Benefits and Costs of Prevention and Early Intervention Programs for Youth

Technical Appendix

This technical appendix describes the sources, assumptions, computational methods, and estimates used in the Washington State Institute for Public Policy's benefit-cost analysis of prevention and early intervention programs. Two accompanying reports, one summarizing the findings of the study, and the other listing references used in the study, are available on the Institute's website: http://www.wsipp.wa.gov.

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Appendix A
Overview of the Benefit-Cost Approach and Model

In 2003, the Washington State Legislature directed the Washington State Institute for Public Policy (Institute) to study the benefits and costs of prevention and early intervention programs.[1] This technical appendix describes a benefit-cost model we constructed to estimate the economic "bottom lines" of these programs and policies.

For this review of "research-based" programs, the Legislature indicated seven outcomes of interest. The Legislature is interested in identifying prevention or early intervention programs that have a demonstrated ability to:

(1) Reduce crime;
(2) Lower substance abuse;
(3) Improve educational outcomes such as test scores and graduation rates;
(4) Decrease teen pregnancy and births;
(5) Reduce teen suicide attempts;
(6) Lower child abuse or neglect; and
(7) Reduce domestic violence.

There are two basic technical steps to this study. First, we quantify the scientific research literature on prevention and early intervention programs that address these seven outcomes.[2] To consider a program for inclusion in our analysis, we require that it have credible scientific evidence from at least one rigorous evaluation that measures one of the seven outcomes, and that it be a program capable of application or replication in the "real" world.

If a program meets these requirements, we then proceed to our second step where we estimate the comparative benefits and costs of each research-based program. These measures are our best estimates about the economics of each approach.

This project represents an expansion of a 2001 study we published on benefits and costs.[3] In that earlier work, we limited our focus to prevention and intervention programs that attempt to affect criminal outcomes. In the present study, we take a significant step forward to examine education outcomes, substance abuse outcomes, teen pregnancy outcomes, and child abuse and neglect outcomes, in addition to criminal outcomes. Where possible, we quantify the benefits and costs of each of these outcomes. This effort produces a more comprehensive view of the economic implications of prevention and intervention programs than our earlier work allowed.

Organization of the Technical Appendix. The sections of this technical appendix are organized as follows. In Appendix A, we present an overview of the model and our approach. In Appendix B, we describe the statistical methods and procedures we use to determine whether prevention and early intervention programs achieve the outcomes of interest. In Appendix C, we present the results of applying these methods to the programs we study, and describe additional detail about some of the specific programs. In Appendix D, we describe how we estimate the per-unit value of the outcomes of interest to this study. Finally, Appendix E contains tables not otherwise included in the body of the text.

Long-Run Benefits and Costs. Often, one of the stated purposes of prevention and early intervention programs is to achieve benefits that extend many years into the future. For example, one goal of early childhood education programs is not only to improve a student's readiness for first grade, but also to improve long term educational outcomes such as high school graduation rates. Similarly, a goal of many early intervention juvenile justice programs is not only to reduce juvenile delinquency rates in the short run, but also to reduce adult criminality in the long run.

In the Institute's benefit-cost model, we estimate these long-term relationships using information from several sources. As we discuss in this Appendix, we combine these long-run estimates with short-term research-based findings to produce expected life-cycle benefits and costs.

Internal Consistency. In an analysis such as this, many reasoned estimates and assumptions are necessary and a number of modeling decisions must be established. Across all the outcomes and programs we consider, we have attempted to be as internally consistent as possible. That is, our bottom-line estimates have been developed so that a benefit-cost ratio for one

[1] ESSB 5404 Sec. 608(2), Chapter 25, Laws of 2003.
[2] In this study, because of resource and other constraints, we were not able to quantify all areas of prevention and early intervention addressing these seven outcomes. Some of the areas we omitted are listed elsewhere in Appendix A.
[3] S. Aos, P. Phipps, R. Barnoski, and R. Lieb. (2001) *The Comparative Costs and Benefits of Programs to Reduce Crime*. Olympia: Washington State Institute for Public Policy, available at <www.wsipp.wa.gov>.

program can be compared directly to that of another program. By striving for internal consistency, our individual estimates can be compared to each other on a relative basis.

Cautious Assumptions. As was the case in our earlier benefit-cost work, we routinely and consistently make a number of cautious assumptions. We require that evaluations have a scientifically valid research design, and we penalize the results from studies that have a less-than-randomized research approach. We also discount the findings from evaluations that were not "real world" programs since, as we discuss later, we have found that real world applications of model programs often produce reduced levels of outcomes. We also use a number of other assumptions in an effort to isolate the causal relationships between prevention and early intervention and the valuation of the outcomes of interest. Thus, the benefit-cost ratios that we report here will usually be smaller than the values from studies undertaken by program developers. As noted, however, we have been internally consistent in making these assumptions.

Three Perspectives on Benefits and Costs. In this analysis, we construct our estimates of benefits and costs from three perspectives. The first division is between the benefits and costs from the perspective of those who participate in a program, compared with those who do not participate in the program. The second division concerns the non-participants: we estimate the benefits and costs to non-participants in their roles as taxpayers, and non-participants in all of their other non-taxpayer roles. For the non-participants, we estimate benefits and costs when there is evidence that the program generates external benefits. We make this second division because many public policy decision-makers want to know rate-of-return information from the single perspective of the taxpayer, while other decision-makers want to know the broader societal implications of their options.

For example, we estimate the long-term labor market benefits that accrue to the participants in a successful early childhood education program. As we show in this analysis, there is evidence that a successful early childhood education program also produces lower long-term crime rates and this generates benefits to non-participants by lowering the amount of money that taxpayers have to spend on the criminal justice system. Lower crime also reduces the amount of costs that crime victims would otherwise have to endure. Thus, we provide estimates for each of the three perspectives: program participants, non-participants as taxpayers, and non-participants in other non-taxpayer roles.

The Model's Expandability. The state of research-based knowledge is continually expanding. More is know today than ten years ago on the relative effectiveness of prevention and intervention programs, and more will be known in the future.

We built this benefit-cost model so that it can be expanded to incorporate this evolving state of research-based evidence. Similar to an investment analyst's model used to update quarterly earnings-per-share estimates of private investments, this model is designed to be updated regularly as new and better information becomes available. This design feature allows increasingly refined estimates of the economic bottom lines for prevention and early intervention programs, and will supply government decision-makers with the latest information on how taxpayers can get better returns on their dollars.

Prevention and Early Intervention Areas Not Included in This Benefit-Cost Analysis. While we believe our current review covers a substantial portion of the existing evaluation research in the areas we covered, it is likely that we have missed some studies. More significantly, at present, the Institute's review does not include the full range of prevention or intervention topics. As more research is undertaken both in Washington State and elsewhere, our benefit-cost analysis can be extended to encompass these and other areas of interest to policymakers.

Many programs we review have achieved other outcomes than those we include in our benefit-cost analysis. Some prevention programs, for example, have been able to improve outcomes such as "parent-child relationship" or "classroom conduct disorder." These may be worthy outcomes but, at present, we are unable to monetize their benefits using our current methods discussed in Appendix D. If these programs did not also include outcomes that we could monetize, then they were not included in this analysis. Future research may enable us to monetize and include some of these other outcomes.

We also excluded some types of prevention programs from this study because we were not asked to examine the economic implications of certain types of outcomes.

For example, we were not asked to assess the outcomes of programs that affect some public health outcomes such as immunization programs or low birth weight babies. There is also a range of mental health outcomes that we were not asked to examine and programs addressing these outcomes are not analyzed here.

Additionally, some types of programs were excluded because of the limited amount of time available for this study. In particular, of the seven outcomes that are the focus of this research, we did not have time to investigate domestic violence programs. We hope future research will enable us to study this area in detail.

In our previous work on benefits and costs, we included programs that target adult criminality. In this review, we have not included these programs because they are not prevention or early intervention programs. In subsequent updates to this study, we intend to include our benefit-cost analysis of programs for adult criminal offenders.

Finally, resource constraints prevented us from including some programs for which there is a research base. In the juvenile justice area, for example, we did not have time to include existing research studies on the effectiveness of policing levels and deployment strategies in affecting juvenile crime outcomes, or on the effectiveness of detention for preventing or deterring juvenile crime. Again, we intend to include these areas in subsequent versions of this study.

As new evaluations are completed, as previously overlooked studies are discovered, or if the Institute is asked to examine other areas of prevention or early intervention, the model we constructed for this project is flexible enough to update the analysis. Thus, the "program inventory" in this report provides an expandable base of evaluation information to assist Washington State policymakers and program designers.

Technical Overview of the Model Structure.
The benefit-cost model used in this study is an integrated set of estimates and computational routines designed to produce internally consistent benefit-to-cost ratios. The model is housed in Microsoft Excel© and uses Microsoft's Visual Basic for Applications. The model was constructed in Excel so that as new scientific knowledge is generated and refined, the model can be updated easily to produce improved benefit-to-cost estimates. Additionally, housing the model in Excel allows sensitivity analyses to be performed using Monte Carlo simulation techniques, such as those found in Palisade's At-Risk© software.

The simplest form of the benefit-cost model can be described with this standard economic equation for calculating a net present value.

$$\text{(A1)} \qquad NPV_{progage} = \sum_{y=progage}^{N} \frac{Q_y \times P_y - C_y}{(1+Dis)^y}$$

In equation (A1), $NPV_{progage}$ is an estimate of the expected net present value of a program, discounted to the age of the person in a program (*progage*); Q_y is the quantity in year y of some outcome that the program has affected; P_y is the price or per unit value of the outcome in year y; C_y is the cost of the program in year y; Dis is the overall discount rate employed in the analysis of benefits and costs; and N is the total number of years into the future over which the quantities, prices, and costs are analyzed.

Rearranging terms in (A1), the benefit-to-cost ratio, *B/C,* is given by:

$$\text{(A2)} \qquad B/C = \frac{\sum_{y=progage}^{N} \frac{Q_y \times P_y}{(1+Dis)^y}}{\sum_{y=progage}^{N} \frac{C_y}{(1+Dis)^y}}$$

In some analyses (not this one) "cost-effectiveness" ratios are calculated by excluding values for P_y in equation (A2). This is sometimes a reasonable approach since estimating the values for P can be complicated when there is not a convenient competitive market price to apply. A cost-effectiveness ratio *C/E* is an estimate of the present value of the quantities avoided or obtained for some outcome, per dollar of cost.

$$\text{(A3)} \qquad C/E = \frac{\sum_{y=progage}^{N} \frac{Q_y}{(1+Dis)^y}}{\sum_{y=progage}^{N} \frac{C_y}{(1+Dis)^y}}$$

Rearranging equation (A1) further, a break-even quantity *BEQ* can be calculated by dividing the present value of the costs by the present value of the prices (implicitly multiplied by one unit of quantity in each year). This measure describes how many units of outcome a program must produce in order to fully recover the costs of the program.

(A4) $$BEQ = \frac{\sum_{y=progage}^{N} \frac{C_y}{(1+Dis)^y}}{\sum_{y=progage}^{N} \frac{P_y}{(1+Dis)^y}}$$

The remaining sections of this technical appendix describe the model and how its parameters are estimated.

Appendix B

Methods Used to Estimate Program Effects

The purpose of the Institute's study is to estimate the comparative benefits and costs of prevention and early intervention programs and policies that try to affect the outcomes of interest to the Washington State Legislature. The first step in the overall modeling effort is to provide a quantitative estimate of the degree to which a program or policy can be expected to influence these outcomes. The goal is to determine if there is credible scientific evidence that some types of prevention or early intervention programs are effective.

For this review of evidence-based programs, the Legislature indicated seven outcomes of interest. The Legislature is interested in identifying prevention or early intervention programs that have a demonstrated ability to:

(1) Reduce crime;
(2) Lower substance abuse;
(3) Improve educational outcomes such as test scores and graduation rates;
(4) Decrease teen pregnancy and births;
(5) Reduce teen suicide attempts;
(6) Lower child abuse or neglect; and
(7) Reduce domestic violence.

In this study, we quantify the scientific research literature on prevention and early intervention programs that address these seven outcomes.[4]

As described in Appendix A, the basic economic equation for performing the benefit-cost analysis is given by:

$$NPV_{progage} = \sum_{y=progage}^{N} \frac{Q_y \times P_y - C_y}{(1+Dis)^y}$$

In this model, the net present value (NPV) of a program is the quantity of the outcomes produced from a program (Q_y) in year y times the price per unit of the outcome (P_y), minus the cost of producing the outcome (C_y). The lifecycle of each of these values is measured from the age of the person who enters the program ($progage$) and runs over the number of years into the future over which they are evaluated (N). The future values are brought back to present value by the discount rate (Dis).

The purpose of Appendix B is to describe how we calculate the Q_y variables in the equation. We use meta-analytic procedures to obtain these estimates. First, we gather information from available program evaluations. We then compute effect sizes from the program evaluation findings. We make several adjustments to account for the quality of an evaluation's research design, whether the evaluation was conducted on a "real world" program, and the quality of the outcome measures used in a study. Each of these steps is described in Appendix B.

B.1 Sources of Program Evaluation Information

We gather published and unpublished evaluations of prevention and intervention programs from a wide variety of sources. The Institute locates studies that are published in peer-reviewed journals as well as other studies not published in journals. The latter group includes studies from government or private agency sources. The citations reported in other narrative and meta-analytic reviews are prime sources used to identify many studies. We also perform searches of electronic databases available through ProQuest, EbscoHost, JSTOR, and ERIC. We also use internet search engines such as Google to help identify and locate many publications, especially more recent and unpublished research.

After obtaining individual studies, we organize the evaluations into policy-relevant topics, such as early childhood education programs, home visitation programs, mentoring programs, school-based substance abuse prevention programs, and so on. Some meta-analytic groupings are for very specific "off-the shelf" single programs such as those identified as "Blueprint" programs by the University of Colorado's Center for the Study and Prevention of Violence.[5] Other groupings are for more general topic areas such as early childhood education for low income youth. We have attempted to group programs to reflect specific policy-relevant questions that are often addressed by legislative and executive branches of state and local government.

[4] See Appendix A for a discussion of the areas we did not cover in this benefit-cost analysis; in particular, we did not address domestic violence programs.

[5] <http://www.colorado.edu/cspv>.

B.2 Coding Information From Program Evaluations

Once copies of studies are obtained, the Institute records key information from each evaluation, including the following:

- A citation and general description of the program.
- A rating for the strength of the research design (see B.7).
- Whether the program was a "real world" test of a program, or a demonstration project (see B.8).
- The type(s) of outcomes measured in the evaluation. For example, the crime outcome may include measures of arrests, convictions, returns to prison, or self-reported crime. For education outcomes, the measures may include several human capital variables such as high school graduation rates, total years of education completed, or test scores. In our meta-analytic database, a separate entry is made for each type of outcome.
- A flag to indicate if the outcome measure may be a weak measure of the ultimate outcome of interest (see B.9).
- The length of the follow-up period in the evaluation. If a study reports several different follow-up periods, we record each entry separately so that we can test for decay or escalation in effect sizes.
- The per-participant costs of the program for participants or comparison group members and the year in which the dollars are denominated, if reported.
- The number of participants in the program and comparison group.
- The results for the reported dichotomously measured outcomes for the program and comparison groups.
- The results for the reported continuously measured outcomes for the program including means and standard deviations for the program or comparison groups.

Possible Adjustments to the Coding of Effects for Each Study For each of the two main types of reported results noted above (i.e. outcomes measured as dichotomous or continuous variables), we make three adjustments, if necessary, to the information provided in each study:

1. Combining results for program completers and dropouts. The outcomes of some treatment-comparison group evaluations report results for two groups: those who received the full dose or at least some amount of treatment, and those in the comparison group who received no treatment. Depending on how well the comparison group matches the treatment group (see B.7), the results of these evaluations can be directly compared. Other evaluations, however, report the recidivism rates of three groups: program completers, program dropouts, and a comparison group. Still other studies only report outcomes for program completers versus the comparison group. We believe that the differences in these three types of evaluations must be standardized in order to synthesize the results fairly. If this standardization is not done, self-selection bias is very likely to be introduced, since program completion probably measures motivational factors that are not usually measured in a comparison of typical pre-existing variables. Therefore, in coding the results of individual outcome evaluations, we always combine the results for program completers and dropouts, and then compare this combined treatment group against the comparison group. For example, if a study reports that 50 members of the treatment group completed the program and had a criminal recidivism rate of 30 percent and 50 members of the treatment group dropped out of the program and had a recidivism rate of 40 percent, then the Institute would record the weighted average recidivism rate for the entire treatment group (35%) and compare that number to the comparison or control group's reported recidivism rate. If the numbers are not reported in the study to allow this combination of program completers and dropouts, then the study is dropped from further consideration in the meta-analysis.

2. Multivariate results. Many outcome evaluations simply report the results for a treatment and comparison group without making adjustments for any differences between the two groups. If, however, an evaluation conducts a multivariate analysis of the outcomes (e.g., a logistic regression of dichotomous results or ordinary least squares regression of continuous values) to adjust for any differences in pre-existing variables between the treatment and control groups, then we use those multivariate-adjusted numbers rather than the "raw" results. For those studies that do report multivariate results, if the study also reports the values of the independent variables used in the multivariate analysis, then the estimated outcomes are taken at the mean values applied to the coefficients in the multivariate analysis. If the mean values of the independent variables are not recorded, then the reported regression coefficient (e.g., an odds ratio or an OLS coefficient) is used to express the

program group's outcome measure as a function of the reported comparison group's unadjusted outcome measure. Often a study will report the results of statistical tests for the outcomes (e.g., a p-value, confidence interval, chi-square, or t-test statistic) and these are used to construct estimates of the mean values and, in the case of continuously measured outcomes, the standard deviations of the outcomes. We use the methods described in Lipsey and Wilson (2001)[6] to calculate these estimates.

3. Follow-up time standardization. In comparing the outcomes between a program and comparison group, some evaluations indicate that the follow-up times are non-equivalent. When this is encountered, we adjust the follow-up time of one of the groups to match that of the other group. A simple, yet conservative, assumption is made in calculating this adjustment. For example, suppose an evaluation reports that the criminal recidivism rate for a program group is 30 percent during an 18-month follow-up period and 45 percent for a comparison group over a 20-month period. If no other information is reported in the evaluation, the Institute assumes linearity by dividing .30 by 18 months and multiplying that quotient by the difference in the number of months in the follow-up times of the two groups. In this example, the adjusted recidivism rate of the program group would be increased to 33 percent [.33 = (.30/18)*(20-18)+(.30)] instead of the reported 30 percent. In the case of crime outcomes, this adjustment is probably conservative, because most recidivism curves are not linear but increase steeply at first and then begin to level off. Lacking other information about the shape of the recidivism curves, however, we believe that it is more accurate to make even a simple adjustment for unequal follow-up times than to assume that the different follow-up times have zero effect on outcomes.

B.3 Calculating Effect Sizes

Effect sizes—the degree to which a program has been shown to change an outcome of program participants relative to a comparison group—are calculated, where possible, for each program. There are several methods used by meta-analysts to calculate effect sizes, as described in Lipsey and Wilson (2001). In this analysis of the benefits and costs of prevention and early intervention programs, we use standard statistical procedures to calculate the *mean difference effect sizes* of programs. We did not use the odds-ratio effect size because so many of the outcomes measured in this study are continuously measured. Thus, the mean difference effect size was the natural choice.

Many of the outcomes we record, however, are measured as dichotomies. For these yes/no outcomes, such as the simple percentage difference in high school graduation rates between a treatment and control or comparison group, Lipsey and Wilson (2001) show that the mean difference effect size calculation can be approximated using the arcsine transformation of the difference between proportions.[7]

(B1) $$ES_{m(p)} = 2 \times \arcsin\sqrt{P_e} - 2 \times \arcsin\sqrt{P_c}$$

In this formula, $ES_{m(p)}$ is the estimated effect size for the difference between proportions from the research information; P_e is the percentage of the population that had an outcome such as high school graduation for the experimental or treatment group; and P_c is the percentage of the population that graduated from high school for the control or comparison group. As described earlier, the percentages used (P_e and P_c) to calculate the effect size reflect any adjustments made by the Institute to account for the combination of results for program completers and dropouts, the use of any reported multivariate results, and any adjustments for unequal follow-up periods.

A second effect size calculation involves continuous data where the differences are in the means of an outcome. When an evaluation reports this type of information, we use the standard mean difference effect size statistic.[8]

(B2) $$ES_m = \frac{M_e - M_c}{\sqrt{\frac{SD_e^2 + SD_c^2}{2}}}$$

In this formula, ES_m is the estimated effect size for the difference between means from the research information; M_e is the mean number of an outcome for the experimental group; M_c is the mean number of an outcome for the control group; SD_e is the standard deviation of the mean number for the

[6] M. W. Lipsey and D. Wilson. (2001) *Practical meta-analysis*. Thousand Oaks: Sage Publications. There are three principal choices for calculating effect sizes—the standardized mean difference effect size, the odds ratio effect size, and the correlation coefficient effect size—and each of these three metrics can be converted into the others with appropriate transformations.

[7] *Ibid*., Table B10, formula (22).
[8] *Ibid*., Table B10, formula (1).

experimental group; and SD_c is the standard deviation of the mean number for the control group. Often, research studies report the mean values needed to compute ES_m in (B2), but they fail to report the standard deviations. Sometimes, however, the research will report information about statistical tests or confidence intervals that can then allow the pooled standard deviation to be estimated. These procedures are also described in Lipsey and Wilson (2001). We use these procedures whenever possible to aid in calculating the effect sizes.

B.4 Adjusting Effect Sizes for Small Sample Sizes

Since some studies have very small sample sizes, we follow the recommendation of many meta-analysts and adjust for this. Small sample sizes have been shown to upwardly bias effect sizes, especially when samples are less than 20. Following Hedges (1981),[9] Lipsey and Wilson (2001)[10] report the "Hedges correction factor," which we use to adjust all mean difference effect sizes (N is the total sample size of the combined treatment and comparison groups):

$$\text{(B3)} \quad ES'_m = \left[1 - \frac{3}{4N-9}\right] \times \left[ES_m, or, ES_{m(p)}\right]$$

B.5 Computing Weighted Average Effect Sizes, Confidence Intervals, and Homogeneity Tests

Once effect sizes are calculated for each program effect, the individual measures are summed to produce a weighted average effect size for a program area. The Institute calculates the inverse variance weight for each program effect and these weights are used to compute the average. These calculations involve three steps. First, the standard error, SE_m of each mean effect size is computed with:[11]

$$\text{(B4)} \quad SE_m = \sqrt{\frac{n_e + n_c}{n_e n_c} + \frac{(ES'_m)^2}{2(n_e + n_c)}}$$

In equation (B4), n_e and n_c are the number of participants in the experimental and control groups and ES'_m is from equation (B3).

Next, the inverse variance weight w_m is computed for each mean effect size with:[12]

$$\text{(B5)} \quad w_m = \frac{1}{SE_m^2}$$

The weighted mean effect size for a group of studies in program area i is then computed with:[13]

$$\text{(B6)} \quad \overline{ES_i} = \frac{\sum (wm_i ES'm_i)}{\sum wm_i}$$

Confidence intervals around this mean are then computed by first calculating the standard error of the mean with:[14]

$$\text{(B7)} \quad SE_{\overline{ES}} = \sqrt{\frac{1}{\sum w_i}}$$

Next, the lower, ES_L, and upper limits, ES_U, of the confidence interval are computed with:[15]

$$\text{(B8)} \quad \overline{ES_L} = \overline{ES} - z_{(1-\alpha)}(SE_{\overline{ES}})$$

$$\text{(B9)} \quad \overline{ES_U} = \overline{ES} + z_{(1-\alpha)}(SE_{\overline{ES}})$$

In equations (B8) and (B9), $z_{(1-\alpha)}$ is the critical value for the z-distribution (1.96 for α = .05).

