

# **Analyzing the Social Return on Investment in Youth Intervention Programs**

*A framework for Minnesota*

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*A framework for Minnesota*

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# Executive summary

Youth intervention programs perform an important social service by redirecting the lives of “at risk” youth into more productive channels, both increasing their chances of success in life and reducing the expected educational and social costs generated by their likely problem behavior as juveniles and adults. This study puts forward a framework for quantifying the value of the benefits of intervention programs and comparing them to program costs in order to calculate the social return-on-investment (SROI) of such programs.

## *Major findings*

- While there may be broad societal awareness of the value of youth programs, there have been few studies that attempt to quantify and compare the costs and benefits of specific programs. Most of the formal analyses that have been done have focused on more general youth mentoring programs, rather than on intervention programs with “at risk” youth.
- Effective intervention programs are likely to produce some of the highest returns of any youth programs since they deal with more concentrated populations, many of whom have been identified through truancy, juvenile crime, or other problem behaviors.
- Based on our study of intervention programs in Minnesota, effective youth intervention programs can produce some or all of the following direct benefits whose values can (in principle) be quantified:
  - Reduced truancy – resulting in reduced school costs and, ultimately, reduced high school dropouts and increased lifetime earnings
  - Improved school performance – leading to increased graduation rates and higher lifetime earnings
  - Reduced near-term court costs – saving court costs through youth diversion programs
  - 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 cost of family counseling and long-term costs of public assistance

- Improved health outcomes – including reductions in teen pregnancy, reduced or delayed use of tobacco, alcohol, or illicit drugs
- This paper puts forward a framework for comparing the dollar value of costs and benefits of youth intervention programs in Minnesota and, potentially, in other states. This framework can be used to calculate the social return-on-investment (SROI) of such programs.
- Based on outcomes data that have been collected by Minnesota youth intervention programs and conservative assumptions about outcomes that are in line with the experience of Minnesota youth programs, we provide an SROI analysis of two fictional representative programs. One is a comprehensive program designed to redirect a youth's life path; the other is a targeted program focused on a particular destructive behavior. Using conservative assumptions for program outcomes, we estimate that:
  - **An effective comprehensive program costing around \$2,000 per participant returns benefits of \$4.89 for every dollar of cost, based on very conservative assumptions about effects and valuations. Moreover, the program returns \$14.68 for every State dollar invested, assuming a 2 to 1 match of other funding.**
  - **A targeted program to reduce recidivism of property crimes costing approximately \$200 per participant returns benefits of \$8.18 per dollar invested.**
  - **If strictly public benefits are compared to public costs, the comprehensive program produces \$2.33 for every public dollar, while the targeted program produces \$8.18 for each public dollar invested.**
- The actual returns for a particular program would depend on the outcomes and expenses of that particular program. We believe that returns in the examples presented here fairly represent the returns that are achievable for well-run, effective youth intervention programs. In some cases, it is quite possible that returns could be even higher than these examples.
- 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 intervention programs.

# Introduction

This study puts forward a method for analyzing the Social Return on Investment (SROI) of youth intervention 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 intervention programs to the cost of operating those programs.

## *Purposes*

The purposes of this study are threefold:

- To explain how SROI analysis of youth intervention 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.

## *Youth intervention programs*

Youth intervention programs are community-based programs that help young people deal with a variety of challenges including crime, family violence, truancy, chemical dependency, child abuse, teen pregnancy and homelessness. These programs serve a wide variety of youth who are often identified and/or referred by schools, law-enforcement agencies, courts, and families.

In Minnesota, intervention programs offer a wide variety of services. These include:

- Pre-court diversion programs – including truancy intervention, property crimes prevention or intervention, sexual perpetrator counseling, and drug, alcohol or tobacco use intervention.
- Restorative justice programs – including community service programs for offenders, mediation between victims and offenders, and restitution services.
- Counseling services – including individual or family counseling, mentoring, crisis interventions, delinquency prevention, homeless youth services, and teen parenting/ pregnancy counseling.

