of higher lifetime earnings and the benefits to taxpayers in terms of higher revenues can be calculated by multiplying the above numbers by 0.08.

As a result of the increase in GPA due to participation in BBBS, we calculate this component of the benefits to be equal to \$2,129 per student. This includes \$1,554 in higher earnings and \$575 in higher taxes received by government. These results suggest that programs that have only a modest impact on GPA can yield significant benefits.

**Benefits of reduced teen births**

The economic benefits of a reduced teen birth rate are related to subsequent events in the life of the teen mother and her child. In particular, research has shown that reduced teen pregnancies produce small but statistically significant effects on increased high school graduation and reduced use of public assistance by the mother (see Aos, et al. ,2003, Appendix D.5). In addition, children born to teen mothers have lower high school graduation rates, are more likely to repeat grades, are more likely to commit crimes, and are more likely to experience child abuse or neglect.

So the size of these effects can be multiplied by the value of each outcome to produce an estimate of benefits. For example, the reduction in the probability of a teenager dropping out of school can be multiplied by the value of completing high school set forth in a previous section to yield an estimate of the value of that benefit.

Benefits of reduced use of tobacco, alcohol, and illegal drugs

There are clear economic benefits for an individual and for society from preventing regular use of tobacco, excessive use of alcohol, and use of illegal drugs. In general, we try to estimate the present value of the future costs that are incurred because of these behaviors and multiple those values by the reduction achieved by a program.

- The chief future cost of regular smoking is the adult medical expenses that can be attributed to regular use of tobacco.
- The costs of excessive alcohol consumption lasting into adult life include lost earnings due to death or ill health, medical costs including cost of alcohol treatment, motor vehicle crashes, fire destruction, and welfare administration (see Harwood, 2000).
- The economic costs of drug use are similar to those for alcohol, including lost earnings, medical costs, and other accidents that can be causally tied to drug use.

### ***Measuring costs***

The measurement of the costs of a given youth program is usually much more direct than measuring and valuing the outcomes of the program. However, care must be taken to ensure that all of the resource costs of the program are included. There are three categories of costs to be considered.

*Direct costs* are the cash disbursements made by the program for its expenses. These include payroll costs, administrative expenses, materials, travel and any other costs that appear on the programs financial statements.

*Imputed costs* are expended resources that do not generate cash disbursements by the program. These could include depreciation on its facilities or interest foregone on the value of its assets that could be deployed in other ways. If a program is part of a larger organization, additional adjustments may need to be made. For example, if the parent organization lets a program use office space or other facilities without charging rent, the market rent for that space should be included in total program costs in order to fairly represent the resources being used.

*Donations* include both donations-in-kind by persons and corporations and also donated time by individuals. Donations of goods need to be valued at market values; donations of time should be valued at the wage rates of the people who serve. Since it would be impractical (and invasive) to survey volunteers as to their incomes, the usual method for estimating the value of volunteer time is to count (or estimate) the number of volunteer hours and then apply an appropriate average wage rate to approximate the value of the time being donated.

## *Summarizing results*

Once the costs and benefits of a program have been estimated, there are a variety of different forms in which they may be summarized. The main alternatives are:

- Net present value – the present value of the benefits expected to be generated by the entire program minus the present value of the stream of costs
- Benefit-cost ratio – the present value of the benefits of the program divided by the present value of the costs
- Internal rate of return – the rate of discount which equates the present values of the stream of benefits and the stream of costs

For the programs being studied here, it seems most useful to state results in terms of the benefit-cost ratio. To form this measure, we estimate the present value of the estimated stream of future benefits and divide that value by the actual costs incurred in the present. This produces a measure of the dollars of future benefit produced per dollar of current investment.

In addition to comparing the total benefits to the total costs of a program, it is also possible to make other calculations that provide additional perspective. Where some of the costs of the program are borne by the taxpayers, it is possible to compare the benefits generated by the program with the public dollars expended. Such a calculation yields an estimate of the total benefit generated per dollar of public funds.

# An illustrative example

To illustrate how this framework can be used, we present an example of an estimate of the SROI for a fictional representative program. This program is a composite that is representative of the types of programs operated in Minnesota. The analysis of this representative program uses assumed values for outcomes that are consistent with the outcomes data reported by Minnesota programs and the impacts reported for similar programs where more detailed records have been kept. The dollar value of program benefits was estimated using the methods and values explained in the framework section of this study. In like manner, the assumed costs of the illustrative program are in line with the actual costs of programs we studied.

## *Example: An intensive mentoring program*

Our example is a representative mentoring program that matches youth with volunteer mentors who commit to the program for a period of a year. The program includes rigorous screening and training of mentors who meet with their mentees approximately four times a month for a variety of activities. The mentors help the youth develop better social skills and work habits that affect the youths' lives across a wide spectrum of activities.