The test for homogeneity, which provides a measure of the dispersion of the effect sizes around their mean, is given by:[16]

$$\text{(B10)} \quad Q_i = (\sum w_i ES_i^2) - \frac{(\sum w_i ES_i)^2}{\sum w_i}$$

The Q-test is distributed as a chi-square with k-1 degrees of freedom (where k is the number of effect sizes).

B.6 Computing Random Effects Weighted Average Effect Sizes and Confidence Intervals

When the p-value on the Q-test indicates significance at values of p less than or equal to .05,

[9] L. V. Hedges. (1981) "Distribution theory for glass's estimator of effect size and related estimators." *Journal of Educational Statistics* 6: 107-128.
[10] Lipsey and Wilson, *Practical meta-analysis*, 49, formula 3.22.
[11] *Ibid.,* 49, equation 3.23.
[12] *Ibid.*, 49, equation 3.24.
[13] *Ibid.*, 114.
[14] *Ibid.*, 114.
[15] *Ibid.*, 114.
[16] *Ibid.*, 116.

a random effects model is performed to calculate the weighted average effect size. This is accomplished by first calculating the random effects variance component, v.[17]

$$(B11) \quad v = \frac{Q_i - (k-1)}{\sum w_i - (\sum wsq_i / \sum w_i)}$$

This random variance factor is then added to the variance of each effect size and then all inverse variance weights are recomputed, as are the other meta-analytic test statistics.

B.7 Adjusting Effect Sizes for Research Design Quality

Not all research is of equal quality and this, we believe, greatly influences the confidence that can be placed in the results from a study. Some studies are well designed and implemented and the results can be viewed as accurate representations of whether the program itself worked. Other studies are not designed as well and less confidence can be placed in any reported differences. In particular, studies of inferior research design cannot completely control for sample selection bias or other threats to the validity of reported research results. This does not mean that results from these studies are of no value, but it does mean that less confidence can be placed in any cause-and-effect conclusions drawn from the results.

To account for the differences in the quality of research designs: we use a 5-point scale as a way to adjust the reported results. The scale is based closely on the 5-point scale developed by researchers at the University of Maryland.[18] On this five-point scale, a rating of "5" reflects an evaluation in which the most confidence can be placed. As the evaluation ranking gets lower, less confidence can be placed in any reported differences (or lack of differences) between the program and comparison or control groups.

On the five-point scale as interpreted by the Institute, each study is rated with the following numerical ratings.

- A **"5"** is assigned to an evaluation with well-implemented random assignment of subjects to a treatment group and a control group that does not receive the treatment/program. A good random assignment study should also indicate how well the random assignment actually occurred by reporting values for pre-existing characteristics for the program and control groups.
- A **"4"** is assigned to a study that employs a rigorous quasi-experimental research design with a program and matched comparison group, controlling with statistical methods for self-selection bias that might otherwise influence outcomes. These quasi-experimental methods may include estimates made with a convincing instrumental variable modeling approach, or a Heckman approach to modeling self-selection.[19] A level 4 study may also be used to "downgrade" an experimental random assignment design that had problems in implementation, perhaps with significant attrition rates.
- A **"3"** indicates a non-experimental evaluation where the program and comparison groups were reasonably well matched on pre-existing differences in key variables. There must be evidence presented in the evaluation that indicates few, if any, significant differences were observed in these salient pre-existing variables. Alternatively, if an evaluation employs rigorous statistical techniques (e.g., logistic regression) to control for pre-existing differences, and if the analysis is successfully completed, then a study with some differences in matched pre-existing variables can qualify as a level 3.
- A **"2"** involves a study with a program and matched comparison group where the two groups lack comparability on pre-existing variables and no attempt was made to control for these differences in the study.
- A **"1"** involves a study where no comparison group is utilized. Instead, the relationship between a program and an outcome, i.e., recidivism, is analyzed before and after the program.

We do not use the results from program evaluations rated as a "1" on this scale, because they do not include a comparison group and we believe that there is no context to judge program effectiveness. We also regard evaluations with a rating of "2" as

[17] *Ibid.,* 134.

[18] L. W. Sherman, D. Gottfredson, D. MacKenzie, J. Eck, P. Reuter, and S. Bushway. (1998) *Preventing crime: What works, what doesn't, what's promising*. Prepared for the National Institute of Justice. Department of Criminology and Criminal Justice, University of Maryland. Chapter 2.

[19] For a discussion of these methods, see W. Rhodes, B. Pelissier, G. Gaes, W. Saylor, S. Camp, and S. Wallace, (2002) *Alternative solutions to the problem of selection bias in an evaluation of federal residential drug treatment programs*. Washington, DC: Federal Bureau of Prisons, Office of Research and Evaluation.

highly problematic and, as a result, we do not consider their findings in the calculations of effect sizes in our benefit-cost calculations. In this study, we only consider evaluations that rate at least a 3 on this 5-point scale.

An explicit adjustment factor is assigned to the results of individual effect sizes based on the Institute's judgment concerning research design quality. We believe this adjustment is critical and is the only practical way to combine the results of a high quality study (e.g., a level 5 study) with those of lesser design quality. This adjustment means that, everything else being equal, a level 5 study has more influence on the overall effect size for a given area than does a level 3 or 4 study. The specific adjustments made for these studies depend on the topic area being considered. In some areas, such as criminal justice program evaluations, there is strong evidence that less-than-random assignment studies (i.e., less than level 5 studies) have, on average, smaller effect sizes than weaker-designed studies.[20] Thus, for the typical criminal justice evaluation, we use the following "default" adjustments to account for studies of different research design quality:

- A level 5 study carries a factor of 1.0 (that is, there is no discounting of the study's evaluation outcomes).
- A level 4 study carries a factor of .75 (effect sizes discounted by 25 percent).
- A level 3 study carries a factor of .50 (effect sizes discounted by 50 percent).
- A level 2 study carries a factor of .00 (effect sizes discounted by 100 percent).
- A level 1 study carries a factor of .00 (effect sizes discounted by 100 percent).

Studies with a level 1 or 2 rating are not used in the benefit-cost analyses; hence their weights are zero. A study with a level 3 rating carries half the weight of a level 5 study and a level 4 study has three-quarters of the weight. These factors are subjective to a degree; they are based on the Institute's general impressions of the confidence that can be placed in the predictive power of criminal justice studies of different quality.

Appendix E.3 lists the research design weights used to discount each study in the analysis.

There is reason to believe that the same weights should not be applied to all areas. For example, as we discuss in Appendix C, there is evidence that a level 3 study of an early childhood education program does not need to be discounted to the degree that a level 3 criminal justice study does. That is, the apparent self-selection bias that occurs in the typical early childhood education study is not as strong in the typical study of a criminal justice program. Therefore, where we have differential evidence, we employ different research design weights.

The effect of the adjustment is to multiply the effect size, ES'_m, in equation (B3) by the appropriate research design factor listed in Appendix E.3. For example, if a juvenile justice study has an effect size of -.2 and it is deemed a level 4 study, then the -.2 effect size would be multiplied by .75 to produce a -.15 adjusted effect size for use in the subsequent steps of the meta-analysis.

B.8 Adjusting Effect Sizes for Evaluations of "Non-Real World" Programs

The purpose of the Institute's work is to identify and evaluate programs that can make cost-beneficial improvements to Washington's actual service delivery system. There is some evidence that programs that are closely controlled by researchers or program developers have better results than those that operate in "real world" administrative structures.[21] In our own evaluation of a real-world implementation of a research-based juvenile justice program in Washington, we found that the actual results were considerably lower than the results obtained when the intervention was conducted by the originators of the program.[22] Therefore, we make an adjustment to effect sizes, ES_m, to reflect this distinction. As a parameter for all studies deemed not to be "real world" trials, the Institute discounts ES'_m, as shown on Appendix E.3.

[20] M. W. Lipsey. (2003) "Those confounded moderators in meta-analysis: Good, bad, and ugly." *The Annals of the American Academy of Political and Social Science* 587(1): 69-81. Lipsey found that, for juvenile delinquency evaluations, random assignment studies produced effect sizes only 56 percent as large as nonrandom assignment studies.

[21] Lipsey, "Those confounded moderators in meta-analysis." Lipsey found that, for juvenile delinquency evaluations, programs in routine practice (i.e., "real world" programs) produced effect sizes only 61 percent as large as research/demonstration projects.

[22] R. Barnoski. (2004) *Outcome evaluation of Washington state's research-based programs for juvenile offenders*. Olympia: Washington State Institute for Public Policy, available at <http://www.wsipp.wa.gov/rptfiles/04-01-1201.pdf>.

B.9 Adjusting Effect Sizes for Evaluations With Weak Outcome Measures

Some evaluations use outcome measures that may not be precise gauges of the ultimate outcome of interest. In these cases, we record a flag that can later be used to discount the effect. For example, the evaluation of the Big Brothers/Big Sisters mentoring program (Grossman and Tierney, 1998) used a self-reported measure of "number of times hit someone" to measure antisocial behavior.[23] If this measure is used to indicate possible future crime-related activity for violence, then a flag on this outcome measure can be used to reflect the probability that this measure may not be expected to have a one-to-one relationship with future criminal activity and that a better outcome measure would have been official or self-reported crime or delinquency.

[23] J. B. Grossman and J.P. Tierney. (1998) "Does mentoring work? An impact study of the Big Brothers Big Sisters Program." *Evaluation Review* 22(3): 403-426.

Appendix C

Measured Outcomes of Prevention and Early Intervention Programs

We use the methods described in Appendix B to assess the scientific research literature on the effectiveness of prevention and early intervention programs. Appendix C provides the results.

We determine the degree to which these programs have been shown to influence outcomes of interest. As noted, the Washington Legislature is interested in determining whether these programs have a demonstrated ability to:

(1) Reduce crime;
(2) Lower substance abuse;
(3) Improve educational outcomes such as test scores and graduation rates;
(4) Decrease teen pregnancy and births;
(5) Reduce teen suicide attempts;
(6) Lower child abuse or neglect; and
(7) Reduce domestic violence.

C.1 Table of Estimated Effect Sizes for Prevention and Early Intervention Programs

Table C.1 summarizes our main meta-analytic findings for each prevention or early intervention program (or group of programs) that we reviewed.[24] The first column on the table indicates the outcome for which we have estimated an effect size. The next column reports the number of effects included in each meta-analysis. Table E.4 in Appendix E lists the citations to the individual studies that we used to derive these outcomes.

[24] See Appendix A for a discussion of the areas we did not cover in this benefit-cost analysis; in particular, we did not address domestic violence programs.

The next two columns of Table C.1 show the weighted mean effect size and its significance level for each outcome. We then report the significance of the Q-test for homogeneity for analyses with more than one study and, when called for, the results of a random effects weighted mean effect size and its significance level.

The last column of Table C.1 shows the mean effect size after we make adjustments for the quality of the research design and other adjustment factors we describe in Appendix B. These adjusted effect sizes are the estimates we use in the benefit-cost analysis.

The remaining sections of Appendix C provide some additional detail and notes for the findings displayed in Table C.1.

Important Note. Table C.1 reports estimated effect sizes for the programs we reviewed. Many of these programs have achieved other outcomes than those we show. Table C.1 only includes those outcomes that have bearing on our quantification of monetary benefits. Some prevention programs, for example, have been able to improve outcomes such as “parent-child relationship” or “classroom conduct disorder.” These may be worthy outcomes but, at present, we are unable to monetize their benefits using our current methods discussed in Appendix D. Future research may enable us to include some of these other outcomes in subsequent versions of this study.

How to read this table. Example: the Adolescent Diversion Project's impact on crime-related outcomes.

Table C1.a
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes
Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	Results Before Adjusting Effect Sizes					Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Adolescent Diversion Project, and its effect on:								
Crime	4	-.504	0.000	0.007	-.642	0.001	**-.483**	
Adolescent Sibling Pregnancy Prevention Program, and its effect on:								(1)
Sexual Initiation	1	-.157	0.006	na	na	na	**-.118**	
Teen Births/Pregnancy (under age 18)	1	-.128	0.060	na	na	na	**-.096**	
STD	1	.044	0.405	na	na	na	**.000**	
Adolescent Transitions Program, and its effect on:								(2)(8)
	1	-.292	0.002	na	na	na	**-.291**	
	2	-.282	0.001	0.751	na	na	**-.269**	
ashington), and its effect on:								
	4	-.581	0.000	0.524	na	na	**-.178**	
All Stars, and its effect on:								(2)(7)
	2	-.086	0.007	0.686	na	na	**-.039**	
	2	-.055	0.089	0.030	-.041	0.573	**.000**	
	2	-.085	0.00			na	**-.038**	
	2	-.115	0.00			0.469	**.000**	
	2	-.043	0.18			na	**.000**	
	2	.115	0.00			0.469	**.000**	
Smokeless Tobacco	1	-.035	0.50			na	**.000**	
	1	-.095	0.141	na			**.000**	
	1	.106	0.100	na			**.027**	
	1	-.187	0.004	na			**-.187**	
	1	-.174	0.018	na			**-.174**	
CASASTART (Striving Together to Achieve Rewarding Tomorrows), and its effect on:								
	1	-.252	0.005	na			**-.252**	
	1	-.353	0.000	na	na	na	**-.352**	
	2	-.122	0.054	0.493	na	na	**-.122**	
	1	-.181	0.011	na	na			
Tobacco (prob of initiation)	1	-.098	0.166	na	na			
Illicit Drugs (prob of initiation)	1	-.167	0.018	na	na			
Crime	1	-.061	0.386	na	na			
Childhaven, and its effect on:								
Crime	1	-.477	0.106	na	na			
Children's Aid Society-Carrera Project, and its effect on:								
Sexual Initiation	1	-.203	0.026	na	na	na	**-.202**	
Teen Births/Pregnancy (under age 18)	1	-.400	0.001	na	na	na	**-.399**	
Contraception	1	.083	0.456	na	na	na	**.000**	
CMCA (Communities Mobilizing for Change on Alcohol), and its effect on:								(9)
Alcohol Use	2	-.034	0.206	0.323	na	na	**.000**	
Comprehensive Child Development Program, and its effect on:								
Public Assistance	1	.060	0.060	na	na	na	**.060**	
Test Scores	1	.027	0.500	na	na	na	**.000**	

1. The number of trials or separate studies used in the analysis of this outcome.

2. The (weighted) average size of the treatment effect over the four trials. The negative number means this program reduces crime.

3. The probability of this effect size occurring by mere chance. Probabilities of .10 or less are considered significant.

4. The probability that there were no significant differences among the four trials. Probabilities of .10 or less are considered significant.

5. Average size of the treatment effect after adjusting for significant differences among trials.

6. The probability of the adjusted effect size occurring by mere chance. Probabilities of .10 or less are considered significant.

7. Average effect size (e.g. reduced crime) after adjusting for study quality and the quality of outcome measures. This is the effect size used to calculate benefits of the program.