- Education programs – including parenting education, shoplifting and vandalism prevention, job training services, and tutoring.
- Other services – such as direct employment, youth advocacy, and transitioning for corrections.

These and other services are delivered by a host of providers in Minnesota. A recent directory published by the Minnesota Youth Intervention Programs Association (YIPA) lists 54 organizations funded in part by the state of Minnesota to provide youth intervention services across the state. There are additional organizations providing some of these services in communities in all corners of Minnesota.

Since these are community-based programs, they keep youth living with their families while receiving services. If effective, the programs reduce the number of negative outcomes in the subsequent lives of young people, thus reducing the need for more costly treatment in juvenile correctional facilities, group homes, or in other residential treatment facilities.

Thus, on an informal basis, it has long been recognized that such programs can be a cost-effective solution to handling these youth problems for many communities. The programs can save the community money in the short-run, through lessening the need for more costly treatments, and also in the long run, through lowering crime, and reducing the social costs of dealing with a variety of family problems and high-risk behaviors.

In recognition of the benefits of youth intervention programs, some programs receive partial funding from the State of Minnesota through the Office of Justice Programs of the Minnesota Department of Public Safety. All of the programs that receive this state aid must raise two dollars of local funding for every state dollar received. This matching requirement not only leverages the state's resources, it also ensures that the services being provided are valued by the community.

To date, there has been no formal economic analysis of the costs and benefits of the individual programs. Moreover, any such analysis would need to rest on a scientific program evaluation that, for example, followed graduates of a program for a number of years after completion and compared their life outcomes with those of a similar group of individuals who did not receive services but were also followed for years. Such evaluations are often impractical or too costly for individual programs to commission.

But YIPA has taken a major step forward in working with the Office of Justice Programs within the Minnesota Department of Public Safety to require that its Youth Intervention Program grantees compile some outcomes data that can be used to reflect and measure the effects of their different programs. These data are compiled by grantee organizations

and stored in a database by the MN Department of Public Safety, which provided them to the authors of this study.

In addition to analyzing these outcomes data from YIPA programs, the authors conducted interviews with administrators of youth intervention programs to better understand the services they provide and the important outcomes they produce whether reflected in formal data collection or not. This information was useful in constructing realistic examples of programs that illustrate the return on intervention programs. Those examples are provided in a later section of this report.

But before presenting those examples, we report on other SROI studies of youth programs in other areas and then set forth a framework for the analysis of programs in Minnesota. The concluding section of this report deals with additional data collections strategies for youth intervention programs.

# Previous studies

In 2005 and 2006, Brent J. Bolstrom of the University of Minnesota's Center for 4-H 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.

All of these three studies analyzed programs whose populations differ markedly from the youth served in most youth intervention programs in that far fewer of the participants in those programs would be considered to be at “high risk” of sustained destructive or anti-social behavior. The fourth study did include separate analyses of some programs that are very similar to the intervention programs we seek to analyze.

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, (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.

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. Some of the juvenile offender programs and teen outreach programs provided services similar to those delivered by members of YIPA in Minnesota and worked with populations that were at more risk of offending than the programs in the other three studies cited by Bolstrom.

The programs studied included both specific treatment protocols and composite programs that were an average of a number of specific programs. Among the juvenile offender programs analyzed by WSIPP, two stand out as being especially relevant to youth intervention programs being considered here. The first program was the Adolescent Diversion Project, a specific program where youth were diverted from juvenile court and matched with trained mentors, usually college students, to initiate behavioral change. WSIPP estimated \$13.54 of benefit for every dollar of program cost. All of the benefits came from reduced crime. No other benefits were sufficiently well documented to include in the calculations.