### Costs

It is assumed that our comprehensive program costs \$3,562 per participant per year in direct program costs and volunteer time. Actual cash expenses per participant account for \$1,300 of that total. The value of volunteers' time is estimated at \$2,262, based on an average of 13 hours of contact time per month valued at an average wage for the area.

### Benefits

We assumed a modest level of concrete benefits flowing from the program.

It was assumed that, for every 100 program participants, one juvenile crime of larceny is averted and that, for every 200 participants, one instance of treatment in a juvenile facility is avoided. This produced a per capita benefit of \$371.

It was assumed that school attendance was improved by an average of one and a half days per year per participant. This generated some modest cost savings to the school and increased lifetime earnings for the young person, the total amounting to \$3,974 in present value.

It was further assumed that the grade point average of the youth who participated was raised by 0.08 points (with an A being 4.0), the amount by which test scores were raised in a study of Big Brothers Big Sisters. This generates additional increased earnings present valued at \$2,129.

It was further assumed that the program that the program had no impact on teen pregnancies or alcohol use, but that it did reduce teenage initiation to the use of tobacco and illegal drugs. The estimated benefits of these latter two effects were \$823 and \$127 respectively. The results of the SROI analysis are summarized in Table 3 below.

**3. Social return on investment: a representative youth mentoring program (benefits and costs per participant, stated in 2005\$)**

	Value
<b>BENEFITS</b>	
Juvenile crime reduction	\$371
Truancy reduction	
Reduced school costs	\$150
Increased graduation rate (lifetime earnings)	\$3,826
Enhanced school achievement	\$2,129
Reduced probability of tobacco initiation	\$823
Reduced probability of illegal drug initiation	\$127
Mentor satisfaction	<u>\$2,262</u>
<b>TOTAL BENEFITS</b>	<b>\$9,688</b>
<b>COSTS</b>	
Administrative and operating costs	\$1,300
Estimated value of volunteers time	<u>\$2,262</u>
<b>TOTAL PROGRAM COSTS</b>	<b>\$3,562</b>
<b>BENEFIT-COST RATIO: (total benefits/total costs)</b>	<b>2.72</b>
<b>Note: (total benefits - excluding mentor's benefits)/total costs</b>	<b>2.08</b>
<b>Note: (public benefits/cash costs)</b>	<b>1.87</b>

Table 3 also includes satisfaction to the mentors themselves as one of the benefits and gives it a value equal to the estimated value of the mentors' time. Opinion among economists is divided on how to treat the value of volunteers' time in benefit-cost analyses. Some authors (see Belfield, 2003, for example) have argued that since volunteers get satisfaction from serving in this way, their participation is really a form of consumption and, hence, that the value of their time should not be included as a cost. Put differently, one could argue that they must receive some psychological benefit at least

equal to the value of their time in order to serve as volunteers. Therefore, the argument continues, we should include the benefit received by the volunteers themselves in the list of benefits thus compensating for the estimated cost of volunteers time. Other economists have chosen not to include this element in their estimates of benefits, treating volunteer time simply as a cost without any offsetting benefit.

We present estimates using both treatments of volunteers' time. If satisfaction to mentors is included in benefits, our representative program returns \$2.72 for every dollar of resources used. If mentor satisfaction is excluded from benefits, the program returns \$2.08 for every dollar invested. Either figure represents a favorable return on investment in the program.

One additional calculation may be of interest. The total benefits generated by this mentoring program include both benefits to the individuals (the program participants and the mentors) and benefits to society at large. The individuals benefit through higher lifetime earnings, improved health, and personal satisfaction; the society benefits from reduced spending on criminal justice and education, some reduced public healthcare costs, and the increased future taxes that those individuals will pay.

The societal benefits are realized as dollar savings or added revenues for government. Thus, it is possible to compare the societal (or public) benefits to the cash costs of the program in order to get a sense of the overall fiscal impact of the program on society at large. In our example, these societal benefits amount to \$2,432 per participant out of the total of \$9,688, roughly one-fourth. This amount of public benefits is compared to the \$1,300 of cash spending, thus showing that this mentoring program produces \$1.87 of benefits to society at large for every dollar of spending.

It should be stressed that many elements of our potential list of benefits were not included in this example, in part because there is so little research on which to base confident estimates of the value of the outcomes and there are few if any studies which draw causal links to programs of this type. As further research is done, especially research that links youth behaviors to actions and consequences later in adult life, our ability to include more categories of benefits in SROI analyses and to value outcomes more accurately will increase.