Table C.1a
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Adolescent Diversion Project, and its effect on:								
Crime	4	-.504	0.000	0.007	-.642	0.001	**-.483**	
Adolescent Sibling Pregnancy Prevention Program, and its effect on:								(15)
Sexual Initiation	1	-.157	0.006	na	na	na	**-.118**	
Teen Births/Pregnancy (under age 18)	1	-.128	0.060	na	na	na	**-.096**	
STD	1	.044	0.405	na	na	na	**.000**	
Adolescent Transitions Program, and its effect on:								(14)
Alcohol (prob of initiation)	1	-.292	0.002	na	na	na	**-.291**	
Tobacco (prob of initiation)	2	-.282	0.001	0.751	na	na	**-.269**	
Aggression Replacement Training (excluding Washington), and its effect on:								
Crime	4	-.581	0.000	0.524	na	na	**-.178**	
Aggression Replacement Training (in Washington), and its effect on:								(4)
Crime	1	-.146	0.028	na	na	na	**-.109**	
All Stars, and its effect on:								(7)
Tobacco (prob of initiation)	2	-.086	0.007	0.686	na	na	**-.039**	
Alcohol Use	2	-.055	0.089	0.030	-.041	0.573	**.000**	
Tobacco (regular use)	2	-.085	0.009	0.659	na	na	**-.038**	
Marijuana Use	2	-.115	0.000	0.000	-.087	0.469	**.000**	
Alcohol (prob of initiation)	2	-.043	0.180	0.058	na	na	**.000**	
Illicit Drugs (prob of initiation)	2	-.115	0.000	0.000	-.087	0.469	**.000**	
Smokeless Tobacco	1	-.035	0.500	na	na	na	**.000**	
Big Brothers/Big Sisters, and its effect on:								
Crime	1	-.095	0.141	na	na	na	**.000**	
Test Scores	1	.106	0.100	na	na	na	**.027**	
Alcohol (prob of initiation)	1	-.187	0.004	na	na	na	**-.187**	
Illicit Drugs (prob of initiation)	1	-.174	0.018	na	na	na	**-.174**	
CASASTART (Striving Together to Achieve Rewarding Tomorrows), and its effect on:								
Illicit Drugs (prob of initiation)	1	-.252	0.005	na	na	na	**-.252**	
Substance Use	1	-.353	0.000	na	na	na	**-.352**	
Crime	2	-.122	0.054	0.493	na	na	**-.122**	
Child Development Project, and its effect on:								(9)
Alcohol (prob of initiation)	1	-.181	0.011	na	na	na	**-.091**	
Tobacco (prob of initiation)	1	-.098	0.166	na	na	na	**.000**	
Illicit Drugs (prob of initiation)	1	-.167	0.018	na	na	na	**-.083**	
Crime	1	-.061	0.386	na	na	na	**.000**	
Childhaven, and its effect on:								
Crime	1	-.477	0.106	na	na	na	**.000**	
Children's Aid Society-Carrera Project, and its effect on:								(15)
Sexual Initiation	1	-.203	0.026	na	na	na	**-.202**	
Teen Births/Pregnancy (under age 18)	1	-.400	0.001	na	na	na	**-.399**	
Contraception	1	.083	0.456	na	na	na	**.000**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
CMCA (Communities Mobilizing for Change on Alcohol), and its effect on:								
Alcohol Use	2	-.034	0.206	0.323	na	na	**.000**	
Comprehensive Child Development Program, and its effect on:								
Public Assistance	1	.060	0.060	na	na	na	**.060**	
Test Scores	1	.027	0.500	na	na	na	**.000**	
D.A.R.E. (Drug Abuse Resistance Education), and its effect on:								
Tobacco (prob of initiation)	5	.030	0.396	0.031	.040	0.505	**.000**	
Illicit Drugs (prob of initiation)	4	-.028	0.535	0.499	na	na	**.000**	
Alcohol (prob of initiation)	5	-.001	0.989	0.259	na	na	**.000**	
Marijuana Use	7	-.009	0.702	0.308	na	na	**.000**	
Other Drugs	3	.104	0.026	0.001	.103	0.396	**.000**	
Tobacco (regular use)	7	.024	0.314	0.001	.062	0.205	**.000**	
Alcohol Use	7	.004	0.882	0.785	na	na	**.000**	
Dialectical Behavior Therapy (in Washington), and its effect on:								
Crime	1	-.521	0.003	na	na	na	**-.259**	
Diversion Programs with Services (vs. simple release),* and its effect on:								
Crime	6	-.040	0.285	0.001	-.105	0.226	**.000**	
Diversion Programs-Simple Release without Services (vs. regular juvenile court processing),* and its effect on:								
Crime	7	-.009	0.811	0.941	na	na	**.000**	
Diversion Programs with Services (vs. regular juvenile court processing),* and its effect on:								
Crime	16	-.077	0.000	0.217	na	na	**-.038**	
Early Childhood Education for Low Income 3- and 4-Year-Olds,* and its effect on:								(6)
High School Graduation	10	.150	0.000	0.450	na	na	**.125**	
K-12 Special Education	23	-.159	0.000	0.007	-.176	0.000	**-.130**	
K-12 Grade Repetition	24	-.227	0.000	0.234	na	na	**-.180**	
Crime	8	-.201	0.000	0.161	na	na	**-.162**	
Public Assistance	3	.023	0.763	0.011	-.062	0.720	**.000**	
Teen Births/Pregnancy (under age 18)	4	-.076	0.282	0.189	na	na	**.000**	
Child Abuse and Neglect	1	-.241	0.000	na	na	na	**-.207**	
Test Scores	33	.118	0.000	na	na	na	**.080**	
Early Head Start, and its effect on:								(11)
Test Scores	1	.126	0.019	na	na	na	**.085**	
High School Graduation (Mother's)	1	.016	0.705	na	na	na	**.000**	
Public Assistance	1	-.012	0.778	na	na	na	**.000**	
Even Start, and its effect on:								
Test Scores	1	-.085	0.609	na	na	na	**.000**	
High School Grad. (GED), Parents	1	.000	1.000	na	na	na	**.000**	
Family Group Conferences, and its effect on:								
Child Abuse and Neglect	1	.401	0.005	na	na	na	**.300**	
Family Matters, and its effect on:								
Tobacco (prob of initiation)	1	-.142	0.017	na	na	na	**-.142**	
Alcohol (prob of initiation)	1	-.139	0.019	na	na	na	**-.139**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Family Preservation Services (excluding Washington),* and its effect on:								
Out of Home Placements	15	.005	0.877	0.000	-.109	0.203	**.000**	
Family to Family, and its effect on:								
Child Abuse and Neglect	1	.013	0.652	na	na	na	**.000**	
FAST (Families and Schools Together), and its effect on:								(13)
K-12 Grade Repetition	1	.077	0.593	na	na	na	**.000**	
Test Scores	1	-.195	0.175	na	na	na	**.000**	
Functional Family Therapy (excluding Washington), and its effect on:								
Crime	6	-.586	0.000	0.108	na	na	**-.325**	
Functional Family Therapy (in Washington), and its effect on:								(3)
Crime	1	-.250	0.008	na	na	na	**-.188**	
Good Behavior Game, and its effect on:								
Tobacco (prob of initiation)	1	-.152	0.016	na	na	na	**-.057**	
Guiding Good Choices (formerly PDFY), and its effect on:								
Tobacco (prob of initiation)	1	-.120	0.238	na	na	na	**.000**	
Alcohol Use	1	-.220	0.059	na	na	na	**-.220**	
Other Drug or Poly Drug Use	1	-.250	0.010	na	na	na	**-.249**	
Alcohol (prob of initiation)	1	-.167	0.094	na	na	na	**-.166**	
Illicit Drugs (prob of initiation)	1	-.173	0.114	na	na	na	**.000**	
Crime	1	-.190	0.050	na	na	na	**-.189**	
Healthy Families America, and its effect on:								
Child Abuse and Neglect	6	-.118	0.000	0.113	na	na	**-.093**	
High School Graduation (Mother's)	2	-.073	0.258	0.482	na	na	**.000**	
Public Assistance	1	-.063	0.527	na	na	na	**.000**	
Test Scores	2	-.068	0.430	0.905	na	na	**.000**	
Illicit Drugs (disordered use)	1	.000	1.000	na	na	na	**.000**	
HIPPY (Home Instruction Program for Preschool Youngsters), and its effect on:								(12)
Test Scores	5	.122	0.026	0.626	na	na	**.052**	
K-12 Special Education	1	-.086	0.190	na	na	na	**.000**	
Home Visiting for Parents with Toddlers, and its effect on:								
Test Scores	2	.070	0.752	0.962	na	na	**.000**	
Home Visiting Programs for At-risk Mothers and Children,* and its effect on:								
Child Abuse and Neglect	13	-.209	0.000	0.001	-.233	0.010	**-.135**	
Test Scores	5	.372	0.004	0.707	na	na	**.169**	
K-12 Grade Repetition	1	-.114	0.560	na	na	na	**.000**	
Substance Use	1	-.348	0.146	na	na	na	**.000**	
Teen Births/Pregnancy (under age 18)	3	.093	0.188	0.296	na	na	**.000**	
Contraceptive Use	1	.491	0.007	na	na	na	**.488**	
High School Graduation (Mother's)	1	.050	0.504	na	na	na	**.000**	
Home Visiting-Low Birthweight Infants, and its effect on:								
Test Scores	6	.145	0.013	0.000	.356	0.034	**.196**	
Child Abuse and Neglect	1	-.185	0.413	na	na	na	**.000**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Infant Health and Development Program, and its effect on:								
Test Scores	1	.033	0.634	na	na	na	**.000**	
Iowa Family Development and Self Sufficiency Program, and its effect on:								
Public Assistance	1	.030	0.534	na	na	na	**.000**	
Child Abuse and Neglect	1	.006	0.902	na	na	na	**.000**	
Juvenile Boot Camps (excluding Washington),* and its effect on:								
Crime	10	.116	0.005	0.005	.110	0.123	**.000**	
Juvenile Intensive Parole Supervision (excluding Washington),* and its effect on:								
Crime	7	-.063	0.286	0.050	-.074	0.422	**.000**	
Juvenile Intensive Probation (as alternative to incarceration), and its effect on:								
Crime	6	-.027	0.592	0.020	-.070	0.410	**.000**	
Juvenile Intensive Probation Supervision Programs,* and its effect on:								
Crime	6	-.089	0.173	0.154	na	na	**.000**	
Juvenile Offender Interagency Coordination Programs,* and its effect on:								
Crime	4	-.240	0.001	0.147	na	na	**-.152**	
Juvenile Offender Sex Offender Treatment, and its effect on:								
Crime	8	-.175	0.028	0.064	na	na	**-.082**	
KYB (Know Your Body), and its effect on:								
Tobacco (prob of initiation)	2	-.311	0.000	0.413	na	na	**-.204**	
Tobacco (regular use)	1	-.276	0.000	na	na	na	**-.124**	
LEARN (Local Efforts to Address and Reduce Neglect), and its effect on:								
Child Abuse and Neglect	1	-.035	0.641	na	na	na	**.000**	
Life Skills Training (LST), and its effect on:								(2)
Tobacco (prob of initiation)	15	-.120	0.000	0.410	na	na	**-.102**	
Alcohol (prob of initiation)	10	-.065	0.000	0.015	-.079	0.008	**-.056**	
Illicit Drugs (prob of initiation)	8	-.094	0.000	0.011	-.113	0.001	**-.072**	
Mentoring (general), and its effect on:								
Test Scores	4	.016	0.839	0.909	na	na	**.000**	
K-12 Grade Repetition	1	-.293	0.155	na	na	na	**.000**	
High School Graduation	4	.015	0.676	0.194	na	na	**.000**	
Attend College	3	.075	0.070	0.003	.150	0.175	**.000**	
Alcohol Use	3	-.114	0.052	0.387	na	na	**-.033**	
Substance Abuse	3	-.211	0.000	0.680	na	na	**-.175**	
Tobacco (regular use)	1	-.212	0.343	na	na	na	**.000**	
Crime	3	-.100	0.064	0.010	-.102	0.400	**.000**	
Economic Outcomes	2	.103	0.032	0.817	na	na	**.088**	
Public Assistance	3	-.014	0.753	0.042	-.094	0.358	**.000**	
Teen Births/Pregnancy (under age 18)	1	-.080	0.308	na	na	na	**.000**	
Mentoring (in the juvenile justice system–in Washington), and its effect on:								
Crime	1	-.264	0.100	na	na	na	**-.132**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Minnesota Smoking Prevention Program, and its effect on:								(9)
Tobacco (prob of initiation)	1	-.242	0.000	na	na	na	**-.121**	
Tobacco (regular use)	1	-.242	0.000	na	na	na	**-.121**	
Multidimensional Treatment Foster Care (vs. regular group care), and its effect on:								
Crime	2	-.804	0.000	0.464	na	na	**-.306**	
Multi-Systemic Therapy (MST), and its effect on:								
Crime	6	-.349	0.000	0.000	-.332	0.040	**-.169**	
Nurse Family Partnership for Low Income Women, and its effect on:								(1)
Crime (Mother's)	1	-.724	0.001	na	na	na	**-.359**	
Public Assistance (Mother's)	3	-.142	0.016	0.042	-.183	0.124	**.000**	
High School Graduation (Mother's)	2	.072	0.261	0.765	na	na	**.000**	
Substance Abuse (Mother's)	3	-.010	0.872	0.075	na	na	**.000**	
Employment (Mother's)	2	.102	0.172	0.274	na	na	**.000**	
Crime (Child's)	1	-.378	0.069	na	na	na	**-.188**	
Child Abuse and Neglect	1	-.883	0.000	na	na	na	**-.438**	
K-12 Test Scores (Child's)	2	.129	0.040	0.413	na	na	**.087**	
Other Community and Mass Media Programs to Prevent Substance Use,* and its effect on:								
Alcohol Use	2	-.034	0.206	0.323	na	na	**.000**	
Tobacco (regular use)	3	-.073	0.001	0.128	na	na	**-.054**	
Other Comprehensive, Multi-level Programs to Prevent Substance Use,* and its effect on:								(10)
Alcohol (prob of initiation)	4	-.075	0.483	0.989	na	na	**.000**	
Tobacco (prob of initiation)	12	-.062	0.000	0.009	-.080	0.000	**-.068**	
Marijuana Use	1	.122	0.471	na	na	na	**.000**	
Smokeless Tobacco	1	-.136	0.003	na	na	na	**-.122**	
Other Family-Based Therapy Programs for Juvenile Offenders,* and its effect on:								
Crime	6	-.249	0.000	0.000	-.273	0.006	**-.160**	
Other Social Influence/Skills Building Substance Prevention Programs,* and its effect on:								
Tobacco (prob of initiation)	28	-.102	0.000	0.000	-.121	0.000	**-.064**	
Alcohol Use	22	-.031	0.090	0.000	-.080	0.059	**-.015**	
Tobacco (regular use)	26	-.073	0.000	0.000	-.128	0.000	**-.062**	
Marijuana Use	11	-.064	0.014	0.000	-.104	0.050	**-.039**	
Other drug Poly drug	3	-.148	0.004	0.001	-.297	0.087	**-.113**	
Smokeless Tobacco	9	-.100	0.000	0.002	-.103	0.001	**-.049**	
Alcohol (prob of initiation)	13	-.065	0.002	0.000	-.105	0.037	**-.050**	
Illicit Drugs (prob of initiation)	6	-.043	0.167	0.000	-.124	0.160	**.000**	
Drug or Alcohol Misuse	3	-.180	0.000	0.708	na	na	**-.088**	
Quite Smoking	3	.132	0.020	0.371	na	na	**.104**	
Drinking and Driving	4	-.092	0.013	0.030	-.170	0.037	**-.065**	
Quite Drinking	2	.028	0.822	0.088	na	na	**.000**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Other Substance Use Prevention Programs Targeting Youth Risk and Protective Factors,* and its effect on:								
Alcohol Use	4	-.165	0.023	0.370	na	na	**-.117**	
Tobacco (regular use)	1	-.301	0.046	na	na	na	**-.225**	
Marijuana Use	6	-.178	0.033	0.324	na	na	**-.070**	
Other Drug or Poly Drug Use	3	-.254	0.032	0.641	na	na	**-.088**	
Alcohol (prob of initiation)	1	-.290	0.023	na	na	na	**-.145**	
Drug or Alcohol Misuse	3	-.092	0.297	0.812	na	na	**.000**	
Illicit Drugs (prob of initiation)	2	-.247	0.063	0.569	na	na	**-.061**	
Test Scores	5	.161	0.002	0.003	.276	0.035	**.083**	
Crime	5	-.054	0.534	0.032	-.101	0.486	**.000**	
Economic Outcomes	1	-.537	0.037	na	na	na	**-.265**	
Parent-Child Home Program, and its effect on:								
Test Scores	5	.122	0.343	0.254	na	na	**.000**	
High School Graduation	1	.334	0.328	na	na	na	**.000**	
Parent-Child Interaction Therapy, and its effect on:								
Child Abuse and Neglect	1	-.642	0.006	na	na	na	**-.318**	
Parents as Teachers, and its effect on:								(5)
Child Abuse and Neglect	1	-.082	0.468	na	na	na	**.000**	
High School Graduation (Mother's)	1	-.074	0.629	na	na	na	**.000**	
Test Scores	5	.145	0.017	0.240	na	na	**.076**	
Pregnancy	1	.065	0.679	na	na	na	**.000**	
PATHE (Positive Action Through Holistic Ed.), and its effect on:								
Marijuana Use	1	.212	0.013	na	na	na	**.106**	
Crime	2	.000	1.000	1.000	na	na	**.000**	
High School Graduation	1	.541	0.026	na	na	na	**.268**	
Test Scores	1	.029	0.701	na	na	na	**.000**	
K-12 Grade Repetition	1	.106	0.172	na	na	na	**.000**	
Postponing Sexual Involvement Program, and its effect on:								
Teen Births/Pregnancy (under age 18)	2	.064	0.004	0.974	na	na	**.048**	
Sexual Initiation	4	-.021	0.358	0.001	-.220	0.069	**-.103**	
STDs	1	.034	0.131	na	na	na	**.000**	
Programs for Teen Parents,* and its effect on:								
Public Assistance	2	.012	0.777	0.062	na	na	**.000**	
High School Graduation	1	.000	1.000	na	na	na	**.000**	
Return to School	1	.014	0.918	na	na	na	**.000**	
Drop out of school	1	-.382	0.009	na	na	na	**-.190**	
Teen Births/Pregnancy (under age 18)	4	-.396	0.000	0.000	-.469	0.011	**-.251**	
Project 12 Ways/Safecare, and its effect on:								(15)
Child Abuse and Neglect	2	-.183	0.009	0.522	na	na	**-.055**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Project ALERT (Adolescent Learning Experience in Resistance Training), and its effect on:								
Tobacco (prob of initiation)	1	-.056	0.311	na	na	na	**.000**	
Alcohol Use	1	.073	0.062	na	na	na	**.055**	
Tobacco (regular use)	1	.007	0.852	na	na	na	**.000**	
Marijuana Use	1	-.074	0.059	na	na	na	**-.056**	
Alcohol (prob of initiation)	1	-.052	0.535	na	na	na	**.000**	
Illicit Drugs (prob of initiation)	1	-.102	0.064	na	na	na	**-.077**	
Project Northland, and its effect on:								
Tobacco (prob of initiation)	1	-.228	0.000	na	na	na	**-.206**	
Alcohol (prob of initiation)	1	-.153	0.009	na	na	na	**-.138**	
Illicit Drugs (prob of initiation)	1	-.149	0.011	na	na	na	**-.134**	
Project STAR (Students Taught Awareness and Resistance), and its effect on:								(14)
Alcohol (prob of initiation)	2	-.062	0.039	0.107	na	na	**-.058**	
Tobacco (prob of initiation)	2	-.137	0.000	0.864	na	na	**-.111**	
Illicit Drugs (prob of initiation)	2	-.182	0.000	0.697	na	na	**-.144**	
Project Taking Charge, and its effect on:								
Sexual Initiation	1	-.561	0.056	na	na	na	**-.414**	
Project TND (Towards No Drug Use), and its effect on:								
Alcohol Use	5	-.051	0.132	0.974	na	na	**.000**	
Tobacco (regular use)	5	-.015	0.647	0.168	na	na	**.000**	
Marijuana Use	5	.011	0.749	0.939	na	na	**.000**	
Other Drug or Poly Drug Use	5	-.105	0.002	0.944	na	na	**-.074**	
Project Towards No Tobacco Use (TNT), and its effect on:								
Tobacco (prob of initiation)	3	-.143	0.000	0.712	na	na	**-.064**	
Tobacco (regular use)	3	-.024	0.237	0.000	-.024	0.729	**.000**	
Smokeless Tobacco	4	-.099	0.000	0.000	-.099	0.030	**-.045**	
Quantum Opportunities Project, and its effect on:								
High School Graduation	2	.145	0.014	0.189	na	na	**.128**	
Teen Births/Pregnancy (under age 18)	2	-.102	0.075	0.160	na	na	**-.081**	
Public Assistance	1	-.465	0.023	na	na	na	**-.231**	
Crime	2	-.032	0.591	0.276	na	na	**.000**	
Test Scores	1	.041	0.500	na	na	na	**.000**	
Reach for Health Community Youth Service, and its effect on:								
Teen Births/Pregnancy (under age 18)	1	-.358	0.111	na	na	na	**.000**	
Sexual Initiation	1	-.355	0.031	na	na	na	**-.265**	
Crime	1	-.048	0.545	na	na	na	**.000**	
Reducing the Risk Program, and its effect on:								
Teen Births/Pregnancy (under age 18)	1	.004	0.956	na	na	na	**.000**	
Contraceptive Use	2	.216	0.067	0.012	.487	0.263	**.000**	
Sexual Initiation	1	-.321	0.076	na	na	na	**-.159**	
Safer Choices, and its effect on:								
Sexual Initiation	1	-.038	0.390	na	na	na	**.000**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
This table includes our analysis of only those outcomes directly related to our estimates of monetary benefits.

Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Scared Straight, and its effect on:								
Crime	8	.126	0.041	0.480	na	na	**.127**	
School-Based Clinics for Pregnancy Prevention,* and its effect on:								(15)
Teen Births/Pregnancy (under age 18)	4	.051	0.305	0.038	.059	0.486	**.000**	
Contraceptive Use	4	.073	0.036	0.000	.073	0.536	**.000**	
Seattle Social Development Project, and its effect on:								
Crime	1	-.220	0.036	na	na	na	**-.110**	
High School Graduation	1	.292	0.008	na	na	na	**.146**	
K-12 Grade Repetition	1	-.225	0.037	na	na	na	**-.112**	
Teen Births/Pregnancy (under age 18)	1	-.160	0.137	na	na	na	**.000**	
Cigarette use	1	-.014	0.896	na	na	na	**.000**	
Alcohol use	1	-.022	0.836	na	na	na	**.000**	
Marijuana Use	1	-.048	0.653	na	na	na	**.000**	
STARS for Families (Start Taking Alcohol Risks Seriously), and its effect on:								
Alcohol Use	3	-.168	0.044	0.989	na	na	**-.146**	
Alcohol (prob of initiation)	3	-.059	0.481	0.129	na	na	**.000**	
Alcohol Misuse	4	-.221	0.004	0.483	na	na	**-.167**	
Strengthening Families Program for Parents and Youth 10–14, and its effect on:								
Tobacco (prob of initiation)	1	-.346	0.001	na	na	na	**-.346**	
Alcohol Use	1	-.418	0.000	na	na	na	**-.417**	
Alcohol (prob of initiation)	1	-.368	0.000	na	na	na	**-.367**	
Illicit Drugs (prob of initiation)	1	-.314	0.004	na	na	na	**-.313**	
Misuse of Drugs/Alcohol	1	-.267	0.023	na	na	na	**-.266**	
System of Care/Wraparound Programs,* and its effect on:								
Out of Home Placements	3	-.093	0.384	0.148	na	na	**.000**	
Teen Outreach Program, and its effect on:								
Teen Births/Pregnancy (under age 18)	2	-.136	0.000	0.367	na	na	**-.105**	
Percent of Classes Failed	2	-.224	0.000	0.126	na	na	**-.173**	
School Suspension	1	-.114	0.133	na	na	na	**.000**	
Teen Talk, and its effect on:								
Contraceptive Use	1	-.403	0.014	na	na	na	**-.301**	
Teen Births/Pregnancy (under age 18)	1	-.128	0.414	na	na	na	**.000**	
Sexual Initiation	1	-.022	0.789	na	na	na	**.000**	
Washington State Department of Health/Client Centered Programs, and its effect on:								
Drug Use	4	-.291	0.001	0.000	-.505	0.540	**.000**	
Hard drug use	3	.455	0.002	0.000	.900	0.661	**.000**	
Sexual Activity	3	-.231	0.031	0.147	na	na	**-.229**	
Contraceptive Use	3	-.176	0.311	0.000	.017	0.975	**.000**	

Table C.1a (continued)
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Many of these programs have evaluated other outcomes than those shown.
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Type of Prevention or Intervention Program (and its effect on different outcomes)	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis, see Appendix B***	Notes to Table
		Fixed Effects Model			Random Effects Model			
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value			
		ES	p-value	p-value	ES	p-value	ES	
Youth Suicide Prevention Programs—in hospitals,* and its effect on:								
Suicide attempts	3	-.278	0.009	0.839	na	na	**-.167**	
Youth Suicide Prevention Programs—in K-12,* and its effect on:								
Suicide attempts	7	-.085	0.008	0.914	na	na	**-.071**	

* Meta-analysis of a set of programs in this area.

Notes to Table C.1a

(1) Includes only the effects of female-reported births or pregnancies.

(2) We treated prevalence outcomes for some use measures as initiation outcomes since the program is for young adolescents, where effects on prevalence and use would be similar to effects on initiation.

(3) For early childhood education, effect on test scores and how they decay over time, we conducted regression analysis of test scores from 33 ECE studies, see Appendix C.2.1

(4) For the test score outcome, we discounted the observed effect size to approximate the decay we expect in test score gains by the end of high school. We used the same rate of decay we found for early childhood education programs, see Appendix C.2.1.

(5) For the child abuse and neglect and teen pregnancy outcomes, we used the home visit only portion of the teen PAT program.

(6) This result is for the competent therapist or delivery, see Barnoski (2004).

(7) Does not include results from a teacher-led program because that condition was not randomly assigned.

(8) Parent-focused program results only.

(9) Because the program focus is on older youth, substance use outcomes of this program were not treated as initiation outcomes as they are with programs for younger adolescents.

(10) Includes only the results of the “pull-out” program for at-risk youth.

Table C.1b
Studies Used in the Meta-Analyses

Davidson and Redner, 1988	Adolescent Diversion Project
East et al., 2003	Adolescent Sibling Pregnancy Prevention Project
Dishion et al., 2002	Adolescent Transitions Program
Dishion and Andrews, 1995	Adolescent Transitions Program
Goldstein and Glick, 1995	Agression Replacement Training (not Washington)
Goldstein and Glick, 1994	Agression Replacement Training (not Washington)
Gibbs, 1995	Agression Replacement Training (not Washington)
Barnoski, 2004	Agression Replacement Training (not Washington)
Hansen, 1991a	All Stars
McNeal et al., 2004	All Stars
Grossman and Tierney, 1998	Big Brothers/Big Sisters
Harrell et al., 1999	CASASTART (Striving Together to Achieve Rewarding Tomorrows)
Battistich et al., 1996	Child Development Project
Moore et al., 1998	Childhaven
Phillliber et al., 2002	Children's Aid Society-Carrera Project
Wagenaar et al., 2000a	CMCA
St. Pierre and Layzer, 1999	Comprehensive Child Development Program
Wysong et al., 1994	D.A.R.E. (Drug Abuse Resistance Education)
Wysong and Wright, 1995	D.A.R.E. (Drug Abuse Resistance Education)
Rosenbaum et al., 1994	D.A.R.E. (Drug Abuse Resistance Education)
Dukes et al., 1996	D.A.R.E. (Drug Abuse Resistance Education)
Becker et al., 1992	D.A.R.E. (Drug Abuse Resistance Education)
Clayton et al., 1996	D.A.R.E. (Drug Abuse Resistance Education)
Ringwalt et al., 1991	D.A.R.E. (Drug Abuse Resistance Education)
Dukes et al., 1997	D.A.R.E. (Drug Abuse Resistance Education)
Severy and Whitaker, 1982	Diversion with Services (v. regular juvenile court processing)
Lipsey et al., 1981	Diversion with Services (v. regular juvenile court processing)
Regoli et al., 1985	Diversion with Services (v. regular juvenile court processing)
Dunford et al., 1982	Diversion with Services (v. regular juvenile court processing)
Quay and Love, 1977	Diversion with Services (v. regular juvenile court processing)
Koch, 1986	Diversion with Services (v. regular juvenile court processing)
Kelley, 1976	Diversion with Services (v. regular juvenile court processing)
Stratton, 1975	Diversion with Services (v. regular juvenile court processing)
Rausch, 1983	Diversion with Services (v. regular juvenile court processing)
Bohnstedt, 1978	Diversion with Services (v. regular juvenile court processing)
Palmer and Lewis, 1980	Diversion with Services (v. regular juvenile court processing)
Wiebush, 1985	Diversion with Services (v. regular juvenile court processing)
Dembo et al., 1997	Diversion with Services (v. regular juvenile court processing)
Severy and Whitaker, 1982	Diversion-Simple Release without Services (vs. regular juvenile court processing)
National Council on Crime and Delinquency, 1987	Diversion-Simple Release without Services (vs. regular juvenile court processing)
Davidson and Redner, 1988	Diversion-Simple Release without Services (vs. regular juvenile court processing)
Dunford et al., 1982	Diversion-Simple Release without Services (vs. regular juvenile court processing)
Koch, 1986	Diversion-Simple Release without Services (vs. regular juvenile court processing)
Davidson and Redner, 1988	Diversion-with Services (vs. simple release)
Severy and Whitaker, 1982	Diversion-with Services (vs. simple release)
Dunford, 1982	Diversion-with Services (vs. simple release)
Lipsey et al., 1981	Diversion-with Services (vs. simple release)
Aughinbaugh, 2001	Early Childhood Education for Low Income 3- and 4-Year-Olds
Barentt et al., 1987	Early Childhood Education for Low Income 3- and 4-Year-Olds
Barnow and Cain, 1977	Early Childhood Education for Low Income 3- and 4-Year-Olds
Beller, 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Brooks-Gunn et al., 1994	Early Childhood Education for Low Income 3- and 4-Year-Olds
Bryant et al., 1993	Early Childhood Education for Low Income 3- and 4-Year-Olds
Campbell et al., 2001	Early Childhood Education for Low Income 3- and 4-Year-Olds
Campbell et al., 2002	Early Childhood Education for Low Income 3- and 4-Year-Olds
Currie and Thomas, 1995	Early Childhood Education for Low Income 3- and 4-Year-Olds
Currie and Thomas, 1996	Early Childhood Education for Low Income 3- and 4-Year-Olds
Deutsch et al., 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Eckroade et al., 1991	Early Childhood Education for Low Income 3- and 4-Year-Olds
Garber and Heber, 1977	Early Childhood Education for Low Income 3- and 4-Year-Olds