The other relevant analysis in the WSIPP study was a composite of several other diversion programs. The programs were targeted at low-risk, first-time offenders who received counseling and community-based services rather than having their cases handled formally in juvenile court. The benefits were reduced crime and court processing costs. WSIPP estimated that these programs produced \$5.58 for each dollar of cost.

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 reliable and, possibly, quite conservative.

Overall, this list of previous studies supports the notion that youth intervention programs provide benefits to society that exceed their costs. The two examples cited from the WSIPP report seem to be closest to the types of services and the populations served by YIPA member organizations in Minnesota. This list is admittedly short, perhaps, in part, because an explicit framework for completing this type of analysis has not been widely available. In the next section, we go on to describe how analyses of youth intervention programs in Minnesota can be done.

# An SROI framework for youth intervention programs

To build a practical SROI framework for analyzing youth intervention 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 intervention programs, we studied written descriptions and materials from representative programs, examined printed materials from YIPA, and interviewed administrators of several intervention programs. From that information, we compiled a list of potential benefits from youth intervention programs. Here is the list we compiled:

- Improved school performance
  - Increased school graduation rates
  - Lowered school costs (less grade retention, lowered truancy)
- Reduced 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 intervention program is completed. For example, with a diversion program where young people participate rather than being processed through the juvenile justice system, the savings are immediate – the court costs are not incurred. If a program is effective in reducing repeat offenses by juvenile offenders, much of the cost savings of that reduction are realized in the year or two after the program is completed.

If a program lowers truancy, the schools may realize 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.

On the other hand, some of these benefits are only realized in the long-term. If youth programs reduce the rate at which crimes are committed later in life when young people become adults, the savings and increased incomes earned by youth who do not drop out of school or who earn more because their school performance is improved will be realized over their lifetimes. The monetary value of improved health 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.

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## 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 these interventions.

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 Ou and Reynolds (forthcoming) 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 Ou 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 (forthcoming) 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%). Intervention programs, however, are often 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 (forthcoming), 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 one day 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 (forthcoming) 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**

Truancy reduction increases the likelihood of graduation from high school and thus increases the expected lifetime earnings of students whose truancy is reduced or eliminated. Beyond this effect from truancy reduction, youth intervention programs have the potential to raise students' achievement levels beyond the minimum necessary to graduate. By raising achievement among non-truants as well as truants, programs can further increase the expected lifetime earnings of individuals through enhanced skills and the increased likelihood that students will attend post-secondary education.

## ***Measuring costs***

The measurement of the costs of a given intervention 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 the intervention 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 youth intervention 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.

# Illustrative examples

To illustrate how this framework can be used, we present two examples of SROI calculations for representative programs. These programs are not based on any single program but are composites that are representative of the types of programs operated in Minnesota. The analysis of these programs 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 programs are in line with the actual costs of programs we studied and interviewed.

## *Example 1: A comprehensive program*

Our first example is a calculation for a representative program that provides a complete and varied program of services to youth who face different challenges. Young people are referred to the program from a variety of sources, including schools (for truancy and other behavior problems) and law enforcement agencies. The program offers one-on-one mentoring with trained mentors (usually college students) who commit for a year but often stay in contact for longer periods. Their program helps reduce truancy, criminal behavior and postpones or eliminates some high-risk behaviors such as tobacco, alcohol or illicit drug use through specialized counseling and the new behavioral models learned through mentoring process. Through the mentors, the students also learn better study habits that improve their school performance.

It is assumed that our comprehensive program costs \$2,000 per year in direct program costs and volunteer time. It is further assumed that one-third of the funding of the programs comes from the state of Minnesota and the rest of the support of the program comes from private sources. It is assumed that program treats 100 individuals; half of the referrals are for truancy or other problems identified in school and half are referred through diversion programs.

As far as outcomes go, the school-referred group shows an improvement of an average of three days of reduced truancy and the effects of that reduction are valued at the midpoint of the range mentioned in the previous section. This reduced truancy produces some savings for the schools in the form of lower costs of truancy enforcement and a slight reduction in the rate of grade repetition. But the greatest dollar effect of reduced truancy is in the form of a 4 percent reduction in the school dropout rate which translates into higher lifetime earnings for program participants.