# Recommended data collection and future studies

The representative example analyzed here gives a reasonable estimate of the return to youth mentoring programs, in our view. Any assessment of the SROI of a particular program or group of programs must rely on accurate and complete data on the programs and on the outcomes they produce. In this section, we make recommendations on the types of data collection that would facilitate more detailed and accurate SROI calculations in the future. Some of this data is already being collected by some organizations but many outcomes that would be useful in SROI calculations are not being tracked by many programs.

Of course, data collection is not costless; it uses resources. Hence, in deciding what data to collect and retain, individual programs will have to balance the resource costs of collecting certain data with the potential gains from doing so. In practice, it is to be expected that individual programs will, and should, concentrate on measuring the outcomes that are most important to them.

## *Near-term data collection*

### Outcomes (and benefits)

There are several sets of outcomes data that could be translated into benefits in a formal SROI analysis.

Since educational achievement is so important in much of later life and figures so prominently in many SROI calculations, educational information on participants would be extremely helpful. The first and simplest to collect would be data on high school graduation. If participants are in the program at the time of graduation this would be easy to record; otherwise, it would be necessary to maintain contact after program completion. Additionally, it would be helpful to collect data on grades and even standardized test scores while students are participating in the program. These quantities can be converted to estimates of lifetime earnings.

Some programs, chiefly youth intervention programs that involve diversion of first-time offenders, already receive summary data on criminal behavior from county sources. Because of confidentiality concerns, these data are likely to be available only in summary form, if at all. If a program has an ongoing relationship with county government, it may be possible to give the county a list of names of graduates and receive information on

how many of those names have appeared as criminal offenders. This information would be helpful in estimating benefits of reduced criminal behavior.

It would be useful to examine the progress and changes in participants' behavior during their participation in a particular program, especially if the program extends over multiple years. This could be done by doing structured interviews with parents, mentors, and youth that include formal ratings in a number of behavior areas. Such interviews could be done periodically, if a program covers several years, or at intake and completion if a program is of shorter duration. Such a practice would facilitate program evaluation and enable more detailed analysis of SROI as well.

### Costs

If an organization that operates several programs may want to analyze the SROI of those programs separately, it would be important to segregate the costs of those programs. Several of the organizations we spoke with were already in the process of changing their accounting to do this, in order to aid their internal management. But identifying the separate costs of different programs would also make it easier to evaluate the return of those programs individually.

In addition, it would be useful for organizations to track amount of time donated by volunteers in order to have a better sense of the resources being utilized. It would probably be onerous to keep extremely detailed records, but even estimates by individuals of the time they spend on a regular basis would give a clearer picture of the total economic costs of programs.

### ***Long-term data collection***

Even if all of the data recommendations in the previous section could be implemented for every mentoring program, we would still not be capturing all of the effects of these programs in the most meaningful way. The ultimate purpose of mentoring programs is to change the trajectories of the lives of young people and set them firmly on the path to becoming successful, productive adults who contribute to society. Measurements of outcomes during the teenage years can give some confidence that the probabilities of adult success have improved but cannot demonstrate conclusively that the ultimate goals of the programs have been realized.

Therefore, the most complete and persuasive evidence of the effect of these programs would be generated by following the graduates of mentoring programs into adulthood and collecting data on their career and life achievements. In particular, data on further educational attainment, earnings, criminal conduct (hopefully, the lack of criminal

conduct) and substance use would be some of the most important elements in a richer data set that could be used to produce more accurate estimates of the return to youth programs.

The growing consensus on the returns to early childhood education programs attests to the power of such evidence. The work of Rolnick and Grunewald (2003) and the human capital writings of Nobel Laureate James Heckman (see, for example, Heckman and Masterov [2004]) draw on data from meticulous longitudinal studies that followed the graduates of early childhood programs well into adulthood. These continuing longitudinal studies, one conducted for over 40 years, produce concrete documentation of the effects of the studied programs in the adult lives of participants. And those effects can be quantified in dollar terms.

Our understanding of the effects of youth mentoring programs would be extended and deepened if a longitudinal study of program participants could be undertaken. To be sure, there would be substantial challenges to such a task. For one thing, a complete study would follow not only the graduates of mentoring programs but also a control group of similar individuals who did not participate. Such a study design provides the clearest indication of the differential impact of the program or programs being studied. Our understanding of the effect of mentoring would also be increased by just keeping accurate records for program participants that could then be compared to population norms.

On the other hand, one advantage of a study of the participants in mentoring programs is that the participants are nearer, sometimes much nearer, to adulthood than were the children in the early childhood education programs referred to above. Thus, a study of only 5 to 10 years duration would follow many of them past their college years and into early adulthood, providing much of the perspective gained in the necessarily longer studies of pre-Kindergarten education.