Table C.1b (continued)
Studies Used in the Meta-Analyses

Garber, 1988	Early Childhood Education for Low Income 3- and 4-Year-Olds
Garces et al., 2002	Early Childhood Education for Low Income 3- and 4-Year-Olds
Goodstein, 1975	Early Childhood Education for Low Income 3- and 4-Year-Olds
Gray et al., 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Hebbeler, 1985	Early Childhood Education for Low Income 3- and 4-Year-Olds
Herzog et al., 1974	Early Childhood Education for Low Income 3- and 4-Year-Olds
Howard and Plant, 1967	Early Childhood Education for Low Income 3- and 4-Year-Olds
Jester and Guinagh, 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Johnson and Walker, 1991	Early Childhood Education for Low Income 3- and 4-Year-Olds
Jordan et al., 1985	Early Childhood Education for Low Income 3- and 4-Year-Olds
Karnes et al., 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Lally et al., 1987	Early Childhood Education for Low Income 3- and 4-Year-Olds
Lee et al., 1988	Early Childhood Education for Low Income 3- and 4-Year-Olds
Lee et al., 1990	Early Childhood Education for Low Income 3- and 4-Year-Olds
Levenstein et al., 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Love et al., 2002	Early Childhood Education for Low Income 3- and 4-Year-Olds
Masse and Barnett, 2000	Early Childhood Education for Low Income 3- and 4-Year-Olds
McCarton et al., 1997	Early Childhood Education for Low Income 3- and 4-Year-Olds
Miller and Bizzell, 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
New York, 1982	Early Childhood Education for Low Income 3- and 4-Year-Olds
Nieman and Gaithright, 1981	Early Childhood Education for Low Income 3- and 4-Year-Olds
Nystrom, 1988	Early Childhood Education for Low Income 3- and 4-Year-Olds
Oden et al., 2000	Early Childhood Education for Low Income 3- and 4-Year-Olds
Pagani et al., 1998	Early Childhood Education for Low Income 3- and 4-Year-Olds
Palmer, 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Quay et al., 1996	Early Childhood Education for Low Income 3- and 4-Year-Olds
Reynolds and Robertson, 2003	Early Childhood Education for Low Income 3- and 4-Year-Olds
Reynolds et al., 2002	Early Childhood Education for Low Income 3- and 4-Year-Olds
Roy, 2003	Early Childhood Education for Low Income 3- and 4-Year-Olds
Schweinhart et al., 1993	Early Childhood Education for Low Income 3- and 4-Year-Olds
Seitz and Apfel, 1994	Early Childhood Education for Low Income 3- and 4-Year-Olds
Seitz et al., 1983	Early Childhood Education for Low Income 3- and 4-Year-Olds
Seitz et al., 1985	Early Childhood Education for Low Income 3- and 4-Year-Olds
Sontag et al., 1969	Early Childhood Education for Low Income 3- and 4-Year-Olds
Texas Education Agency, 1995	Early Childhood Education for Low Income 3- and 4-Year-Olds
Walker and Johnson, 1988	Early Childhood Education for Low Income 3- and 4-Year-Olds
Wasik et al., 1990	Early Childhood Education for Low Income 3- and 4-Year-Olds
Wode, 1992	Early Childhood Education for Low Income 3- and 4-Year-Olds
Xiang and Schweinhart, 2002	Early Childhood Education for Low Income 3- and 4-Year-Olds
Zigler et al., 1982	Early Childhood Education for Low Income 3- and 4-Year-Olds
Love et al., 2002	Early Head Start
St. Pierre, et al., 2003	Even Start
Sundell and Vinnerljung, 2004	Family Group Conferences
Bauman et al., 2002	Family Matters
Yuan et al., 1990	Family Preservation Services (excluding Washington)
Schuerman et al., 1994	Family Preservation Services (excluding Washington)
Walton, 1998	Family Preservation Services (excluding Washington)
Szykula and Fleischman, 1985	Family Preservation Services (excluding Washington)
Mitchell et al., 1989	Family Preservation Services (excluding Washington)
Fraser et al., 1996	Family Preservation Services (excluding Washington)
Blythe and Jayaratne, 1999	Family Preservation Services (excluding Washington)
Feldman, 1991	Family Preservation Services (excluding Washington)
Halper and Jones, 1981	Family Preservation Services (excluding Washington)
Jones, 1985	Family Preservation Services (excluding Washington)
Lewandowski and Pierce, 2002	Family Preservation Services (excluding Washington)
Westat, Inc., 2001	Family Preservation Services (excluding Washington)
Westat, Inc., 2001	Family Preservation Services (excluding Washington)
Westat, Inc., 2001	Family Preservation Services (excluding Washington)
Westat, Inc., 2001	Family Preservation Services (excluding Washington)
Usher, 1998	Family to Family
Alexander and Parsons, 1973	Functional Family Therapy (not Washington)
Klein et al., 1977	Functional Family Therapy (not Washington)
Hannson, 1998	Functional Family Therapy (not Washington)
Gordon et al., 1988	Functional Family Therapy (not Washington)
Gordon et al., 1995	Functional Family Therapy (not Washington)
Kellam and Anthony, 1998	Good Behavior Game
Spoth et al., 2001	Guiding Good Choices (formerly PDFY)
Park et al., 2000	Guiding Good Choices (formerly PDFY)

Table C.1b (continued)
Studies Used in the Meta-Analyses

Mason et al., 2003	Guiding Good Choices (formerly PDFY)
Duggan et al., 1999	Healthy Families America
Center on Child Abuse Prevention Research, 1996	Healthy Families America
Landsverk et al., 2002	Healthy Families America
Galano and Huntington, 1999	Healthy Families America
Earle, 1995	Healthy Families America
Landsverk et al., 2002	Healthy Families America
Landsverk et al., 2002	Healthy Families America
Landsverk et al., 2002	Healthy Families America
Landsverk et al., 2002	Healthy Families America
Baker et al., 1999	HIPPY (Home Instruction Program for Preschool Youngsters)
Bradley and Gilkey, 2002	HIPPY (Home Instruction Program for Preschool Youngsters)
Barth, 1991	Home Visiting During Pregnancy and Early Childhood
Barth et al., 1988	Home Visiting During Pregnancy and Early Childhood
Black et al., 1994	Home Visiting During Pregnancy and Early Childhood
Brayden et al., 1993	Home Visiting During Pregnancy and Early Childhood
Cappleman et al., 1982	Home Visiting During Pregnancy and Early Childhood
Field et al., 1982	Home Visiting During Pregnancy and Early Childhood
Gray et al., 1979	Home Visiting During Pregnancy and Early Childhood
Hardy and Street, 1989	Home Visiting During Pregnancy and Early Childhood
Huxley and Warner, 1993	Home Visiting During Pregnancy and Early Childhood
Infante-Rivard et al., 1989	Home Visiting During Pregnancy and Early Childhood
Kelsey et al., 2001	Home Visiting During Pregnancy and Early Childhood
Loman and Sherburne, 2000	Home Visiting During Pregnancy and Early Childhood
Lyons-Ruth et al., 1990	Home Visiting During Pregnancy and Early Childhood
Mulsow and Murray, 1996	Home Visiting During Pregnancy and Early Childhood
Caruso, 1989	Home Visiting During Pregnancy and Early Childhood
Quinlivan et al., 2003	Home Visiting During Pregnancy and Early Childhood
Ernst et al., 1999	Home Visiting During Pregnancy and Early Childhood
Thompson et al., 1982	Home Visiting During Pregnancy and Early Childhood
Velasquez et al., 1984	Home Visiting During Pregnancy and Early Childhood
Gray et al., 1983	Home Visiting for Parents with Toddlers
Gray and Ruttle, 1980	Home Visiting for Parents with Toddlers
Achenbach et al., 1994	Home Visiting-Low Birthweight Infants
Barerra et al., 1986	Home Visiting-Low Birthweight Infants
Field et al., 1980	Home Visiting-Low Birthweight Infants
Resnick et al., 1987	Home Visiting-Low Birthweight Infants
McCarton et al., 1997	Home Visiting-Low Birthweight Infants
Brooten et al., 1986	Home Visiting-Low Birthweight Infants
Layzer et al., 2001	Iowa Family Development and Self Sufficiency Program
California Department of Youth Authority, 1997	Juvenile Boot Camp (not Washington)
Trulson and Triplett, 1999	Juvenile Boot Camp (not Washington)
Florida Department of Juvenile Justice, 1997	Juvenile Boot Camp (not Washington)
Florida Department of Juvenile Justice, 1996	Juvenile Boot Camp (not Washington)
Peters et al., 1997	Juvenile Boot Camp (not Washington)
Sealock et al., 1997	Juvenile Intensive Parole Supervision (not Washington)
Greenwood et al., 1993	Juvenile Intensive Parole Supervision (not Washington)
Greenwood et al., 1993	Juvenile Intensive Parole Supervision (not Washington)
Sontheimer and Goodstein, 1993	Juvenile Intensive Parole Supervision (not Washington)
Fagan, 1990	Juvenile Intensive Parole Supervision (not Washington)
Josi and Sechrest, 1999	Juvenile Intensive Parole Supervision (not Washington)
Troia, 1994	Juvenile Intensive Parole Supervision (not Washington)
Barnoski, 2002	Juvenile Intensive Parole Supervision (not Washington)
Weibush, 1993	Juvenile Intensive Probation (as alternative to incarceration)
Barton and Butts, 1990	Juvenile Intensive Probation (as alternative to incarceration)
Deschenes and Greenwood, 1998	Juvenile Intensive Probation (as alternative to incarceration)
Wooldredge et al., 1994	Juvenile Intensive Probation (as alternative to incarceration)
Empey and Erickson, 1972	Juvenile Intensive Probation (as alternative to incarceration)
Lerman, 1975	Juvenile Intensive Probation (as alternative to incarceration)
Elrod and Minor, 1992	Juvenile Intensive Probation Supervision
Land et al., 1994	Juvenile Intensive Probation Supervision
Fagan and Reinarman, 1991	Juvenile Intensive Probation Supervision
Metametrics, Inc., 1984	Juvenile Intensive Probation Supervision
National Council on Crime and Delinquency, 1987	Juvenile Intensive Probation Supervision
Hevesi, 1995	Juvenile Intensive Probation Supervision
Ezell, 1997	Juvenile Offender Interagency Coordination (not Washington)
Tolan et al., 1987	Juvenile Offender Interagency Coordination (not Washington)
California State Board of Corrections, 2000	Juvenile Offender Interagency Coordination (not Washington)

Table C.1b (continued)
Studies Used in the Meta-Analyses

County of Orange Probation Department, 1999	Juvenile Offender Interagency Coordination (not Washington)
Carney and Buttell, 2003	Juvenile Offender Interagency Coordination (not Washington)
Lab et al., 1993	Juvenile Offender Sex Offender Treatment
Guarino-Ghezzi and Kimball, 1998	Juvenile Offender Sex Offender Treatment
Worling and Curwen , 2000	Juvenile Offender Sex Offender Treatment
Borduin et al., 1990	Juvenile Offender Sex Offender Treatment
McPherson et al., 1983	Juvenile Offender, Other Family Based Therapy
Howitt and Moore, 1991	Juvenile Offender, Other Family Based Therapy
Baron et al., 1973	Juvenile Offender, Other Family Based Therapy
Baron and Feeney, 1976	Juvenile Offender, Other Family Based Therapy
Johnson, 1977	Juvenile Offender, Other Family Based Therapy
Byles and Maurice, 1979	Juvenile Offender, Other Family Based Therapy
Walter et al., 1989	KYB (Know Your Body)
Walter et al., 1985	KYB (Know Your Body)
Berrick and Duerr, 1997	LEARN (Local Efforts to Address and Reduce Neglect)
Botivin and Eng, 1982	Life Skills Training (LST)
Botvin and Eng, 1980	Life Skills Training (LST)
Botvin et al., 1983	Life Skills Training (LST)
Botvin et al., 1984	Life Skills Training (LST)
Botvin et al., 1989	Life Skills Training (LST)
Botvin et al., 1990	Life Skills Training (LST)
Botvin et al., 1997	Life Skills Training (LST)
Botvin et al., 1999	Life Skills Training (LST)
Botvin et al., 2001	Life Skills Training (LST)
Botvin et al., 2003	Life Skills Training (LST)
Schinke et al., 2000	Life Skills Training (LST)
Spoth et al., 2002	Life Skills Training (LST)
Aiello, 1988	Mentoring (general)
Aseltine et al., 2000	Mentoring (general)
Buman and Cain, 1991	Mentoring (general)
Cave and Quint, 1990	Mentoring (general)
Flaherty, 1985	Mentoring (general)
Hanlon et al., 2002	Mentoring (general)
Harmon, 1995	Mentoring (general)
Johnson, 1999	Mentoring (general)
Kemple and Scott-Clayton, 2004	Mentoring (general)
LoSciuto et al., 1996	Mentoring (general)
O'Donnell et al., 1979	Mentoring (general)
Quint, 1991	Mentoring (general)
Smith, 1990	Mentoring (general)
Barnoski, 2002	Mentoring in the juvenile justice system (in Washington)
Perry et al., 1992	MSPP (Minnesota Smoking Prevention Program)
Chamberlain and Reid, 1998	Multidimensional Treatment Foster Care
Chamberlain, 1990	Multidimensional Treatment Foster Care
Henggeler et al., 1993	Multi-Systemic Therapy
Borduin et al., 1995	Multi-Systemic Therapy
Henggeler et al., 1997	Multi-Systemic Therapy
Henggeler et al., 1999	Multi-Systemic Therapy
Cunningham, 2002	Multi-Systemic Therapy
Ogden and Halliday-Boykins, 2004	Multi-Systemic Therapy
Olds et al., 1997	Nurse Family Partnership for Low Income Women
Kitzman et al., 2000	Nurse Family Partnership for Low Income Women
Olds et al., No date	Nurse Family Partnership for Low Income Women
Olds et al., 2004b	Nurse Family Partnership for Low Income Women
Olds et al., 2002	Nurse Family Partnership for Low Income Women
Wagenaar et al., 2000a	Other Community & Mass Media Interventions
Kaufman et al., 1994	Other Comprehensive, multi-level Interventions
Collins and Cellucci, 1991	Other Comprehensive, multi-level Interventions
Eckhardt et al., 1997	Other Comprehensive, multi-level Interventions
Flay et al., 1995	Other Comprehensive, multi-level Interventions
Murray et al., 1994	Other Comprehensive, multi-level Interventions
Flynn et al., 1997	Other Comprehensive, multi-level Interventions
Elder et al., 1996	Other Comprehensive, multi-level Interventions
Biglan et al., 2000	Other Comprehensive, multi-level Interventions
Hogue et al., 2002	Other Programs Targeting Youth Risk and Protective Factors
Hostetler et al., 1997	Other Programs Targeting Youth Risk and Protective Factors
Lovelland-Cherry et al., 1999	Other Programs Targeting Youth Risk and Protective Factors
Gottfredson, 1990	Other Programs Targeting Youth Risk and Protective Factors

Table C.1b (continued)
Studies Used in the Meta-Analyses

Gottfredson et al., 2002	Other Programs Targeting Youth Risk and Protective Factors
Bry, 1982	Other Programs Targeting Youth Risk and Protective Factors
Schaps et al., 1984	Other Programs Targeting Youth Risk and Protective Factors
Gottfredson, 1987	Other Programs Targeting Youth Risk and Protective Factors
Hostetler et al., 1997	Other Programs Targeting Youth Risk and Protective Factors
Gilchrist et al., 1987	Other Social Influence and Skills Building Interventions
Schinke and Gilchrist, 1983	Other Social Influence and Skills Building Interventions
Schinke and Gilchrist, 1985	Other Social Influence and Skills Building Interventions
Schinke et al., 1985	Other Social Influence and Skills Building Interventions
Schinke et al., 1986	Other Social Influence and Skills Building Interventions
Schinke et al., 1988	Other Social Influence and Skills Building Interventions
Armstrong et al., 1990	Other Social Influence and Skills Building Interventions
Ary et al., 1990	Other Social Influence and Skills Building Interventions
Bagnall, 1990	Other Social Influence and Skills Building Interventions
Biglan et al., 1987	Other Social Influence and Skills Building Interventions
De Vries et al., 1994	Other Social Influence and Skills Building Interventions
Dent et al., 1995	Other Social Influence and Skills Building Interventions
Dielman et al., 1985	Other Social Influence and Skills Building Interventions
Dielman et al., 1989	Other Social Influence and Skills Building Interventions
Duyrea et al., 1984	Other Social Influence and Skills Building Interventions
Evans et al., 1978	Other Social Influence and Skills Building Interventions
Evans et al., 1981	Other Social Influence and Skills Building Interventions
Flay et al., 1983	Other Social Influence and Skills Building Interventions
Flay et al., 1995	Other Social Influence and Skills Building Interventions
Goodstadt et al., 1982	Other Social Influence and Skills Building Interventions
Hansen et al., 1988a	Other Social Influence and Skills Building Interventions
Johnson et al., 1986	Other Social Influence and Skills Building Interventions
Kaufman et al., 1994	Other Social Influence and Skills Building Interventions
Luepker et al., 1983	Other Social Influence and Skills Building Interventions
Moberg and Piper, 1990	Other Social Influence and Skills Building Interventions
Murray et al., 1984	Other Social Influence and Skills Building Interventions
Murray et al., 1987	Other Social Influence and Skills Building Interventions
Newman et al., 1992	Other Social Influence and Skills Building Interventions
Perry et al., 1980	Other Social Influence and Skills Building Interventions
Peterson et al., 2000	Other Social Influence and Skills Building Interventions
Piper et al., 2000	Other Social Influence and Skills Building Interventions
Scaggs, 1984	Other Social Influence and Skills Building Interventions
Schinke et al., 2000	Other Social Influence and Skills Building Interventions
Severson et al., 1991	Other Social Influence and Skills Building Interventions
Sheehan et al., 1996	Other Social Influence and Skills Building Interventions
Shope et al., 1996a	Other Social Influence and Skills Building Interventions
Shope et al., 1996b	Other Social Influence and Skills Building Interventions
Shope et al., 1996c	Other Social Influence and Skills Building Interventions
Snow et al., 1992	Other Social Influence and Skills Building Interventions
St. Pierre et al., 1992	Other Social Influence and Skills Building Interventions
Taylor et al., 2000	Other Social Influence and Skills Building Interventions
Tell et al., 1984	Other Social Influence and Skills Building Interventions
Tell et al., 1984	Other Social Influence and Skills Building Interventions
Wilhelmsen et al., 1994	Other Social Influence and Skills Building Interventions
Spoth et al., 2002	Other Social Influence and Skills Building Interventions
Madden, et al. (1984)	Parent-Child Home Program
Scarr & McCartney (1988)	Parent-Child Home Program
Levenstein, et al., 1998	Parent-Child Home Program
Chaffin et al., 2003	Parent-Child Interaction Therapy
Wagner and Clayton, 1999	Parents as Teachers
Wagner et al., 1996	Parents as Teachers
Wagner and Clayton, 1999	Parents as Teachers
Wagner and Clayton, 1999	Parents as Teachers
Wagner and Clayton, 1999	Parents as Teachers
Wagner et al., 2001	Parents as Teachers
Pfannenstiel and Seltzer, 1989	Parents as Teachers
Wagner et al., 1996	Parents as Teachers
Gottfredson, 1990	PATHE
Kirby et al., 1997	Postponing Sexual Involvement Program
Howard and McCabe, 1990	Postponing Sexual Involvement Program
Howard and McCabe, 1992	Postponing Sexual Involvement Program
Quint et al., 1997	Programs for Teen Parents
Polit, 1989	Programs for Teen Parents

Table C.1b (continued)
Studies Used in the Meta-Analyses

O'Sullivan and Jacobsen, 1992	Programs for Teen Parents
Warrick et al., 1993	Programs for Teen Parents
Rabin et al., 1991	Programs for Teen Parents
Polit and Kahn, 1985	Programs for Teen Parents
Lutzker and Rice, 1984	Project 12 Ways
Lutzker and Rice, 1987	Project 12 Ways
Ellickson et al., 1993	Project ALERT (Adolescent Learning Exp. in Resistance Training)
Ellickson and Bell, 1990	Project ALERT (Adolescent Learning Exp. in Resistance Training)
Perry et al., 1996	Project Northland
Johnson et al., 1990	Project STAR (Students Taught Awareness and Resistance)
NIDA, 1997	Project STAR (Students Taught Awareness and Resistance)
Jorgensen et al., 1993	Project Taking Charge
Dent et al., 1995	Project TNT (Project Towards No Tobacco Use)
Lattimore et al., 1998	Quantum Opportunities Project
Maxfield et al., 2003	Quantum Opportunities Project
O'Donnell et al., 1999	Reach for Health Community Youth Service
O'Donnell et al., 2002	Reach for Health Community Youth Service
Barth et al., 1992	Reducing the Risk Program
Hubbard et al., 1998	Reducing the Risk Program
Coyle et al., 2001	Safer Choices
Finckenauer, 1999	Scared Straight
Lewis, 1983	Scared Straight
Buckner and Chesney-Lind, 1983	Scared Straight
Michigan Department of Corrections, 1967	Scared Straight
Greater Eygpt Regional Planning and Development Commission, 1979	Scared Straight
Vreeland, 1981	Scared Straight
Yarborough, 1979	Scared Straight
Orchowsky and Taylor, 1981	Scared Straight
Kirby et al., 1991	School-Based Clinics for Pregnancy Prevention
Hawkins et al., 2004	Seattle Social Development Project
Hawkins et al., 1999	Seattle Social Development Project
Werch et al., 1996a	STARS for Families (Start Taking Alcohol Risks Seriously)
Werch et al., 2000	STARS for Families (Start Taking Alcohol Risks Seriously)
Werch et al., 1996b	STARS for Families (Start Taking Alcohol Risks Seriously)
Spoth et al., 2001	Strengthening Families Program for Youth 10-14 (known as ISFP)
Spoth et al., 1999	Strengthening Families Program for Youth 10-14 (known as ISFP)
Clark et al., 1998	System of Care/Wraparound
Burns et al., 1996	System of Care/Wraparound
Swenson et al., 2000	System of Care/Wraparound
Allen et al., 1997	Teen Outreach Program
Allen and Philliber, 2001	Teen Outreach Program
Eisen and Zellman, 1992	Teen Talk
McCarton et al., 1997	The Infant Health and Development Program
Sussman et al., 1998	TND
Sussman et al., 2003	TND
Sussman et al., 2002	TND
Barnoski, 2004	Washington Aggression Replacement Training
Barnoski, 2004	Washington Functional Family Therapy
McBride and Gienapp, 2000	Washington State Department of Health/Client Centered Programs
Cotgrove et al., 1995	Youth Suicide Prevention Programs—in hospitals
Huey et al., 2004	Youth Suicide Prevention Programs—in hospitals
Rotheram-Borus et al., 2000	Youth Suicide Prevention Programs—in hospitals
Brown and Block, 2001	Youth Suicide Prevention Programs—in K-12
Aseltine and DeMartino, 2004	Youth Suicide Prevention Programs—in K-12
Eggert et al., 2002	Youth Suicide Prevention Programs—in K-12
Hazell and Lewin, 1993	Youth Suicide Prevention Programs—in K-12
Vieland et al., 1991	Youth Suicide Prevention Programs—in K-12
Thompson et al., 2001	Youth Suicide Prevention Programs—in K-12

C.2 Additional Details for Some Individual Programs

The rest of Appendix C provides some additional technical detail for some of the programs listed in Table C.1.

C.2.1 Early Childhood Education (ECE) for Low Income Three- and Four-Year-Olds. We estimated the benefits and costs of programs that provide an enhanced preschool experience for low income three- and four-year-old children. We located 58 program evaluations that met our minimum research design standards. These evaluations, which were conducted throughout the United States, were published between 1967 and 2003. Each of these programs used different educational approaches in an attempt to increase the success of the students they served. Some of these programs were small scale pilot studies and some were widespread programs such as the federally funded Head Start program.

Our summary of this research literature represents our best estimate of the average effect of a "real world" publicly funded early childhood education program for children from lower income families. Almost all of the existing evaluations that we reviewed have been for programs for youth from families with low incomes or other indicators of low socio-economic status.