The diversion referrals show a decrease of 5 percent in commission of repeat crimes and out of the 50 participants, one year's treatment in a juvenile facility is saved. Beyond reduced commission of juvenile crimes, these participants also experience enhancement of their educational attainment through the program. The estimated amount is about half of what was found in a study of the effects of the Big Brothers Sisters program in a previous study.

**2. Social return on investment: a comprehensive youth intervention program (benefits and costs per participant, stated in 2005\$)**

	<b>Value</b>
<b>BENEFITS</b>	
Crime reduction	
Initial reduced court costs from diversion	\$675
Reduced future crime costs (court costs plus crime victim costs)	\$36
Reduced costs of treatment	\$402
Truancy reduction	
Reduced school costs	\$300
Increased graduation rate (lifetime earnings)	\$7,310
Enhanced school achievement	\$1,064
<b>TOTAL BENEFITS</b>	<b>\$9,786</b>
<b>TOTAL PROGRAM COSTS</b>	<b>\$2,000</b>
<b>BENEFIT-COST RATIO (total benefits/total costs)</b>	<b>4.89</b>
<b>Note: (total benefits/State costs)</b>	<b>14.68</b>
<b>Note: (public benefits/public costs)</b>	<b>2.33</b>

Taken together this set of conservative outcomes assumptions and valuations produces an estimate of a social return on investment of \$4.89 for every dollar invested in this program. This result is especially conservative when it is compared to either the studies of mentoring programs cited by Bolstrom or the diversion programs analyzed by WSIPP. In the Washington State analysis, a particular diversion program with mentoring much like that assumed in our example produced a return of \$13.54 and a group of diversion programs with less-intensive services returned \$5.58 in benefits for every dollar of cost.

There is a second calculation that yields additional perspective on the intervention program we are analyzing here. As stated above, intervention programs in Minnesota receive funding for the state and then match each dollar of state funding locally. If the state funding is critical to the continued existence of the program, then it would make sense to compare the total benefits generated by the program to the amount of state

funding that makes it possible and sustains it. Making this calculation for our example yields a figure of \$14.68 of total benefit for every state dollar invested.

Finally, it must be recognized that the total benefits generated by this intervention program include both benefits to the individual participant and benefits to society at large. For example, the individual benefits through higher lifetime earnings; society benefits from reduced spending on criminal justice, reduced educational costs, and the increased future taxes paid by individuals. Therefore, it would make sense to compare the societal (or public) benefits from the program to the public costs of the program.

In our example, the societal benefits amount to \$3,105 per participant out of the total of \$9,786, roughly one-third. While one-third of the program's financing comes from state, we have assumed that half of the local funding comes from a public source, the city or county, thus raising the total amount of public funds to \$1,333 per participant. That means that this intervention program produces \$2.33 of benefits to society at large for every public dollar of spending. If the local funds were raised from different sources, the calculation of public return to public dollars would be different. If all of the local funds were public dollars, the public return would be \$1.55; if all of the local dollars were private, the public return would be \$4.66. If the program had a different funding mix, the resulting return would be somewhere in the range between those two figures.

Most of the benefit in this example is produced by completion of high school and the raising of the lifetime earnings profiles of a few individuals in the pool of participants. In contrast, the WSIPP study of diversion programs included much larger effects for reducing future crime. It should be stressed that many elements of our potential list of benefits were not included in this example, largely 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. We also have not attempted in this example to value the reduction of career criminals, individuals who are quite costly to society as the work of Cohen (1998) attests. Thus, these other elements must be considered as unmeasured at the current time.