We believe serious consideration should be given to designing and implementing a study that could document the effects of youth mentoring programs in adulthood. A longitudinal study would accomplish this objective. It is also possible that a study to trace and survey current adults who have completed such programs in past years might be feasible and would yield additional perspective before a multi-year study of youth currently involved in these programs would produce usable data.

# References

- Aos, Steve, Roxanne Lieb, Jim Mayfield, Marna Miller, Annie Pennucci (2004). Benefits and costs of prevention and early intervention program for youth. Olympia: Washington State Institute for Public Policy.
- Belfield, Clive R. (2003). Estimating the Rate of Return to Educational Investments: A case Study Using the Big Brothers Big Sisters Mentoring Program. Columbia University.
- Bolstrom, Brent J. (2006). Social Return on Investment and Making the Case for Mentoring: An Overview of the Literature, Mentoring Partnership of Minnesota.
- Cohen, M.A. (1998). "The monetary value of saving a high-risk youth," *Journal of Quantitative Criminology*, vol. 14, pp. 5-33.
- Cohen, M.A. Miller, T.R., and Rossman, S.B. (1994). "The costs and consequences of violent behavior in the United States," In Reiss and Roth (eds.) Volume 4: Consequences and Control of Understanding and Preventing Violence, National Research Council, National Academy Press, Washington DC, pp. 67-166.
- Crawford, David, Amy Johnson, and Anita Summers (1997). "Schools and labor market outcomes," *Economics of Education Review*, vol. 16, pp.255-269.
- Grossman, Jean Baldwin, and Joseph P. Tierney (1998). "Does Mentoring Work? An Impact Study of the Big Brothers Big Sisters Program, *Evaluation Review*, June, 1998. pp. 403-426.
- Harwood, H. (2000). "Updating estimates of the economic consequences of alcohol abuse in the United States: Estimates, update methods, and data" a report by the Lewin Group to the National Institute on Alcohol Abuse and Alcoholism.
- Heckman, James and Dimitriy Masterov (2004). "[The Productivity Argument for Investing in Young Children](#)," Working Paper No. 5, Invest in Kids Working Group, Committee for Economic Development.
- Levine, Phillip B. and David Zimmerman (2003). Evaluating the Benefits and Costs of After-School Care. The After School Corporation.
- Maynard, Rebecca A. (1996). *Kids Having Kids: Economic Costs and Social consequences of Teen Pregnancy*, Washington, D.C., The Urban Institute Press.
- Moyer, Patty (2005). "Correlation of Parent Intake Interviews and Child Intake Information in a Mentoring Program and the Impact of Mentoring on Youth" Plan B paper, University of Minnesota, Duluth, January, 2005.

- Neild, Ruth Curran, Scott Stoner-Eby, and Frank F. Furstenberg, Jr. (2001). "Connecting entrance and departure: The transition to ninth grade and high school dropout," unpublished paper downloaded from <http://www.civilrightsproject.harvard.edu/research/dropouts/neild.pdf>
- Newman, R., S. Smith, and R. Murphy (1999). "A matter of money: The cost and financing of youth development." In P.L. Benson and R. Saito (Eds.) Youth Development: Issues, Challenges, and Directions. Public/Private Ventures. pp. 81-124.
- Ou, Suh-Ruu and Arthur J. Reynolds (2006). "Predictors of educational attainment in the Chicago Longitudinal Study," (under review).
- Persons, Kerri, (2002) An Evaluation Study of the Mentor Duluth Program, Plan B paper, University of Minnesota, Duluth, July, 2002.
- Rolnick, Art and Rob Grunewald (2003). "[Early Childhood Development: Economic Development with a High Public Return](#)," *fedgazette*, Federal Reserve Bank of Minneapolis.
- Sullivan, Michael (2004). "The Effects of Mentoring on School Grades, Behavior Incidents, and School Attendance, Plan B paper, University of Minnesota, Duluth, July, 2004.
- Rose, Heather and Julian R. Betts (2004). "The effect of high school courses on earnings," *Review of Economics and Statistics*, vol. 86, pp. 497-513.
- Rose, Heather and Julian R. Betts (2004). "The effect of high school courses on earnings," *Review of Economics and Statistics*, vol. 86, pp. 497-513.
- Rouse, Cecilia (2005). "The labor market consequences of an inadequate education," paper prepared for a symposium at Teachers College at Columbia University.
- Rumberger, Russell W. (1995). "Dropping out of middle school: a multi-level analysis of students and schools," American Educational Research Journal, vol. 32, pp. 583-625.