Model ECE vs. real world ECE programs. As mentioned, some of the existing evaluations of ECE programs have been of pilot or "model" programs. That is, these model ECE programs offer an intensive preschool experience and employ a relatively expensive set of resources. Other program evaluations, on the other hand, are of "real world" programs such as Head Start. These programs have a less intense curriculum and generally cost less than the model programs. An example of a model program is the Perry Preschool Program (Schweinhart et al., 1993), which was a focused demonstration program in the 1960s that, in 2003 dollars, would cost $15,270 per student for a two-year experience. An example of a real world program is the Chicago Title I Child-Parent Centers (Reynolds et al., 2002) that costs an estimated $7,355 for a one-and-a-half year experience, in 2003 dollars.[25]

[25] L. J. Schweinhart, H. V. Barnes, and D. P. Weikart. (1993) *Significant Benefits: The High/Scope Perry Preschool Study Through Age 27.* Ypsilanti, MI: High/Scope Press, Table 43; and A. J. Reynolds, J. A. Temple, D. L. Robertson, and E. A. Mann. (2002) "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Centers," *Educational Evaluation and Policy Analysis* 24, Table 5, escalated to 2003 dollars by the Institute.

Since our goal in this analysis is to provide information to the Washington State legislature about actual policy decisions under its purview, we focused our analysis on the benefits and costs of "real world" ECE programs. We did not, however, want to ignore the evidence that has been accumulated from the body of research on model ECE programs. Therefore, we conducted a special meta-analysis (described in this section) to provide an estimate of how much to discount the effect size results from model programs to more closely align them with the results obtained in real world programs.

The decay of ECE educational test score outcomes. Another issue that has arisen in the research literature on ECE has to do with whether, and to what degree, early educational gains from ECE programs decay in the years following the ECE experience. To the degree that there is decay in test score gains, some of the long-term benefits of ECE will be overstated if this factor is not taken into account.

The quality of ECE research designs. A third factor that might affect conclusions drawn from the ECE research literature concerns the quality of the research designs used in the evaluations. In Appendix B.7, we describe how we rated the quality of the designs used in the studies.

We tested these three factors—the degree to which model ECE programs can be expected to outperform real world programs, the possibility that initial ECE test score gains decay over time, and the effect that the quality of the research design has on outcomes—by conducting a regression analysis of ECE test scores. The following OLS model was estimated:

$$ES = a + b1(YearsFromECE) + b2(YearsFromECE\text{^}2) + b3(RD3) + b4(RD4) + b5(RD4 \times Model) + b6(RD5 \times Model) + e$$

In this model, effect sizes from 33 ECE programs, relative to each study's comparison group, were calculated as described in Appendix B. For each of these studies, we calculated an effect size for any measure for educational achievement test scores or IQ type tests. Most studies had multiple follow-up points at which the treatment and comparison groups were compared. A number of studies followed the children all the way through high school, observing test scores at several intervening ages. The 33 separate studies provided 188 test score effect size observations.

In the model, we created the variable *YearsFromECE* by calculating the number of years between the age of the youth at the end of the ECE program (or the control group youth) and the age of the youth when the subsequent test score was measured. In this model of ECE effect sizes, we also included a dummy variable indicating whether the program was a model program or a real world program (see Appendix B.8); whether the research design was a level 3 or level 4 on our design score scale (see Appendix B. 7); and we included interaction terms on these variables. In other versions of the model (output not shown), we also tested for whether the type of outcome measure (IQ test or achievement test) was significant, and we found that it was not.

Table C.2
Regression Results

Dependent Variable: LOG(ES+1)
Method: Least Squares
Included observations: 188
Weighting series: N
White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.122218	1.44E-08	8495931.	0.0000
YearsFromECE	-0.033663	0.008387	-4.013627	0.0001
YearsFromECE^2	0.000394	0.000833	0.472730	0.6370
RD3	0.259038	0.015432	16.78551	0.0000
RD4	0.146337	0.045305	3.230057	0.0015
MODEL	0.285611	0.025500	11.20028	0.0000
RD3*MODEL	-0.290317	0.044721	-6.491741	0.0000
RD4*MODEL	-0.276050	0.090118	-3.063191	0.0025

Weighted Statistics	
R-squared	0.857857
Adjusted R-squared	0.852329

YearsFromECE	The number of years from the ECE experience
RD3 and RD4	Dummy variables for research design scores 3 and 4, see Appendix B.7
MODEL	Dummy variable indicating that the program was a model program, see Appendix B.8

Figure C.2a shows the average unadjusted test score effect sizes arranged by the number of years from the ECE experience. The chart indicates that effect sizes do seem to decay over time, dropping from about +.4 at the conclusion of the ECE program to about +.16 at the end of high school. We used weighted least squares to perform the regression and the results are shown in Table C.2. We found that the initial effect sizes of ECE programs do decay over time. We modeled this as a quadratic, and the two terms, *YearsFromECE* and *YearsFromECE squared*, were jointly significant (p=.000).

Figure C.2a
ECE Test Scores: Effect Sizes Decline Over Time

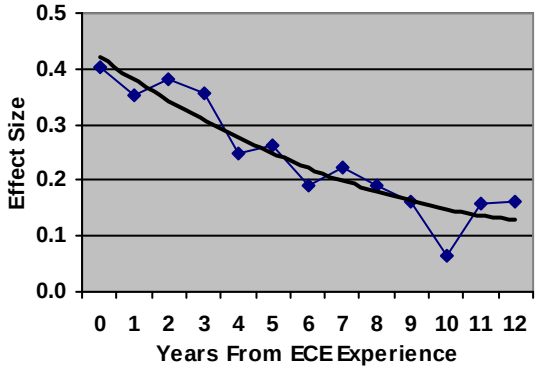
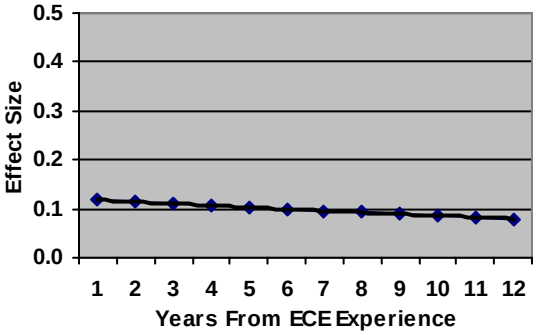


Figure C.2b
Regression-Adjusted ECE Test Scores Over Time



From this equation's coefficients, we then computed the marginal effects of the decay of test scores over time, taken for a real world ECE program that had a random assignment (research design score 5). Figure C.2b shows the test score effect for such a program. We found that most of the decay in test scores was accounted for by the research design and real world factors; that is, after controlling for these factors, the decay in test scores was considerably smaller. As the chart indicates, however, a sizable proportion of the early gains in test scores were also attributed to these factors. The implication from this analysis is that a real world ECE program can be expected to increase test scores near the end of high school with an effect size of about +.08 standard deviation units. For a test with a mean of 100 and a standard deviation of 15, this would mean a gain of about 1.2 points on the test. The reasonableness of this estimate is demonstrated in the benefit-cost analysis we conducted where the economic benefits of the effect of ECE on high school graduation rates was in the same ballpark as the effect of the +.08 effect size for the change in test scores.

Appendix D

Methods Used to Estimate the Monetary Benefits

As described in Appendix A, the standard economic equation for performing the benefit-cost analysis is given by:

$$NPV_{progage} = \sum_{y=progage}^{N} \frac{Q_y \times P_y - C_y}{(1+Dis)^y}$$

In this model, the net present value (*NPV*) of a program is the quantity of the outcomes produced from a program (Q_y) in year *y*, times the price per unit of the outcome (P_y), minus the cost of producing the outcome (C_y). The lifecycle of each of these values is measured from the age of the person who enters the program (*progage*) and runs over the number of years into the future over which they are evaluated (*N*). The future values are brought back to present value by the discount rate (*Dis*).

In Appendices B and C, we discussed how we estimated the Q_y term in the basic equation. The purpose of Appendix D is to describe the details of how the P_y variables are estimated. This Appendix discusses the general models and procedures that identify the parameters used to carry out the calculations. The estimated and assumed values for the parameters used in this benefit-cost analysis are listed in Appendix E.

D.1 Valuation of Education Outcomes

Several of the outcomes measured in prevention and early intervention programs concern educational outcomes. Some of these are human capital outcomes: graduation from high school, number of years of schooling completed, and achievement test scores earned during the K-12 years. Other often-measured educational outcomes relate to the use of certain K-12 resources: years of special education and grade retention. The benefits associated with each of these possible outcomes are discussed in this section.

Human Capital Outcomes. The model estimates the value of changes in high school graduation rates, years of education completed, and achievement test scores during the K-12 years by estimating the expected change in lifetime earnings caused by a change in the human capital measure. Measuring the earnings' implications of these human capital variables is a commonly used approach in economics.[26]

In this analysis, all human capital earnings estimates derive from a common dataset. The estimates are taken from the US Census Bureau's March 2002 Supplement to the Current Population Survey which provides cross sectional data for earnings, by age and by educational status.[27] To these data we apply different measures of the net advantage gained through increases in each human capital outcome.

For the human capital high school graduation outcome, the CPS money earnings data, by age, are differenced between those who graduate from high school (with no further degree), *Earnhsgrad*, and those with less than a high school diploma, *Earnnonhsgrad*. This differenced series is then present valued to age 18 by applying the general real discount rate used in the overall analysis, *Dis*, and any assumed real rate of growth in wages, *Earnesc*. The assumptions for *Dis* and *Earnesc* are described in Appendix E.1. We use age 65 as the cut-off point for earnings.

These earnings in equation (D.1a) are then present valued further to the age of the person in the program, *progage*. The values are also converted to the base year dollars chosen for the overall benefit-cost analysis, IPD_{base}, relative to the year in which the CPS data are denominated, IPD_{cps}. A fringe benefit rate is applied to the earnings, *Fringe*. As mentioned, the model can accommodate a rough estimate of any non-market (i.e., non-earnings) outcomes that may be causally related to education outcomes; this is modeled with the *NonMarket* parameter in equation (D.1a). Additionally, since the observed difference between the wages of these two groups may not be all due to the causal factor of earning a high school diploma, a multiplicative causation/correlation factor, *HSgradCC*, (with a value greater than or equal to

[26] See, for example, A. B. Krueger. (2003) "Economic considerations and class size." *The Economic Journal* 113(485): F34-F63., accessed from the author's website: <http://edpro.stanford.edu/eah/eah.htm>; and E. A. Hanushek. (2003, October) "Some Simple Analytics of School Quality," accessed from the author's website: <http://edpro.stanford.edu/eah/eah.htm>.

[27] The data are from the March 2002 Supplement to the CPS, PINC-04. Educational Attainment—People 18 Years Old and Over by Total Money Earnings in 2001, Age, Race, Hispanic Origin, and Sex, downloaded at <http://ferret.bls.census.gov/macro/032002/perinc/new04_001.htm>.

zero, or less than or equal to one) can be applied to the present value to provide an estimate of the causal effect.[28]

For the human capital achievement test score outcome, a similar process is used. The CPS money earnings data, by age, are taken as a weighted average of those with a high school diploma and those with some college, *Earnhsgradplus*, but not a college degree. This stream of earnings is multiplied by an estimated rate of return to earnings per one standard deviation increase in achievement test scores, *TestScoreROR*.[29] This is then present valued to age 18 by applying the general real discount rate used in the overall analysis, *Dis*, and any assumed real rate of growth in wages, *Earnesc*. We use age 65 as the cut-off point for earnings. The remaining calculations in equation (D.1d) follow the procedures discussed for equation (D.1b).

For the human capital number of years of education outcome, the process is exactly the same. The CPS money earnings data, by age, are taken as a weighted average of those with a high school diploma and those with some college but no degree, *Earnhsgradplus*. This stream of earnings is multiplied by an estimated rate of return to earnings per extra year of formal education, *EdyearsROR*. The remaining calculations in (D.1f) follow those discussed for equation (D.1b).

Some of the prevention and early intervention programs we evaluate include more that one of these human capital variables. For example, our meta-analysis of early childhood education for three- and four-year-old low income children produces effect sizes for high school graduation and for K-12 test scores. In these cases, we only include one of the human capital variables, and we use the outcome that produces the highest economic return.

K-12 Resource Outcomes. The model can also calculate the value of two other K-12 educational outcomes often measured in certain types of prevention programs: years of special education and grade retention. The present value costs of a year of special education is estimated by discounting the cost of a year in special education, *SpecEdCostYear*, for the estimated average number of years that special education is used, conditional on entering special education, *specedyears*. These years are assumed to be consecutive. The present value is to the age when special education is assumed to first be used, *start*. In equation (D.1h), this sum is further presented valued to the age of the youth in a program, *progage*, and the cost is expressed in the dollars used for the overall cost benefit analysis, *IPDbase*, relative to the year in which the special education costs per year are denominated, *IPDspecedcostyear*.

The present value cost of an extra year of K-12 education is estimated for those retained for an extra year. This is modeled by assuming that the cost of the extra year of K-12 education, *EdCostYear*, after adjusting the dollars to be denominated in the base year dollars used in the overall analysis, would be borne when the youth is approximately 18 years old. Since there is a chance that the youth will not finish high school and, therefore, that the cost of this year will never be incurred, this present valued sum is multiplied by the probability of high school completion, *Hsgradprob*.

Other Outcomes Linked to Human Capital Outcomes. There has also been attention in the research literature to several types of non-market benefits associated, perhaps causally, with the human capital outcomes evaluated in this analysis. A listing of possible non-market benefits to education appears in the work of Wolfe and Haveman (2002).[30] In our current benefit-cost model, we do not estimate these non-earnings values explicitly, with one exception (discussed below). Rather, we provide a simple multiplicative parameter that can be applied to the estimated earnings effects so that the non-market benefits can be roughly modeled. Since some research indicates that these non-market benefits of human capital outcomes can be considerable, future refinements to our benefit-cost model will attempt to analyze these possible non-wage benefits explicitly.

[28] These types of causation/correlation adjustments have also been made in other cost-benefit analyses to avoid overstating benefits due to some unobserved selection bias. See, for example, M. Cohen. (1998) "The monetary value of saving a high risk youth." *Journal of Quantitative Criminology* 14(1): 5-33.

[29] Hanushek, "Some Simple Analytics of School Quality."

[30] B. L. Wolfe and R. H. Haveman. (2002) "Social and nonmarket benefits from education in an advanced economy." Proceedings from the Federal Reserve Bank of Boston's 47th economic conference, *Education in the 21st Century: Meeting the Challenges of a Changing World*, accessed from: <http://www.bos.frb.org/economic/conf/conf47/index.htm>. See also a collection of articles on the topic published in J. P. Behrman and N. Stacey, eds., (1997) *The social benefits of education*. Ann Arbor: The University of Michigan Press.

Equations Used to Calculate the Present Valued Costs of Education Outcomes

High School Graduation

(D.1a) $$PVEarn_{18} = \sum_{y=18}^{65} \frac{(Earnhsgrad_y - Earnnonhsgrad_y) \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.1b) $$PVEarn_{progage} = \frac{PVEarn_{18} \times \frac{IPD_{base}}{IPD_{cps}} \times (1+Earnesc)^{18-progage} \times Fringe \times (1+NonMarket) \times HSgradCC}{(1+Dis)^{18-progage}}$$

Test Scores

(D.1c) $$PVEarn_{18} = \sum_{y=18}^{65} \frac{(Earnhsgradplus_y \times TestScoreROR_y) \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.1d) $$PVEarn_{progage} = \frac{PVEarn_{18} \times \frac{IPD_{base}}{IPD_{cps}} \times (1+Earnesc)^{18-progage} \times Fringe \times (1+NonMarket) \times TestScoreCC}{(1+Dis)^{18-progage}}$$

Years of Education

(D.1e) $$PVEarn_{18} = \sum_{y=18}^{65} \frac{(Earnhsgradplus_y \times EdyearsROR_y) \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.1f) $$PVEarn_{progage} = \frac{PVEarn_{18} \times \frac{IPD_{base}}{IPD_{cps}} \times (1+Earnesc)^{18-progage} \times Fringe \times (1+NonMarket) \times EdyearsCC}{(1+Dis)^{18-progage}}$$

Earnhsgrad	=	The annual CPS earnings of high school graduates. Annual money earnings of an individual in year y, taken from the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement, Table: PINC-04. Educational Attainment—People 18 Years Old and Over, by Total Money Earnings in 2001, Age, Race, Hispanic Origin, and Sex.
Earnnonhsgrad	=	The annual CPS earnings of non high school graduates, same source as above.
Earnhsgradplus	=	The annual CPS earnings of high school graduates plus those with some college but no degree, same source as above.
Earnesc	=	An estimated long-run annual growth rate in real earnings (see Appendix E.1).
IPD_{base}, *IPD*	=	The implicit price deflator for the year chosen as the base year for the overall analysis and for other costs (See Appendix E.1).
NonMarket	=	An estimate of the non-earnings benefits of education expressed as a percentage of the earnings effect.
HSgradCC	=	The average age of death of a person who dies from one of the principal alcohol disorders. This figure was calculated for Washington State from an analysis of cause of death data from the Washington State Department of Health.
Fringe	=	The fringe benefit rate used in the analysis (see Appendix E.1).
Taxrate	=	The tax rate used in the analysis (see Appendix E.1).
TestScoreROR	=	The annual rate of return for a one standard deviation increase in achievement test scores.
EdyearsROR	=	The annual rate of return for an extra year of education.
Dis	=	The real discount rate (see Appendix E.1).

Equations Used to Calculate the Present Valued Costs of Education Outcomes

K-12 Special Education

(D.1g) $$PVspeced_{start} = \sum_{y=1}^{specedyears} \frac{SpecEdCostYear}{(1+Dis)^{y}}$$

(D.1h) $$PVspeced_{progage} = \frac{PVspeced_{start} \times \frac{IPD_{base}}{IPD_{speced\,cos\,tyear}}}{(1+Dis)^{start-progage}}$$

K-12 Grade Retention

(D.1i) $$PVgraderet_{progage} = \left[\frac{EdCostYear \times \frac{IPD_{base}}{IPD_{ed\,cos\,tyear}}}{(1+Dis)^{18-progage}} \right] \times Hsgradprob$$

SpecEdCostYear	=	The incremental cost of a year of special education, compared to a year of regular K-12 education.
specedyears	=	The average number of years in special education for a youth who enters special education.
start	=	The average age of a youth who starts special education.
IPD_{base}, *IPD*	=	The implicit price deflator for the year chosen as the base year for the overall analysis, and for other costs (see Appendix E.1).
EdCostYear	=	The cost of a year of regular K-12 education.
Hsgradprob	=	The probability that a youth who is retained sometime during the K-12 years will still be in school during his or her senior year in high school.
Dis	=	The real discount rate (see Appendix E.1).

The one exception that we model explicitly in this analysis is the relationship between high school graduation rates and their independent causal effect on crime. This conclusion is based on a recent study by Lochner and Moretti (2004).[31] Their work offers convincing evidence of a statistically significant, albeit relatively weak, link between high school graduation and subsequent reduced crime. They use a variety of econometric methods and several nationally representative datasets to estimate this relationship. We calculated an effect size of the relationship from the Lochner and Moretti study to be -.061. To put that effect size in perspective, we found that some programs for juvenile offenders (i.e., programs that focus on higher-risk youth) can reduce subsequent crime with an effect size of -.188.

[31] L. Lochner and E. Moretti. (2004) "The effect of education on crime: Evidence from prison inmates, arrests, and self-reports." *American Economic Review* 94(1): 155-189.

D.2 Valuation of Crime Outcomes

In this section, we describe the methods we use to estimate the value to taxpayers and crime victims of reducing crime by one unit. As will be discussed, the units of crime in the model can be crimes, arrests, or convictions. This section describes the computational routines used to estimate those values.

Estimating the Value of One Criminal Offense. What is it worth to reduce a criminal offense? The Institute approaches the question from two perspectives. First, there is a value to taxpayers if a criminal offense can be avoided. Second, there is a value to crime victims each time a criminal offense can be reduced.

The model estimates life-cycle costs for seven major types of crime and 14 types of costs incurred as a result of crime, as shown in Table D.2a. These categories can be expanded or contracted to make the model more or less detailed. The 14 types of costs estimated in the model reflect those paid by taxpayers in Washington and those incurred by crime victims. The following two sections describe these costs.

Table D.2a
Types of Crimes and Resource Costs Analyzed in the Cost-Benefit Model

Types of Crime	Types of Resource Costs Incurred
1. Murder/Manslaughter	1. Police and Sheriffs' Offices
2. Rape/Sex	2. Superior Courts and County Prosecutors
3. Robbery	3. Juvenile Detention, with Local Sentence
4. Aggravated Assault	4. Juvenile Detention, with JRA Sentence
5. Felony Property Crimes	5. Juvenile Local Probation
6. Drug Offenses	6. Juvenile Rehabilitation, Institutions
7. Misdemeanor Crimes	7. Juvenile Rehabilitation, Parole
	8. Adult Jail, with Local Sentence
	9. Adult Jail, with Prison Sentence
	10. State Community Supervision, Local Sentence
	11. Department of Corrections, Institutions
	12. Department of Corrections, Post-Prison Supervision
	13. Crime Victim Monetary Costs
	14. Crime Victim Quality of Life Costs

Criminal Justice System Costs in Washington. In the Institute's cost-benefit model, the costs of the criminal justice system paid by taxpayers are estimated for each significant part of the publicly financed system in Washington. The costs of police and sheriffs, superior courts and county prosecutors, local juvenile detention services, local adult jails, state juvenile rehabilitation, and state adult corrections are estimated separately in the analysis. Operating costs are estimated for each of these criminal justice system components, and annualized capital costs are estimated for the capital-intensive sectors.

The model uses estimates of marginal operating and capital costs of the criminal justice system.[32] Marginal criminal justice costs are defined as those costs that change over the period of several years as a result of changes in workload measures. Some short-run costs must be changed instantly when a workload changes. For example, when one prisoner is added to the state adult corrections system, certain variable food and service costs increase immediately, but new corrections staff are not hired the next day. Over the course of a governmental budget cycle, however, new corrections staff are likely to be hired to handle the larger average daily population of the prison. In the Institute's analysis, these "longer-run" marginal costs have been estimated, rather than immediate, short-run marginal costs. These longer-run marginal costs reflect both the immediate short-run changes in expenditures, and those operating expenditures that change after governments make adjustments to staffing levels, often in the next budget-writing cycle.

Appendix Table E.2a summarizes the Institute's estimates for the per-unit marginal operating costs of the criminal justice system in Washington. Per-unit marginal capital cost estimates for key parts of the criminal justice system in Washington are shown in Table E.2b. Table E.2c provides more detail on the equations developed to estimate per-

[32] A few average cost figures are currently used in the model when marginal cost estimates cannot be reasonably estimated.

unit marginal operating costs. The estimates for each component of the criminal justice system are discussed below.