### ***Example 2: A targeted program***

The same framework can be used to evaluate the costs and benefits of a specific program with a targeted objective. Our second example is a diversion program designed solely to deal with youth who commit property crimes as first-time offenders. Rather than process these offenders through formal juvenile court proceedings and punishment, a county diverts them to an intervention program with which it has contracted for services. The youth (and often parents as well) attends an individual intake session and then a series of three classes.

The economic cost of this program to reduce property crimes is estimated at \$200 per participant. This figure includes the counselor's time for the intake session and the instructional time and materials. It also includes an estimate for use of facilities. (In actual practice, some programs receive some public funds from a city or county in a lump sum per year while others are paid per case or per hour of service provided.)

The estimated benefits are of two kinds: lowered court costs in the near term because the youth is not processed through the courts and lower future costs because of reduced recidivism relative to youth processed through the courts. These reduced future costs include lower victims' losses because of fewer property crimes, lower court costs and lower costs of treating a juvenile offender. In this example, it is assumed that, for every 100 youth who participate, two property crimes (one instance of larceny and one burglary) are averted, over and above the crimes that are averted through formal court proceedings. It is further assumed that six months of treatment in a juvenile facility are also averted.

It is further assumed that court costs for a juvenile case in this jurisdiction are \$1,350. This results in a benefit of \$1,350 per participant since every youth in the program is referred as part of a diversion program. Thus, this benefit is twice the benefit per participant realized in the previous example where only half of the youth in the program were diverted from the juvenile justice system and the rest were referred by other sources.

**3. Social return on investment: a targeted program to reduce property crimes (benefits and costs per participant, stated in 2005\$)**

	<b>Value</b>
<b>BENEFITS</b>	
Initial reduced court costs from diversion	\$1,350
Reduced future juvenile crime costs	
Reduced court costs plus crime victim costs	\$85
Reduced treatment costs	\$210
<b>TOTAL BENEFITS</b>	<b>\$1,635</b>
<b>TOTAL COSTS</b>	<b>\$200</b>
<b>BENEFIT-COST RATIO</b>	<b>8.18</b>
<b>Note: (total benefits/state costs)</b>	<b>24.53</b>
<b>Note: (public benefits/public costs)</b>	<b>8.18</b>

As Table 3 indicates, this program is estimated to return \$8.18 for each dollar of program cost. The majority of the benefit comes from the immediate savings in court costs from not processing the first-time juvenile offender. In addition, the reduction in future juvenile crimes produces an additional benefit of \$295 per participant, bringing the total benefits to \$1,635 per participant.

The two additional calculations made in the first example can also be made for this program. If we assume that one-third of the program funding comes from the state of Minnesota, then the return of total benefits is \$24.53 for every state dollar. We further assume that all of the local funding for the program comes from public sources. Thus, the public return on public dollars is \$8.18, since all of the benefits estimated here, the reduced costs of prosecuting and treating juvenile offenders, are societal benefits.

# Recommended data collection and future studies

The composite examples analyzed here give a reasonable estimate of the return to youth intervention programs, we believe. 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 things 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 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.

It would be extremely useful to develop more consistent and accurate estimates of the cost of processing juveniles through courts in different counties. In the case of formal diversion programs, the savings of initial court costs is one of the immediate and concrete benefits of a program. In those and other programs, the reduction of future court costs is an additional benefit. Future SROI calculations would be improved, if counties were surveyed as to the costs of juvenile proceedings. The counties would need to be given sufficiently detailed instructions to ensure that complete and consistent estimates were made in different counties.

### **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 youth intervention program, we would still not be capturing all of the effects of these programs in the most meaningful way. The ultimate purpose of intervention 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 youth intervention programs into adulthood and collecting data on their career and life achievements. In particular, data on further educational attainment, earnings, and criminal conduct (hopefully, the lack of criminal conduct) 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 intervention programs (and 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 intervention 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.

On the other hand, one advantage of a study of the graduates of youth intervention programs is that the participants are older and, thus, 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 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 intervention 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.

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