Police and Sheriffs' Offices. A cross-sectional regression model was estimated for the operating costs of county sheriffs' offices and local police departments in Washington. Expenditure data for each police jurisdiction (BARS code 521) was obtained from the Washington State Auditor.[33] Sub-categories excluded were Gambling enforcement (BARS 521.25) and DARE expenses (BARS 521.28). For the explanatory workload measures, two sets of data were included in the regression. Arrest data for each jurisdiction were obtained from the Washington Association of Sheriffs and Police Chiefs. The arrest data were categorized into three types: arrests for violent felonies (murder, rape, robbery, and aggravated assault), arrests for non-violent felonies, and arrests for misdemeanor offenses. The arrest data do not include traffic operations that consume a significant level of resources for police departments. To capture this effect, data from the Washington State Administrative Office of the Courts were obtained on the number of traffic infraction filings in the local jurisdictions. All these variables were entered in a log-log regression for pooled 1994 and 1995 data. The log-log form of the model was chosen because the relationship between the independent variable and the dependent variable is linear in natural logarithms. The results of the final equation are shown in Table E.2c. All the variables are significant and the overall fit of the equation is satisfactory. The sum of the four elasticities equals .86, a level that seems reasonable (a level less than 1.0 indicates a decreasing cost industry with regard to the scale variables measured, a condition that probably exists for policing services in Washington). The variables are also highly correlated, which could indicate collinearity problems. Since all the t-statistics are greater than 2, however, and since whatever multi-collinearity that existed in the 1994 and 1995 data is likely to exist in the future, the resulting coefficients can be used to provide reasonable estimates of marginal operating police and sheriff costs.[34]

Superior Courts and County Prosecutors. The marginal operating costs for court processing expenses were estimated with expenditure data from the Washington State Auditor and workload data from the Washington State Administrative Office of the Courts. A pooled cross-sectional regression analysis was performed on 1994 and 1995 data. The units of observation were the counties in Washington. Superior Court and Prosecutor expenses were regressed against four factors: the number of felony convictions for homicide; the sum of the number of convictions for robbery, sex offenses, and aggravated assault; the number of convictions for non-violent felonies; and the number on non-criminal superior court filings. These four factors appear to be reasonable proxies for the work activity of the courts. These estimates cover both juvenile and adult court processes.

The expense data from the Washington State Auditor allow the segregation of some types of superior court expenditures. Expenditure data for district courts (BARS code 512.40), municipal courts (BARS code 512.50; these courts do not hear the felony cases modeled in the Institute's analysis), family court fees (BARS code 512.22), and law libraries (BARS code 512.70, which are not treated, accounting wise, uniformly by counties), were excluded from total superior court expenditures. The county prosecutor expenditure data from the Washington State Auditor for 1994 and 1995 were adjusted to remove the costs of the civil (BARS 515.22), consumer affairs (BARS 515.60), and child support enforcement (BARS 515.80) divisions of the county prosecutor offices.

Table E.2c displays the regression results. The model was estimated in log-log form. The sum of the four elasticities equals .90, a level that seems reasonable. All of the variables are significant and the overall fit of equation is good. All dollars are expressed in 1995 dollars, using the implicit price deflator for personal consumption expenditures to adjust the 1994 denominated dollars.

Local Adult Jails and Community Supervision. In the Institute's model of the criminal justice system in Washington, two types of users of local adult jails are analyzed: those convicted felons who serve both pre-sentence and post-sentence time at the local jail, and those felons who serve pre-sentence time at local jails and post-sentence time at a state institution. The Institute estimated local adult jail marginal operating costs for both these events. From the Washington State Auditor, local jail expenditure data for counties were collected for 1990 to 1995. These nominal annual dollar amounts were adjusted to 1995

[33] Expenditure data for several of the cost analyses used in the Institute's model were obtained from the Washington State Auditor's Office. The Auditor's Budgeting, Accounting, and Reporting System (BARS) classification of accounts was used for these analyses, and the relevant BARS codes are listed in this section of the report.

[34] P. Kennedy. (1992) *A Guide to Econometrics*, 3rd ed., Cambridge: The MIT Press, 181.

dollars using the implicit price deflator for personal consumption expenditures. The Washington Association of Sheriffs and Police Chiefs collects annual data on the use of local jails in the state. The data for the expenses included all the local jail expenditures (BARS 527) except local probation costs (BARS 527.40). The regression was estimated in log-log form.

Local Adult Jail capital costs for new beds were estimated from an analysis of the current cost estimates for a new 288 bed jail facility planned for Thurston County. Thurston County was also able to provide the Institute with a recent survey of comparative per-bed costs of other newly constructed jail facilities. The Thurston cost estimates are in line with the other recent actual experience. The cost estimates and financing assumptions are shown in Table E.2b. Total construction costs per bed were converted to an annual capital charge.

The annual operating costs of local community supervision of adult felons was obtained from a report published by the Washington State Sentencing Guidelines Commission, *Criminal Justice in Washington State*, January 1995. This cost estimate represents the average, not the marginal, costs for "Level One" community supervision, custody, and placement.

Local Juvenile Detention and Supervision. The marginal operating costs for local juvenile detention and community supervision services were estimated in a manner very similar to the adult jail facilities and programs. The data sources, however, are different. In Washington, there is no regular, statewide, collection of information on the use of juvenile detention facilities. To get that information, the Institute conducted a survey of all juvenile courts in Washington asking for basic information on the average daily population, length of stay, and operating costs.[35] The results of this survey were used to estimate local juvenile detention costs. The result of the cross-sectional log-log regression is shown in Table E.2c.

Local juvenile detention facility capital costs for new beds were estimated from an analysis of the current cost estimates for a new 80-bed detention facility planned for Thurston County. The new Thurston County facility will include a family court, in addition to the detention facility. The estimated capital costs for that court were removed from the total project costs to better reflect detention costs only. Thurston County also had comparative per-bed costs of other newly constructed detention facilities and the Thurston cost estimates are in line with other recent actual experience. The cost and financing factors are shown in Table E.2b. Total construction costs per bed were converted to an annual capital charge.

The cost of local probation for juvenile offenders was also estimated with data from the Institute's survey of local juvenile courts in Washington. The cost used in the cost-benefit model is the average cost reported from that survey, not an estimated marginal cost.

State Juvenile Rehabilitation Administration (JRA). State JRA marginal operating costs for JRA institutions were estimated with a time-series regression with data for fiscal years 1984 to 1996. Data on JRA's annual institutions' operating expenditures and institutional average daily population were obtained from JRA. The results of this regression are shown in Table E.2c.

JRA capital costs for new institutional beds were estimated from cost estimates provided by the Washington State House Appropriations Committee and JRA. The costs are estimates for construction of new facilities at an existing institution, not a new stand-alone facility. The cost and financing factors are shown in Table E.2b. Total construction costs per bed were converted to an annual capital charge.

The annual cost estimate for JRA parole services was taken from an analysis prepared by the Washington State Senate Ways and Means Committee in a report entitled *"Roundtable Discussion on Criminal Justice Funding Issues,"* January 28, 1997. The annual costs of parole are average, not marginal, costs.

State Department of Corrections (DOC). State DOC operating costs were estimated in a similar fashion to those of JRA. A time-series regression for fiscal years 1984 to 1996 was estimated using DOC institutions' operating expenses and the average daily population at the institutions. An additional variable, average daily population (ADP) minus average institutional capacity was used to reflect the (generally) over-capacity conditions that are part of typical historical operating conditions. Over the time period covered in the regression, the daily population averaged about 10 percent over capacity. When combined with the results of the equation, an annual marginal operating cost of approximately

[35] M. Burley and R. Barnoski. (1997*) Washington State Juvenile Courts: Workloads and Costs.* Olympia: Washington State Institute for Public Policy.

$18,400 per ADP was obtained. Operating at capacity, rather than the historical 10 percent over capacity level, would result in an annual marginal cost of about $20,500 per ADP.

DOC capital costs for new institutional beds were estimated. The cost and financing factors are shown in Table E.2b. Capital cost estimates were drawn from a report by the Joint Legislative Audit and Review Committee which described the costs of a new state 1,936 bed facility currently under construction. The total construction costs per bed were converted to an annual capital charge.

Post-prison community supervision cost estimates were obtained via a communication with staff at the Department of Corrections. These post-prison costs are average, not marginal, costs.

Crime Victim Costs. In addition to costs paid by taxpayers, many of the costs of crime are borne by victims. Some victims lose their lives. Others suffer direct, out-of-pocket, personal or property losses. Psychological consequences also occur to crime victims, including feeling less secure in society. The magnitude of victim costs is very difficult—and in some cases impossible—to quantify.

In recent years, however, national studies have taken significant steps in estimating crime victim costs. One U.S. Department of Justice study by Miller, Cohen, and Wiersema (1996) divides crime victim costs into two types: a) *Monetary* costs, which include medical and mental health care expenses, property damage and losses, and the reduction in future earnings incurred by crime victims; and b) *Quality of Life* cost estimates, which place a dollar value on the pain and suffering of crime victims.[36] In that study, the quality of life victim costs are computed from jury awards for pain, suffering, and lost quality of life; for murders, the victim quality of life value is estimated from the amount people spend to reduce risks of death. The quality of life victim cost calculations are controversial for use in setting public policy.[37]

In the Institute's analysis, victim costs from the Miller, Cohen, and Wiersema (1996) study are used as estimates of per-unit victim costs in Washington State. The victim cost estimates currently in the model are shown in Table E.2a. In keeping with the Miller study, victim costs are subdivided into *Monetary* and *Quality of Life* estimates. When the Institute's cost-benefit model is used, monetary victim costs provide a more conservative estimate of victim costs, while the addition of quality of life cost estimates offer a more expansive definition of victim costs.

The Criminal Justice System's Response to Crime in Washington State. Not all crime is reported to, or acted upon by, the criminal justice system in Washington. When crimes are reported, however, the use of taxpayer-financed resources begins. The degree to which these resources are used depends on the crime and the policies and practices governing the criminal justice system's response. In the preceding two sections of this report, *per-unit* marginal cost estimates were discussed. This section discusses *how many units* of Washington's criminal justice system are used when a crime occurs.

In the Institute's model, whenever a crime occurs and is reported to and acted upon by local law enforcement, one "unit" of local police, court, and prosecutor resources is used. For example, when an arrest is made for a robbery, one unit of police, at $12,551 per unit (see Table E.2a), is consumed. Similarly, when a conviction for robbery is obtained in the courts, one unit of court and prosecutor resources, at $18,399 per unit (see Table E.2a), is used. In the analysis that produced these cost estimates, regressions were run on the total operating costs of police and courts against the recorded number of arrests and convictions, respectively. Not all police activity results in arrests and not all court cases result in convictions. The per-unit cost estimates from the regression analyses impute these other costs to the actual number of arrests or convictions obtained. Suppose, for example, that nine out of ten court cases for robbery result in conviction and the other case results in dropped charges. The regression estimate of marginal court costs per robbery conviction includes the costs of the ten cases spread over the nine convictions in this example. As will be shown later in this report, when a program demonstrates success in reducing the number of convictions, it can also be expected to reduce the total number of court cases, including those not resulting in conviction, in proportion to the actual case outcomes of Washington courts (the nine-out-of-ten ratio in the example).

Once a person is convicted for a criminal offense, sentencing policies and practices in Washington

[36] T. R. Miller, M. A. Cohen, and B. Wiersema. (1996) *Victim Costs and Consequences: A New Look*. Research Report. Washington DC: National Institute of Justice.

[37] See, for example, T. R. Clear. (1996) "The cost of crime—Or are prisons or community programs the best crime prevention investment?" *Community Corrections Report* 4 November/December.

affect the use of different local and state criminal justice resources. The Institute's model of the criminal justice system incorporates these resource usage patterns. Table E.2d and Table E.2e show how adult and juvenile criminal justice resources are used for the different types of crimes being studied in the Institute's analysis.

The first set of columns in Table E.2d shows how the Institute's model separates adults sentenced to certain felony crimes into those who receive a sentence to a state prison and those who receive a local sentence. The information for this split comes from the Washington State Sentencing Guidelines Commission's analysis of actual sentences. Table E.2d also shows the average sentence received for those adults sentenced to a state prison. This information comes from the Sentencing Guidelines Commission data, as well. As a result of good-time reductions to some prison sentences, the average time actually served is often shorter than the original sentence. Table E.2d shows the average prison length of stay, which is computed in the model by multiplying the sentence by an average percentage good-time reduction. The data on the average sentence reductions, by crime, are obtained from an analysis supplied by the Washington State Department of Corrections. The amount of post-prison supervision and the amount of pre-prison use of local jail facilities by prison-bound offenders, by type of crime, are shown in Table E.2d.

For those adults sentenced to local jail, the average jail sentence, including both pre- and post-sentence lengths, are shown in Table E.2d. The jail data are obtained from the Washington Association of Sheriffs and Police Chiefs' Jail Information Program. Finally, Table E.2d also contains estimates on the average amount of community supervision time given to adults sentenced to local sanctions.

Juvenile sentencing information is shown in Table E.2e. The format is very similar to the adult sentencing data in Table E.2d; only the data sources are different. Under Washington's current laws, the age at which a youth is considered an adult varies for specific types of crimes. The first column in Table E.2e contains information on the maximum age for juvenile court jurisdiction by type of crime. The actual determination of juvenile or adult court jurisdiction depends on several factors, in addition to a person's age and his or her crime. The model uses the information in Table E.2e as representative of the typical decisions made pursuant to current Washington State law.

The model uses data from the Washington State Office of Financial Management to estimate the percent of all juvenile adjudications, by crime, that are committed to the Juvenile Rehabilitation Administration (JRA) and the number not committed to JRA, by crime. For those committed to JRA, Table E.2e shows the average length of stay in years. The data for these length-of-stay estimates also come from the Office of Financial Management's forecasting model. Estimates of the average length of stay on juvenile parole in years are also shown in Table E.2e. Those juveniles committed to JRA spend, on average, some amount of pre-commitment time at local juvenile detention facilities. Table E.2e contains these estimates. For those juveniles not committed to JRA, the average length of stay at local juvenile detention facilities and the average length of local probation were estimated from a survey of juvenile courts conducted by the Institute.

Scaling Factors to Align Crime, Arrest, and Conviction Units. In the model, the costs of different parts of the criminal justice system are estimated in different workload units. Tables E.2a and E.2d indicate the units in which the resource costs have been estimated. Some of the cost elements are estimated in dollars per arrest while most costs are estimated in dollars per conviction. Victim costs are estimated in dollars per victimization. The costs estimated in dollars per average daily population are functionally the same as a dollar-per-conviction estimate, since a conviction generally must precede the use of prisons, probation, detention facilities, and jails.

When the overall cost-benefit model is used to evaluate the net economics of a particular program, the outcome evaluation describing the program may measure units that are different from those estimated for the per unit marginal costs in Tables E.2a ad E.2b. This measurement difference will most often occur between arrests and convictions. Not all arrests result in convictions, and the differences vary considerably by type of crime.

Significantly, some evaluations of programs are based on arrest outcomes, some are based on conviction outcomes, and others on the amount of self-reported crime. In the benefit-cost analysis, these units must be aligned to the units used in the cost model or else errors will occur. For example, an evaluation study may conclude that a program is successful in lowering recidivism rates as measured by reductions in arrests. As noted, however, not all arrests result in convictions, and

many of the costs of the criminal justice system start only when a conviction takes place. For example, a program that lowers the average number of subsequent arrests by an average of 1.4 per program participant will result in 1.4 or fewer subsequent convictions (and all of the avoided costs associated with convictions). To adjust for this, scaling factors are calculated and used in the model.

There are two primary sources of information on the amount of publicly known crime in Washington: the police and the courts. In this regard, law enforcement agencies keep track of two things: the number of crimes reported to them and any arrests they subsequently make. The Washington Association of Sheriffs and Police Chiefs compiles these numbers annually from individual law enforcement agencies. The courts in Washington keep track of the number of criminal cases processed and the number of criminal convictions recorded. The Washington State Administrative Office of the Courts keeps track of court activity statewide.

These two sources for "official" crime statistics tell only part of the crime story. The total amount of crime in Washington is, of course, unknown because many crimes are not reported to the police or adjudicated through the courts. There is some information, however, on the total amount of crime in society. The U.S. Department of Justice and the Bureau of the Census undertake the "National Crime Victimization Survey." This national survey, conducted annually since 1973, asks approximately 100,000 people 12 years old and older in 49,000 households about crimes they might have experienced during the previous six months.

Table E.2f displays the principal information about crime used in the Institute's model from the two state sources and the national crime survey. Column (1) shows information from the National Crime Victimization Survey. Among other questions, the Census Bureau asks crime victims throughout the nation how often they report their victimizations to police. For example, the 1998 survey indicates that about 62 percent of robbery victims report their victimizations to police. This information from the national survey of crime victims can be used with other data to help estimate the total number of serious crimes in Washington.

The data in column (5) show the adjusted number of crimes reported to police. The number of adult and juvenile arrests—as reported by the Washington State Caseload Forecast Council with data from the Washington Association of Sheriffs and Police Chiefs—are listed in column (6). Column (8) of Table E.2f reports the total number of adult and juvenile offender convictions in the superior courts of Washington.

The Institute's cost-benefit model uses this information about crime, arrests, and court convictions to compute scaling factors. These factors are the ratios of the number of crimes per court conviction by offense type and the number of arrests per court conviction.

It would be better to have individual-level data to estimate these scaling factors rather than using the aggregate-level data shown in Table E.2f. Future work by the Institute will seek to improve these scaling factor estimates. Nonetheless, it is reasonable to assume that if a program demonstrates success in lowering the number of convictions for particular types of offenses, the total number of arrests and crimes avoided will be greater. The current scaling method is an attempt to provide reasonable estimates.

The model contains "switches" that allow the user to disable this scaling process. In the above example, if the scaling switch was turned off, a conviction for a robbery offense would involve only one arrest and one victimization. The effect of turning the scaling switch off is to lower the cost savings that are possible if convictions are reduced. In general, leaving the switches on probably produces a more accurate representation of the actual resources used when workload changes.

Equations Used to Calculate the Base Present Valued Costs of Resources
(discussed in accompanying text)

(D.2a) $$PVCost_{ro} = \sum_{t=1}^{N_{ro}} \frac{\left(OCost_{ro} \times \frac{IPD_{base}}{IPD_{rp}} \times KCost_{ro} \times \frac{IPD_{base}}{IPD_{rk}} \right) \times (1 + Esc_r)^t \times Scale_{ro}}{(1 + Dis)^{t-1}}$$

where,

$PVCost_{ro}$	=	The present value costs for resource *r* and offense *o* for time periods 1 to the number of periods for resource *r* and offense *o*.
N_{ro}	=	The number of annual periods that resource *r* is used for offense *o*.
$OCost_{ro}$	=	The marginal operating cost of resource *r* and offense *o*, expressed in the year's dollars in which the resource cost is estimated.
IPD_{base}	=	The implicit price deflator for the year chosen as the base year for the overall analysis.
IPD_{rp}	=	The implicit price deflator for the year in which the operating cost *p* of resource *r* was estimated.
$KCost_{ro}$	=	The marginal capital cost of resource *r* and offense *o*, expressed in the year's dollars in which the resource cost is estimated.
IPD_{rk}	=	The implicit price deflator for the year in which the capital cost *k* of resource *r* was estimated.
$Scale_{ro}$	=	A scaling factor for resource *r* and offense *o* that corresponds to the program under review.
Esc_r	=	The annual rate of escalation in per unit costs for resource *r*. If the overall analysis is done in real terms, Esc_r will be the real escalation rate for a resource. If the overall analysis is done in nominal terms, Esc_r will be the general rate of inflation combined with any real escalation for a particular resource.
Dis	=	The real discount rate used in the analysis.

Computational Routine for Calculating the "Base" Present Value Costs of Resources. The information from the preceding tables is combined to estimate the life-cycle costs associated with different crimes and different resources. The present-valued cost of a resource for a given type of offense is defined as $PVCost_{ro}$. In this step, the use of a resource starts in the first year and runs for the prescribed length of use of resource *r* for offense *o* (N_{ro}). Subsequent steps, described later, spread these "base" present-valued costs to the years in the future when it is estimated that offenses will occur for different types of populations.

If it is expected that real, inflation-adjusted, costs of resources will either rise or decline in the future, the costs for resource *r* can be escalated at an annual real escalation rate (Esc_r). The values for Esc_r, currently in the model, are shown in Table E.2a.

The base present value cost calculation is made with the following equation. The combined per unit operating and capital cost for resource *r* and offense *o* are converted to base year dollars. These costs are then escalated at a real growth rate and scaled as described above. The stream of costs runs from time period 1 to the length of use of resource *r* and offense *o.* The cost stream is discounted to present value with the discount rate (*Dis)* chosen for the overall analysis.

Based on the inputs in the relevant tables in this report, the benefit-cost model computes base values for $PVCost_{ro}$ for each resource *r* and for each offense *o* in the model.

Life-Cycle Offense Probabilities. The next step in the Institute's crime model applies two kinds of probabilities: one describes the chance that particular types of offenses will be committed by particular populations; the other describes when in the future particular offenses are likely to be committed.

For those offenders who commit one felony offense sometime in the future, the chance that it will be an offense of a particular type is noted with:

(D.2b) $OffenseTypeDist_o$

for *o* types of offenses. The model currently classifies six types of felony offenses: murder, sex, robbery, aggravated assault, property (the sum of burglary, felony, larceny, and auto theft offenses) and drug, as well as misdemeanor offenses. The sum of these probabilities is set to equal one.

(D.2c) $$\sum_{o=1}^{O} OffenseTypeDist_o = 1.0$$

For example, for a given population targeted by an intervention program, the probabilities that an offender will commit one type of offense might be as follows:

Example, Distribution of Offenses by Type ($OffenseTypeDist_o$)	
Murder	1.2%
Rape/Sex	3.1%
Robbery	9.2%
Aggravated Assault	13.7%
Property	15.3%
Drug	57.5%
Sum	100.0%

The table indicates that, for this population, of those who will commit a felony in the future, there is a 1.2 percent chance that it will be a murder, a 9.2 percent chance that it will be a robbery, and so on. These estimated probabilities will be different for any particular population under study. The distributions can be estimated from any of several sources of information, ranging from self-reported crime data, official arrest statistics, or offender-based court or institutional statistics.

Occasionally, the results of an outcome evaluation will contain longitudinal information about the types of offenses committed by treatment and non-treatment groups. More frequently, however, this type of information is not reported in evaluation research reports. In these situations, reasonable estimates can be made from longitudinal research conducted on populations in a jurisdiction. For example, the reported research results for an intervention program for high-risk juvenile offenders may not include long-run information about the types of future offenses committed by treatment and non-treatment groups. This program, however, may have its most likely application for juvenile offenders on probation caseloads in Washington. From previous longitudinal research on juvenile probationers, reasonable estimates can be made about the types of future felony offenses these juveniles can be expected to commit. Those values would be used to estimate the $OffenseTypeDist_o$ distribution.

The next step is to estimate *when* the felony offense is likely to occur during the course of an offender's lifetime. In general, for a given population, the estimated lifetime offense curves will begin around the age of 10 and continue through the age of 65, or some other cut-off point when the probability of offending is very low. The resulting age distribution is noted with:

(D.2d) $OffenseAgeDist_{oy}$

for offense o and for year y in an offender's lifetime. For any offense o, the sum of the annual probabilities is set to equal one.

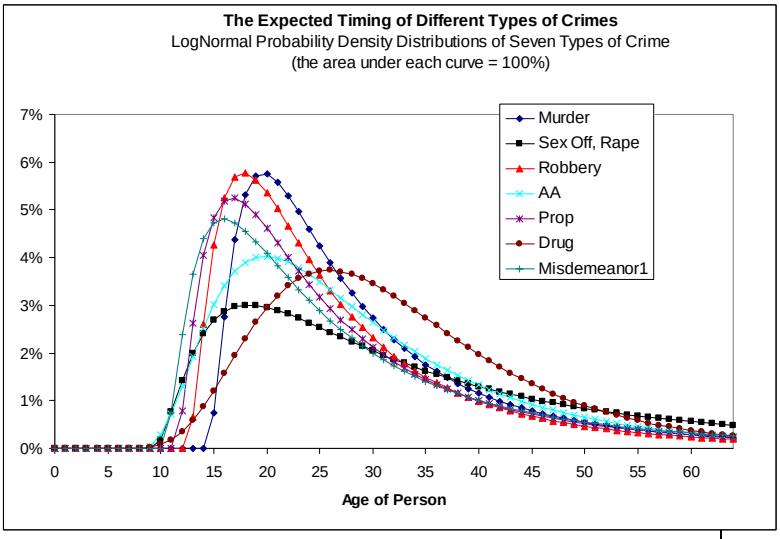
(D.2e) $$\sum_{y=10}^{65} OffenseAgeDist_{oy} = 1.0$$

These estimated probabilities will be different for particular population groups under study. Information ranging from self-reported crime data, official arrest statistics, or offender-based court or institutional statistics can be used to estimate the age distributions. Rarely will a program evaluation report this sort of information; it will almost always have to be inferred from other longitudinal research about the types of populations for which individual interventions are focused.

The Institute estimates the curves with log-normal probability density distributions, although other forms of probability distributions can be specified in the model. In general, the Institute has found that log-normal distributions provide the best fit to actual longitudinal data on offense distributions by age of occurrence.[38] For example, the Institute has analyzed the long-run re-offense distributions of Washington's juvenile probation population, by type of offense. From this research, log-normal distributions were estimated that provide reasonable estimates of when a juvenile offender on probation, who re-commits a felony offense, is likely to re-offend with a new felony.

The following figure displays a typical set of lifetime offense curves described with equation (D.2e). There is one curve for each of the six types of crime analyzed in the Institute's model. By definition, each of the seven curves describes the expected timing of the commission of one of the offense types. These crime curves are typical for the general population of offenders, but they can be different for any particular population under study.

[38] Other criminal justice research has reached similar conclusions regarding the use of log-normal distributions for describing offense rates and criminal careers. See W. Spelman. (1994) *Criminal Incapacitation.* New York: Plenum Press, 119.



Thus, for any particular program analyzed with the benefit-cost model, estimates of the expected future probability density distribution of one offense—by the type of offense and by the age of the offender at the time of the offense—must be specified.

Since the purpose of the cost-benefit model is to estimate the future costs and benefits of programs or policies that prevent, incapacitate, or deter future crime, an adjustment must be made to the two distributions ($OffenseTypeDist_o$ and $OffenseAgeDist_{oy}$). The adjustment is necessary to account for the age of a typical participant in, for example, a prevention or rehabilitation program. If the juvenile rehabilitation program is being evaluated for 15-year-olds, then some portion of the 15-year-old's expected lifetime crime distribution will have already occurred by the time he or she is 15 years old. The model adjusts for this first by summing the expected lifetime probabilities in the remaining years in the offender's lifetime and then by dividing by the total lifetime probability for a particular offense. By definition, this adjustment factor will always be less than or equal to one. A matrix of adjustments ($OffenseAdjust_o$), by offense o, is calculated as follows:

(D.2f)

$$OffenseAdjust_o = \frac{\sum_{y=P}^{Max} OffenseTypeDist_o \times OffenseAgeDist_{oy}}{\sum_{y=10}^{65} OffenseTypeDist_o \times OffenseAgeDist_{oy}}$$

(E.2g) $$\sum_{o=1}^{O} OffenseAdjust_o <= 1.0$$

In this equation, P is the typical age of a program participant, and Max is the maximum age measured with an evaluation or with a multi-year recidivism study. Suppose the benefit-cost model is used to evaluate the economics of a preschool-based prevention program with a typical age of a program participant at 3 years old (P = 3) and that the evaluation has tracked the population to age 27 (Max = 27). For 3-year-olds who grow up to become offenders, a substantial portion of their entire lifetime expected offense age distribution will be added up in calculating the adjustment factor (that is, $OffenseAdjust_o$ will be relatively close to 1.0). On the other hand, if the prevention program is aimed at 14-year-olds (P = 14) and the study follows them to the age of 21, then a significant portion of the typical 14-year-old's expected lifetime offense history will lie outside the measured time interval ($OffenseAdjust_o$ <=1.0).

These probability distributions and the adjustment factor are then combined to produce a probability distribution of one expected future offense ($OffenseDist_{oy}$) that occurs sometime between the age of program participation and the maximum age measured. This is the key distribution from which the model calculates the expected present value of future costs of one new offense.

(D.2h) $$OffenseDist_{oy} = \frac{OffenseTypeDist_o \times OffenseAgeDist_{oy}}{OffenseAdjust_o}$$

The sum of this probability distribution of future offenses by offense type o and by year y is one since, by definition, the distribution applies to those who will commit at least one more felony offense. That is, the combined probabilities reflect the estimated likelihood of one future offense (from the typical age of a program participant to the maximum year measured) by the type of offense and when it is likely to occur.

(D.2i) $$\sum_{o=1}^{O} \sum_{y=progage}^{Max} OffenseDist_{oy} = 1.0$$

Computational Routine for Calculating the Value of Reducing One Criminal Offense. Equation (D.2i) calculates distributions of one future felony offense by type and by year in an offender's life. Equation (D.2a) calculated the present value of a resource's cost, assuming its use began in the first year. In reality, costs will be incurred when an offense occurs, not necessarily in the first year of an offender's remaining life.

Equation (D.2i) is used to estimate the length of time-to-offense (or re-offense) for those who will offend (or re-offend) at least once. The next step in the benefit-cost model distributes the base years costs calculated in equation (D.2a) to the offense distribution derived in equation (D.2i). At this stage of the model, three additional factors can be included in the model.

First, an annualized rate of decay (or growth) in expected future savings from a prevention, rehabilitation, incapacitation, or deterrence program or policy can be specified. If a program is being evaluated that has shown to achieve results with participants in the first few years after treatment, it may be assumed that some of the beneficial attributes of the program will begin to wear off as the participant ages. Alternatively, it can be hypothesized that the beneficial effects of a program will grow over time; the longer a person stays crime-free, the less chance he or she will subsequently engage in crime. The model allows for an exponential rate of decay (or growth) to be applied. Unless there is experimental or strong theoretical evidence to support a non-zero decay (or growth) factor, this value will usually be set to zero. A parameter (*Decayrate*) is estimated or assumed for each program the model evaluates and an array of decay factors ($Decay_y$) for each year y is calculated with this equation:

(D.2j) $$Decay_y = (1 + Decayrate)^{y-1}$$

Second, if there is an assumed rate of escalation in the costs of a resource, then the model escalates the base year present valued costs to the year that the resource use begins. In equation (D.2k), below, $(1+Esc_r)^{y\text{-}P\text{-}1}$ provides this adjustment.

Third, for some offenses, a resource is used either at the state level or the local level. For example, of all adult robbery sentences in Washington in fiscal year 1998, 70 percent resulted in a sentence to a state prison, while 30 percent resulted in local jail sentences. In this step of the model, these "splits" between state and local resources for a given type of offense are accounted for with a variable ($StateLocal_{ro}$) for resource r and offense o. The state and local "splits" are shown in Table E.2d for adult resources and Table E.2e for juvenile resources.

All these adjustments are combined in the following equation that creates a matrix of costs ($OffenseCost_{roy}$) for each resource r, by each offense type o, spread to each year y.

(D.2k) $$OffenseCost_{roy} = OffenseDist_{oy} \times StateLocal_{ro} \times \left[PVCost_{ro} \times (1 + Esc_r)^{y - progage - 1}\right] \times Decay_y$$

In the next step, the costs identified in equation (D.2k) ($OffenseCost_{roy}$) are summed to present value for all resources, all offenses, and all years. The costs are present valued to the age of the program participants, *progage*. Thus, if the program is designed to treat 12-year-olds, the clock starts running at 12 years. Any offense costs incurred when those 12-year-olds are, say, 20-years-olds, are discounted eight years back to present value. If a preschool program is designed for 4-year-olds, offenders who commit crimes when they are 20 years old will have the associated costs discounted 16 years to present value. With this method, the economics of programs that are aimed at diverse ages can be directly compared with each other. The following equation is used to sum the total expected future costs of one offense.

(D.2l) $$TotalCost_{progage} = \sum_{r=1}^{R} \sum_{o=1}^{O} \sum_{y=1}^{Max - progage} \frac{OffenseCost_{roy}}{(1 + Dis)^{y-1}}$$

When the model is used to study the benefits and costs of a program, the estimate for *TotalCost* is reported for three measures: taxpayer's total cost for one future offense; crime victim's monetary total cost of one future offense; and crime victim's quality of life total cost of one future offense. This separation is made so policymakers can either view the outcomes strictly from a taxpayer fiscal perspective, or more broadly from a perspective that includes crime victim costs.

D.3 Valuation of Child Abuse and Neglect Outcomes

The Institute's benefit-cost model includes estimates for the value of reducing a substantiated child abuse and neglect (CAN) case. The benefits are derived by calculating the costs that are incurred with the incidence of a child abuse and neglect case. These CAN costs are a function of three principal components: the expected value of public costs associated with a substantiated CAN case; an estimate of the medical, mental health, and quality of life costs associated with the victim of CAN; and other long-term costs that are causally linked to the incidence of CAN. Each of these is discussed.

D.3.1 Public Costs of a CAN Case. The public costs incurred as a result of a substantiated CAN case are estimated by modeling the child welfare system in Washington State. The expected present value cost of a youth for whom a child protective service case is accepted for investigation is a function of the expected number of public services that case will use, times the cost of each of these services. These services are modeled to include the investigative services of the child protective service agency, as well as involvement by police and the juvenile court for dependency cases. Some of the accepted and investigated child protective service cases, in turn, can be expected to use child welfare services including foster care, adoption support services, as well as additional involvement of the juvenile court for termination proceedings.

We model this process with case flow, probability, and cost data for 2002 and 2003 to estimate the total public cost of an accepted child abuse and neglect case in Washington. In the accompanying box, equation (D.3a) describes the process used to estimate the present value of the expected public costs of processing a child abuse and neglect case, $CANPUB$, as of the average age of a youth with an accepted case, $canage$. This value is converted to the base year dollars used in the overall benefit-cost analysis, IPD_{base}, relative to the year in which the $CANPUB$ dollars are denominated, IPD_{canpub}. This value is then discounted to the age of the youth receiving a program, $progage$, at the rate of discount used in the analysis, Dis.

The parameter $CANPUB_{canage}$ for Washington State is estimated with data and procedures described in Table D.3a. As shown in that table, costs that are expected to occur over several years are already estimated in present value terms as of the age of the youth who enters the child welfare system, $canage$.

Equations Used to Calculate the Present-Valued Costs of Child Abuse and Neglect Outcomes

(D.3a) $$PVCANPUB_{progage} = \frac{CANPUB_{canage} \times \frac{IPD_{base}}{IPD_{canpub}}}{(1+Dis)^{canage-progage}}$$

(D.3b) $$PVCANMedMH_{progage} = \frac{CANMedMH_{canage} \times \frac{IPD_{base}}{IPD_{canmedMH}}}{(1+Dis)^{canage-progage}}$$

(D.3c) $$PVCANQual_{progage} = \frac{CANQual_{canage} \times \frac{IPD_{base}}{IPD_{canmedMH}}}{(1+Dis)^{canage-progage}}$$

$CANPUB_{canage}$ = The expected public costs of processing a CAN case, present valued to the age of the youth who enters the system (see Table D.3a).

$progage$ = The age of the youth who is the focus of the program under consideration.

$CANMedMH_{canage}$ = The expected medical and mental health costs to the victim of a CAN case, present valued to the age of the youth who is victimized (see Table D.3b).

$CANQual_{canage}$ = The expected quality of life costs to the victim of a CAN case, present valued to the age of the youth who is victimized (see Table D.3b).

IPD = The implicit price deflator to adjust the year in which the costs are estimated into the base year chosen for the analysis (See App. E.1).

Dis = The real discount rate (See App. E.1).

Table D.3a
The Estimated Average Public Cost of a Child Protective Service Case Accepted for Investigation, State of Washington, Fiscal Year 2003

	Number of Children (1)	Prob-ability of Receiving This Service[9] (2)	Per Unit Costs in 2002 Dollars (3)	Number and Type of Cost Units (4)	Expected Cost per Accepted Case (2)*(3)*(4) (5)
Child Protective Services (CPS)					
Referrals (children) Accepted for Investigation	44,200[1]				
Cases Handled by Alternative Response System	4,200[2]	9.5%	$604[10]	1 case	$57
CPS Investigations	40,000[3]	90.5%	$604[11]	1 case	$546
Police Involvement	6,939[4]	15.7%	$1,265[12]	1 case	$199
Juvenile Court Dependency Case Involvement	3,924[5]	8.9%	$330[13]	8.6 hearings[17]	$252
Child Welfare Services					
Protective Custody (Foster Care)	7,100[6]	16.1%	$22.14[14]	430.2 days[18]	$1530
Adoption Support Services	845[7]	1.9%	$44,926[15]	1 case	$859
Juvenile Court Termination Case Involvement	1,434[8]	3.2%	$660[16]	3.2 hearings[19]	$69
TOTAL					**$3,511**

Sources
1. Washington State Department of Social and Health Services (DSHS), Children's Administration's Annual Performance Report (December 2003), page 7. Downloaded at <http://www1.dshs.wa.gov/ca/pdf/2003perfrm1.pdf>.
2. *Ibid.*, page 12, the Alternative Response System is for low-risk cases.
3. The difference between 44,200 and 4,200.
4. Administration on Children, Youth and Families (ACYF), *Child Maltreatment 2002*, Figure S-2, <http://nccanch.acf.hhs.gov/general/stats/index.cfm>.
5. Washington State Administrative Office of the Courts. Juvenile dependency filings in calendar year 2002. Taken from the AOC report available at <http://www.courts.wa.gov/caseload/?fa=caseload.display_years&folderID=Superior&subfolderID=ann&year=2002&fileID=jdpfilyr>.
6. Washington State Department of Social and Health Services, *Children's Administration's Annual Performance Report* (December 2003), page 7. Downloaded at <http://www1.dshs.wa.gov/ca/pdf/2003perfrm1.pdf>.
7. DSHS EMIS report (3/28/03), page 5. We estimated the number of these cases that avail themselves of the adoption support program by taking the first month (of FY 03) for the number of cases receiving support, less the first month for FY02.
8. Washington State Administrative Office of the Courts. Juvenile termination filings in calendar year 2002. Taken from the AOC report available at <http://www.courts.wa.gov/caseload/?fa=caseload.display_years&folderID=Superior&subfolderID=ann&year=2002&fileID=jdpfilyr>.
9. Probability of the event per CPS Case Accepted for Investigation.
10. DSHS budget document for Children's Administration FY2002, "child protective services case mgt," ($26,679,937) divided by the new accepted cases.
11. *Ibid.*
12. Derived from the cost of an arrest for misdemeanors from the Institute's crime cost model, multiplied by the IPD to 2002 (see Appendix E).
13. Estimated by assuming a dependency case involves 5.5 people in court at an average annual salary of $60,000, with each hearing involving 2 hours of court and preparation time.
14. DSHS budget document for Children's Administration FY2002, for "child welfare case management," "foster care in placement," "foster care support services," and "group care" (total for the four categories: $129,301,064) divided by 16,000 youth in out-of-home placement during a year, divided by 365 days.
15. The present value of the stream of adoption support payments, estimated with the DSHS budget document for Children's Administration FY2002, "adoption" divided by the same report's total number of youth served (birth to 17 year olds). For the number of periods in the present value calculation, the total number of youth divided by the number of youth entering the system per footnote (7).
16. Estimated by assuming a dependency case involves 5.5 people in court at an average annual salary of $60,000, with each hearing involving 4 hours of court and preparation time.
17. The average number of hearings per case, calculated by the Institute.
18. Calculated with AFCARS data for Washington State: <http://www.acf.hhs.gov/programs/cb/publications/cwo00/statedata/wa.htm>.
19. The average number of hearings per case, calculated by the Institute.

D.3.2 Medical, Mental Health, and Quality of Life Costs. Two other types of CAN costs are estimated in the model. The life-cycle per unit costs to the victims of child abuse and neglect are obtained from national cost estimates published by Miller, Fisher, and Cohen (2001).[39] The modeling of these two cost categories follows the same approach as described for equation (D.3a). In equations (D.3b) and (D.3c), the parameters $CANMedMH_{canage}$ and $CANQual_{canage}$ are estimated with data and procedures described in Table D.3b.

[39] T. R. Miller, D. A. Fisher, and M. A. Cohen. (2001) "Costs of Juvenile Violence: Policy Implications" *Pediatrics* 107(1): E3.

D.3.3 Other Outcomes Linked to Child Abuse and Neglect. When a program affects the number of substantiated child abuse and neglect (CAN) cases, there can be directly and indirectly measured monetary results. As described in the previous two sections, the direct result of a reduction in CAN will be reduced public spending by those agencies that process CAN cases and a reduction in CAN victimization costs, as well. In addition to these direct benefits, however, a reduction in CAN can also be expected to have an indirect causal linkage to several other outcomes monetized in this benefit-cost analysis. For example, there is credible research showing a causal link between the incidence of CAN and subsequent criminality of the victimized youth when he or she is older. Thus, when a prevention

Table D.3b
Medical, Mental Health, and Quality of Life Costs per Victim of Child Abuse and Neglect
1993 Dollars

	Medical and Mental Health Costs[1] (1)	Quality of Life Costs[1] (2)	Number of Victims[3] (3)
Type of Child Abuse and Neglect			
Sexual abuse	$6,327[2]	$94,506[2]	114,000
Physical abuse	$3,472[2]	$58,645[2]	308,000
Mental abuse	$2,683[2]	$21,099[2]	301,000
Serious physical neglect	$911[2]	$7,903[2]	1,236,000
Total	$1,901[4]	$22,948[4]	1,959,000
Distribution of Costs by Payer			
Percent incurred by taxpayer	50%[5]	0%[5]	
Percent incurred by victim	50%[5]	100%[5]	
Amount paid by taxpayer	**$951**	**$0**	
Amount paid by victim	**$951**	**$22,948**	

Sources
1. The source of the cost elements in this table is: Miller, T. R., D. A. Fisher, and M. A. Cohen. (2001) "Costs of Juvenile Violence: Policy Implications" Pediatrics 107 (1): E3.
2. *Ibid*., Table 1. We've assumed 80 percent urban and 20 percent rural costs on the Miller et al. Table 1.
3. The source for the total U.S. number of victims: Miller, Ted R., Mark A. Cohen, and Brian Wiersema, (1996) "Victim Costs and Consequences: A New Look," Research Report, Washington D.C.: National Institute of Justice, Table 1.
4. These totals are weighted average sums using the victim numbers in column (3).
5. Institute assumptions.

program is able to demonstrate an effect on the rate of child abuse and neglect, it is important to measure both the direct and indirect benefits that can be expected as a result.

Table D.3c shows the linkages where we believe there is sufficient evidence to establish a causal relationship between a directly measured CAN outcome and another of the outcomes we monetize in this study. These relationships are expressed as effect sizes using the meta-analytic techniques we describe in Appendix B.

Table D.3c provides a summary of the findings from these meta-analyses, along with citations to the studies we used to study the relationships. The table reports the number of effects included in each meta-analysis, the weighted mean effect size and its significance level, the significance of the Q-test for homogeneity where appropriate, and the results of a random effects weighted mean effect size and its significance level, also where appropriate.

The last column of Table D.3c shows the mean effect size after we make adjustments for the quality of the research design and other adjustment factors as described in Appendix B. These adjusted effect sizes are the estimates we use in the benefit-cost analysis to model the relationships between a CAN case and the other outcomes.

We found statistically significant relationships between the incidence of child abuse and neglect and six subsequent outcomes of the children who were abused:

- Crime
- High School Graduation
- K-12 Grade Repetition
- K-12 Test Scores
- Alcohol Use
- Illicit Drug Use

As indicated in Table D.3c, the effect sizes for some of these relationships are fairly small, but even small effect sizes can have economic significance for some types of outcomes. We did not find a statistically significant relationship between child abuse and neglect and subsequent teen births of the abused child.

These effect sizes are used in the benefit-cost model to estimate the long-range economic effects on other outcomes caused by changes in CAN cases. The procedures used to monetize each of these effects are described in the separate sections of Appendix D.

An example illustrates the process used to calculate these economic values. Suppose that a rigorous evaluation of a prevention program finds the program has a mean difference effect size of -.15 on the incidence of child abuse and neglect. Further, suppose that the prevalence of child abuse and neglect among the target population

Table D.3c
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Estimated Causal Links Between a Program Outcome and Other Outcomes	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis***
		Fixed Effects Model			Random Effects Model		
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value		
		ES	p-value	p-value	ES	p-value	ES
Child Abuse and Neglect, and its longitudinal effect on:							
Crime	11	.271	0.000	0.000	.254	0.000	**.131**
High School Graduation	2	-.313	0.000	0.016	-.263	0.051	**-.147**
K-12 Grade Repetition	2	.341	0.000	0.670	na	na	**.170**
Teen Births/Pregnancy (under age 18)	3	.055	0.192	0.224	na	na	**.000**
Test Scores	2	-.157	0.021	0.932	na	na	**-.078**
Illicit Drugs (disordered use)	5	.117	0.000	0.398	na	na	**.058**
Alcohol (disordered use)	3	.203	0.000	0.666	na	na	**.102**

Studies Included in the Meta-Analytic Review of Outcomes

Study Author (Date)	Study Used to Assess This Outcome
English et al., 2002	Crime
Maxfield and Widom, 1996	Crime
Thornberry et al., 2001	Crime
Smith and Thornberry, 1995	Crime
Stouthamer-Loeber et al., 2001	Crime
Zingraff et al., 1993	Crime
Fergusson and Lynskey, 1997	Crime
Stouthamer-Loeber et al., 2002	Crime
Lansford et al., 2002	Crime
Dodge et al., 1990	Crime
McGloin and Widom, 2001	High School Graduation
Thornberry et al., 2001	High School Graduation
Perez and Widom, 1994	K-12 Grade Repetition
Eckenrode et al., 1993	K-12 Grade Repetition
Widom and Kuhns, 1996	Teen Births/Pregnancy (under age 18)
Roosa et al., 1997	Teen Births/Pregnancy (under age 18)
Thornberry et al., 2001	Teen Births/Pregnancy (under age 18)
Eckenrode et al., 1993	Test Scores
Lansford et al., 2002	Test Scores
MacMillan et al., 2001	Alcohol (disordered use)
Fergusson and Lynskey, 1997	Alcohol (disordered use)
Thornberry et al., 2001	Alcohol (disordered use)
Fergusson and Lynskey, 1997	Illicit Drugs (disordered use)
McGloin and Widom, 2001	Illicit Drugs (disordered use)
Thornberry et al., 2001	Illicit Drugs (disordered use)
MacMillan et al., 2001	Illicit Drugs (disordered use)
Lansford et al., 2002	Illicit Drugs (disordered use)

for the program is 12.4 percent (see section D.3.4). Then, equation (B.1) in Appendix B can be used to solve for the change in the percent of lifetime CAN prevalence associated with the program.

$$\Delta P_{can} = P_{can} - (\sin(\arcsin\sqrt{P_{can}}) + ES_{can|prog}/2)^2$$

In the example, the change in the probability of CAN is:

$$.045 = .124 - (\sin(\arcsin\sqrt{.124}) - .15/2)^2$$

Next, we observe from Table D.3c that the effect size of CAN on the probability of high school graduation is -.147. Given a base high school graduation rate of, say, 70 percent, the following equation solves for the change in the high school graduation percent given CAN.

$$\Delta P_{hsgrad} = P_{hsgrad} - (\sin(\arcsin\sqrt{P_{hsgrad}}) + ES_{hsgrad|can}/2)^2$$

$$.069 = .70 - (\sin(\arcsin\sqrt{.70}) - .147/2)^2$$

Multiplying these two values together, and then multiplying by the present value of lifetime

earnings associated with high school graduation (see Appendix D.1), produces the monetized benefit of the program on high school graduation.

$$Benefit_{hsgrad|prog} = \Delta Pcan \times \Delta P_{hsgrad} \times ValueHSGRAD$$

$$\$546 = .045 \times .069 \times \$175{,}000$$

D.3.4 Lifetime Prevalence of Child Abuse and Neglect. The benefit-cost model requires an estimate of the lifetime probability of being a victim of child abuse or neglect. We calculate an estimate using two approaches. First, we gathered other research studies that have examined this question with longitudinal cohort data. Table D.3d summarizes these estimates. The studies measured child abuse and neglect with different definitions, for different populations, and at different times. Ignoring these variations, a simple weighted average of the studies produces an estimate of 10.6 percent lifetime prevalence of child abuse.

Table D.3d
Lifetime Prevalence Estimates of Child Abuse and Neglect

Study	Number in study with abuse	Total number in sample	Percent with Child Abuse and Neglect	Notes
Total	**3765**	**35650**	**10.6%**	Weighted average of studies listed
Eckenrode et al., 1993	1239	8569	14.5%	General pop, NY, substantiated cases
Stouthamer-Loeber et al., 2001	52	506	10.3%	Inner city pop, Pittsburg, substantiated cases
Zingraff et al., 1993	10	387	2.6%	School sample, Mecklenburg, NC
Thornberry et al., 2001	213	1000	21.3%	Rochester, NY, substantiated cases
Reynolds et al., 2003	69	595	11.6%	Chicago higher risk sample, CPS control group
MacMillan et al., 1997	1461	9953	14.7%	General pop, Ontario, severe, self report
Brown et al., 1998	46	644	7.1%	General pop, non SES
Kelleher et al., 1994	378	11662	3.2%	5 urban sites
Dodge et al., 1990	46	304	15.1%	General pop, physical abuse
Finkelhor et al., 2003	252	2030	12.4%	One year rate

To test the reasonableness of this estimate, we use a second approach to estimate the lifetime prevalence. First, we calculate the one-year prevalence of new substantiated CAN cases reported to child welfare agencies. An estimate for this rate is .0108 for 2002.[40] This is the annual rate for children for all ages. In any given year, some of these cases are repeat cases from previous maltreatment episodes. We estimate this number, using data for Washington State, to be 28.4 percent.[41] Using these two parameters to calculate the annual probability of a new substantiated child abuse or neglect case for a child from age one to age 18, the implied lifetime prevalence rate of child abuse or neglect for the general population of children is estimated to be 12.4 percent—a rate quite similar to the rate estimated from other studies, as shown in Table D.3d.

Some of the populations that are the focus of prevention and early intervention programs are not the general population but are, instead, populations from higher risk populations, often from lower socio-economic status. For the model, we estimate a parameter for this (an odds ratio to be applied to the lifetime prevalence rate for the general population) by taking a weighted average of the results of three studies that have examined this question with control groups.[42]

[40] Administration on Children, Youth and Families, (2002) *Child Maltreatment 2002,* Table 3-1: 775,037 / 71,514,558 (total substantiated cases divided by total child population). Report available at <http://nccanch.acf.hhs.gov/general/stats/index.cfm>.

[41] This number was derived with out-of-home placement data for Washington. Using DSHS CAMIS child placement data for FY2001, we counted the total number of unduplicated children in out-of-home placements. Of these children, we then examined their entire placement history in Washington (back to 1993, the first year for which we have data), and determined the number with at least one prior placement. We found that of the 7,695 youth placed in FY2001, 2,182 (28 percent) had a prior placement.

[42] G. T. Lealman, D. Haigh, J.M. Phillips, J. Stone, and C. Ord-Smith. (1983) "Prediction and prevention of child abuse—An empty hope?" *The Lancet* (June 25): 1423-1424; D. A. Murphey and M. Braner. (2000) "Linking child maltreatment retrospectively to birth and home visit records: An initial examination." *Child Welfare* 79(6): 711-728.

D.4 Valuation of Alcohol, Illicit Drug, and Tobacco Outcomes

In the Institute's benefit-cost model, an estimate is made of monetized benefits tied to reductions in the disordered use of alcohol and illicit drugs, and in the reduced regular consumption of tobacco. As described in this section for each substance, the general approach is to estimate the present value of future costs that can be causally linked to the disordered use of alcohol or illicit drugs, or the regular use of tobacco. In keeping with other cost estimates in this analysis, these costs are estimated from three perspectives: benefits or costs that are internalized by the substance abuser or user, external costs or benefits borne or enjoyed by taxpayers, and external non-taxpayer benefits or costs borne or enjoyed by other non-abusers or users.

D.4.1 The Costs of Disordered Alcohol Consumption. For the United States, the aggregate level of costs associated with alcohol abuse has been estimated by Harwood (2000), using a cost-of-illness methodology.[43] Harwood estimated that, for the United States in 1998, alcohol abuse cost $184.5 billion. The costs included in Harwood's analysis cover these areas:

- alcohol treatment and medical costs (14 percent of the total);
- lost future earnings due to premature deaths (20 percent of the total);
- lost labor market productivity due to morbidity (47 percent of the total);
- crime related costs (9 percent of the total); and
- other costs related to motor vehicle crashes, fire destruction, and welfare administration (10 percent of the total).

Several critiques of Harwood's estimates have raised questions about the degree to which some of these costs are causally related to alcohol disorders.[44] In particular, there is a concern that independent research has not firmly established a causal link between alcohol use and crime.[45] There is some evidence that disordered alcohol use is related to crime, but there is also contrary evidence. Until, and if, definitive research persuasively establishes a causal link between alcohol and crime, in this analysis we have not included costs for crime-related alcohol outcomes. Crime costs amounted to 9 percent of Harwood's overall total.

Similarly, there has been concern that the association between alcohol and labor market outcomes may not be causal. The lost labor market productivity due to morbidity accounts for almost half the total costs of disordered alcohol use reported by Harwood. Because of the concern about causality on this factor, some analysts have excluded these costs from benefit-cost calculations.[46] In this study, on the other hand, we have meta-analyzed studies that have examined this question. Based on this meta-analysis presented in this section, we conclude that there is a significant, though fairly small, causal effect between disordered alcohol use and labor market outcomes. The effect that we obtain is only about a fifth of the amount assumed in the Harwood study, but we include the economic implications of our finding in this study.

In addition, in this analysis we include costs related to alcohol treatment and medical costs, lost future earnings due to premature deaths, and costs related to motor vehicle crashes, fire destruction, and welfare administration. With the exception of the estimates for lost future earnings due to premature deaths, we use the Harwood (2000) estimates for these other costs. We calculate our own estimates for lost future earnings due to premature deaths to be internally consistent with the procedures we use to estimate costs that relate to lost economic earnings (see Appendix D.1).

[43] H. Harwood. (2000) *Updating estimates of the economic costs of alcohol abuse in the United States: Estimates, update methods, and data*. Report prepared by The Lewin Group for the National Institute on Alcohol Abuse and Alcoholism. Based on estimates, analyses, and data reported in H. Harwood, D. Fountain, and G. Livermore. (1998) *The economic costs of alcohol and drug abuse in the United States 1992*. Report prepared for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services. NIH Publication No. 98-4327 Rockville, MD: National Institutes of Health.

[44] P. Reuter. (1999) "Are calculations of the economic costs of drug abuse either possible or useful?" *Addiction* 94(5): 635-638; M. A. R. Kleiman. (1999) "'Economic cost' measurements, damage minimization, and drug abuse control policy," *Addiction* 94(5): 638-641; P. Kopp, (1999) "Economic costs, calculations and drug policy evaluation," *Addiction* 94(5): 644-649; M. A. Cohen. (1999) "Alcohol, drugs and crime: Is 'crime' really one-third of the problem?" *Addiction* 94(5): 641-644.

[45] M. W. Lipsey, D. B. Wilson, M. A. Cohen, and J. H. Derzon. (1997) "Is there a causal relationship between alcohol use and violence? A synthesis of evidence." In M. Galanter, ed., *Recent developments in alcoholism, Volume 13: Alcoholism and violence*, 245-282. New York: Plenum Press.

[46] For example, the Harwood labor market productivity estimates were not used in a Rand study of school-based drug prevention. J. Caulkins, R. Pacula, S. Paddock, and J. R. Chiesa. (2002) *School-based drug prevention: What kind of drug use does it prevent?* Santa Monica, CA: Rand.

Mortality Related Lost Earnings. We estimate the costs of lost lifetime earnings resulting from a death related to disordered alcohol use with the following procedures. For each year of age from 18 to 65, the lost earnings for a person's remaining working life are estimated with earnings data from the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement.[47] To reflect the presumed lower SES of disordered alcohol users, the earnings used for this outcome are the weighted average CPS earnings for individuals with less than a high school diploma, those with a high school diploma, and those with some college but no degree. The value of the lost earnings for the remaining working life are present valued and multiplied by the probability that a death due to alcohol abuse will occur during each year, where the death probability is modeled with a normal probability distribution. The mortality probability distribution uses the mean (and standard deviation) age of a person who dies from alcohol abuse. These two parameters were calculated for Washington State by analyzing the cause of death data for all deaths recorded during 2001. The mean age of alcohol caused deaths was 57, with a standard deviation of 13.3.

With these parameters, in any given year *y* of a person's working life, the expected present value of lost earnings for the person's remaining working life is estimated by equation (D.4.1a).

Next, this stream of lost lifetime earnings is present valued to age 18 in equation (D.4.1b). The lost earnings to the person who dies is then discounted to the age of the youth in a program in equation (D.4.1c).

This sum is then multiplied by a disordered alcohol use causation factor, by a fringe benefit factor, and by one minus the tax rate to arrive at an estimate of the after tax lifetime lost earnings caused by disordered alcohol consumption (D.4.1d). A second equation estimates this same sum, except that the sum is the present value of the lost taxes associated with the alcohol-caused early death (D.4.1e).

The causation factor for disordered alcohol use is used in these calculations to estimate the probability that a person with a lifetime DSM-IV definition of alcohol abuse or dependency will die from alcohol. The derivation of this causation factor is displayed in Table D.4a.

Table D.4a
Estimated Causation/Correlation Factors:
The Probability That a Person with Disordered Alcohol Use, Disordered Illicit Drug Use, or Regular Smoking, Will Die From That Use

	Alcohol	Illicit Drugs	Tobacco
Year of analysis(1)	1992	1992	1999
Lifetime chance of disordered condition or regular use	18.17% (2)	6.05% (2)	58.70% (3)
Total deaths in the United States(4)	2,176,000	2,176,000	2,337,000
Of deaths that year, the number that had a lifetime disordered condition or regular use(5)	395,379	131,648	1,371,819
Estimated deaths in the United States that year caused by the substance(6)	95,751	22,979	404,750
Probability of having had a lifetime condition or regular use and dying from it(7)	24.2%	17.5%	29.5%

(1) The year of analysis is that used by Harwood, H., D. Fountain, and G. Livermore, The economic costs of alcohol and drug abuse in the United States 1992, and by the smoking-attributable mortality, morbidity, and economic costs (SAMMEC) application of the National Center for Disease Control and Prevention.
(2) Grant, Bridget F. and Roger P. Pickering, (1996) "Comorbidity between DSM-IV alcohol and drug use disorders," Alcohol Health and Research World 20: 67-72.
(3) Analysis of data from the National Survey on Drug Use and Health, 2002 for the question on the percent of the population that had ever smoked cigarettes everyday for 30 days.
(4) Statistical Abstract of the United States, 2003 <http://www.census.gov/statab/www>.
(5) The product of the previous two rows.
(6) Sources: footnote (1)
(7) The quotient from the previous two rows.

Morbidity Related Lost Earnings. For earnings losses related to alcohol morbidity, we follow the same procedure just outlined. The only difference is in equation (D.4.1f) where the annual earnings are multiplied by an estimate of the reduction in annual earnings due to disordered use of alcohol, *MorbidityLossPct*. This value was obtained from our meta-analysis of studies that have estimated economic outcomes as a function of heavy or disordered alcohol use. Table D.4b displays the results of that meta-analysis. We found a marginally statistically significant (p=.055) relationship when we used a random effects model to analyze the effect. The random effects model was called for when the homogeneity test was rejected (p=.000) in the fixed effects model, as shown in Table D.4b.

[47] The data are from the March 2002 Supplement to the CPS, PINC-04. Educational Attainment—People 18 Years Old and Over by Total Money Earnings in 2001, Age, Race, Hispanic Origin, and Sex, downloaded at <http://ferret.bls.census.gov/macro/032002/perinc/new04_001.htm>.

Table D.4b
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Estimated Causal Links Between a Program Outcome and Other Outcomes	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis***
		Fixed Effects Model			Random Effects Model		
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value		
		ES	p-value	p-value	ES	p-value	ES
Disordered Alcohol Use, and its longitudinal effect on:							
Economic Outcomes	7	-.160	0.000	0.000	-.165	0.055	**-.125**

Studies Included in the Meta-Analytic Review of Outcomes

Study Author (Date)	Study Used to Assess This Outcome
Mullahy and Sindelar, 1996	Economic Outcomes
Chevrou-Severac and Jeanrenaud, 2002	Economic Outcomes
Zarkin et al., 1998	Economic Outcomes
Dave and Kaestner, 2002	Economic Outcomes
Terza, 2001	Economic Outcomes
Kenkel and Ribar, 1994	Economic Outcomes
Kenkel and Ribar, 1994	Economic Outcomes

The effect size from this meta-analysis, *ES*, is expressed as units of a standard deviation in earnings. *ES* is multiplied by the standard deviation in earnings, *StDevEarnings*, and this product is then divided by average earnings, *AverageEarnings*.

$$MorbidityLossPct = \frac{ES \times StDevEarnings}{AverageEarnings}$$

To quantify this factor, we estimated mean earnings (and the standard deviation) using data from the Census Bureau's Current Population Survey for 2001. We used the 24 to 34 age group, with the same lower SES definitions described earlier, to match the age of onset and cessation for disordered alcohol consumption that we use in this analysis. We found that earnings can be expected to be about 12 percent lower, on average, during these years for the disordered user of alcohol.

Costs Related to Alcohol Treatment and Medical Costs, Motor Vehicle Crashes, Fire Destruction, and Welfare Administration. As noted, in our analysis we use the Harwood (2000) estimates for the costs related to alcohol treatment and medical costs, motor vehicle crashes, fire destruction, and welfare administration. In 1998 dollars, Harwood's total for these costs amounts to $44.1 billion for the United States, and they are assumed to be causally associated with alcohol disorders in that year.

To convert these costs to present-valued life cycle costs per person, we use the method described in Spoth et al., 2002.[48] The method assumes that the Harwood costs will be linked to alcohol disorders when users are disordered. That is, these costs are not ascribed to normal alcohol use but, instead, to the disordered current use of alcohol. The method estimates the current number of disordered persons by age as a function of information on the mean age of onset of disordered drinking (and its standard deviation), the mean age of cessation from disordered drinking (and its standard deviation), the lifetime and current year prevalence of disordered drinking in the general population, and the size of the U.S. adult population in 1998 (the year in which the Harwood costs are estimated). The distributions are assumed to be normally distributed and the number of disordered alcohol users is modeled between the ages of 18 and 74 (the use of age 74 is shorter than the normal life expectancy and this reflects the expected reduction in life expectancy due to alcohol). The annual $44.1 billion in costs, divided by the number of disordered individuals in each year, are then discounted to present value at age 18, at the assumed discount rate used in our study. For any program under study, this present value amount is further discounted to the age of the person in a program. We distribute this sum to the three perspectives (participant, taxpayer, non-participant non-taxpayer) used in this analysis following the

[48] R. L. Spoth, M. Guyll, and S. X. Day. (2002) "Universal family-focused interventions in alcohol-use disorder prevention: Cost-effectiveness and cost-benefit analyses of two interventions." *Journal of Studies on Alcohol* 63(2): 219-228.

cost distributions for each of these costs provided in Harwood (1998).[49] The distribution of these costs by payer is shown in Appendix E.1.

Age of Initiation of Alcohol Use. As described above, we estimate the costs of disordered alcohol consumption. These costs are tied to the lifetime prevalence of alcohol consumption patterns. Many of the alcohol measures used in evaluations of prevention and early intervention programs, however, are measures of the age at initiation of alcohol. Therefore, in order to estimate the long-term costs of disordered alcohol use, it is necessary to establish whether there is a causal link between the delay in the age at initiation and the ultimate disordered use of alcohol.

We assessed the research literature on this topic and found the following relationships. Studies by Grant and Pickering (1996) and Grant and Dawson (1997) were used to assess the linkage between the age at onset of alcohol use and subsequent disordered alcohol consumption. Grant and Dawson (1997) estimated a multivariate model to assess the linkage between age of onset drinking to the odds of lifetime alcohol abuse and dependence. Alcohol disorders were defined to be consistent with the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV: American Psychiatric Association, 1994). The researchers used the National Longitudinal Alcohol Epidemiologic Survey (NLAES), a nationally representative sample. After controlling for the effects of sex, race, age, duration of drinking, current drinking status, and family history of alcoholism, they found that the odds of lifetime alcohol abuse and dependence were lowered by 8 percent and 14 percent with each increasing year of age of first use, respectively. Grant and Pickering (1996) used the NLAES and reported that the lifetime prevalence of DSM-IV alcohol abuse and/or dependence was 4.88 percent and 13.29 percent, respectively.

We combine these estimates in Table D.4c to calculate the marginal effect of age at onset of drinking on lifetime DSM-IV alcohol disorders. When this marginal effect is used in the benefit-cost model, we also apply a causation/correlation factor, listed in Appendix E.1, to the -.1238 combined coefficient. We do this to reduce the slope parameter to better approximate a causal relationship.

As an example of how this information is used to calculate the benefits of a program that increases the age of onset of alcohol consumption, consider this equation:

$$Ben_{prog} = (ES_{prog} \times SD_{onset}) \times (MECoef \times CC) \times PVCost$$

The benefits of a program, Ben_{prog}, are estimated by multiplying the effect size of a program (measured in standard deviation units of age at onset) by the standard deviation of the average age of onset for alcohol use. This product is then multiplied by the product of the marginal effect coefficient from Table D.4c by the causation/correlation factor. Finally, this product is multiplied by the present valued cost of a lifetime alcohol disorder.

Thus, for a program that achieves an effect size of +.1 on a population of youth with a mean onset of alcohol consumption at age 15 with a standard deviation of 3, the marginal effect coefficient of -.01842 times a causation/correlation factor of .75 times the present expected value of a lifetime alcohol disorder of $100,000, equals $414 in expected benefits per treated youth. The calculation of each of the example parameters in this sample calculation is described elsewhere in this technical Appendix.

Table D.4c
The Effect of Age at Onset of Drinking With Lifetime DSM-IV Alcohol Disorders

	Abuse	Dependence	Both
Lifetime %[1]	0.0488	0.1329	0.1817
Logistic Regression Coefficient[2]	-0.08	-0.14	-0.1238
Marginal Effect	-0.003713	-0.016133	-0.01842

Sources
1. Grant, Bridget F. and Roger P. Pickering. (1996) "Comorbidity between DSM-IV alcohol and drug use disorders," Alcohol Health and Research World 20: 67-72.
2. Grant, B.F. and D.A. Dawson. (1997) "Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the national longitudinal alcohol epidemiologic survey." Journal of Substance Abuse 9: 103-110.
3. Marginal effect for a logistic: *b*Y(1-Y), Ramanathan, R. (2002) Introductory Econometrics with Applications, Fourth edition, Fort Worth: Harcourt Brace College Publishers, Table 6.1.

[49] Harwood et al., *The Economic Costs of Alcohol and Drug Abuse*.

Equations Used to Calculate the Present Valued Costs of Disordered Alcohol Consumption Outcomes

(discussed in accompanying text)

Mortality: Lost earnings

(D.4.1a) $$PVEarnA_y = \left[\sum_{t=y}^{65} \frac{Earnings_y \times (1+Earnesc)^{t-y}}{(1+Dis)^{t-y}}\right] \times \frac{e^{-\frac{1}{2}\left(\frac{y-DeathageM}{DeathageSD}\right)^2}}{DeathageSD\sqrt{2\pi}}$$

(D.4.1b) $$PVEarnB_{18} = \sum_{y=18}^{65} \frac{PVEarnA_y \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.4.1c) $$PVEarnB_{progage} = \sum_{y=progage}^{18} \frac{PVEarnB_{18} \times (1+Earnesc)^{y-progage+1} \times \frac{IPD_{base}}{IPD_{yearearn}}}{(1+Dis)^{y-progage+1}}$$

(D.4.1d) $$AlcEarnA1 = PVEarnB_{progage} \times AlcCC \times (1+Fringe) \times (1-Taxrate)$$

(D.4.1e) $$AlcTaxA2 = PVEarnB_{progage} \times AlcCC \times (1+Fringe) \times (Taxrate)$$

Morbidity: Lost earnings

(D.4.1f) $$PVEarnC_{18} = \sum_{y=onset}^{cessation} \frac{Earnings_y \times MorbidityLossPct \times (1+Earnesc)^{y+(onset-17)}}{(1+Dis)^{y+(onset-17)}}$$

(D.4.1g) $$PVEarnC_{progage} = \sum_{y=progage}^{18} \frac{PVEarnC_{18} \times (1+Earnesc)^{y-progage+1} \times \frac{IPD_{base}}{IPD_{yearearn}}}{(1+Dis)^{y-progage+1}}$$

(D.4.1h) $$AlcEarnB1 = PVEarnC_{progage} \times (1+Fringe) \times (1-Taxrate)$$

(D.4.1i) $$AlcTaxB2 = PVEarnC_{progage} \times (1+Fringe) \times (Taxrate)$$

$Earnings_y$	=	Annual money earnings of an individual in year y, taken from the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement. To reflect the generally lower SES of heavy alcohol users, the earnings used for this outcome are weighted average CPS earnings for individuals with less than a high school diploma, those with a high school diploma, and those with some college but no degree.
Earnesc	=	An estimated long-run annual growth rate in real earnings (See App. E.1).
IPD_{base}	=	The implicit price deflator for the year chosen as the base year for the overall analysis (See App. E.1).
$IPD_{yearearn}$	=	The implicit price deflator for the year in which the Census Bureau earnings series is denominated (See App. E.1).
DeathageM	=	The mean age of death of a person who dies from one of the principal alcohol disorders, calculated for Washington State from an analysis of cause of death data from the Washington State Department of Health.
DeathageSD	=	The standard deviation of the mean age of death of a person who dies from one of the principal alcohol disorders.
progage	=	The age of the person who is the focus of the program under consideration.
AlcCC	=	An alcohol causation-correlation factor: the estimated probability that an alcohol disordered person will die from alcohol.
MorbidityLossPct	=	The estimated change in earnings due to disordered consumption of alcohol (see App. E.1).
Onset	=	The mean age of onset of disordered alcohol use (See App. E.1).
Cessation	=	The mean age of cessation of disordered alcohol use (See App. E.1).
Fringe	=	The fringe benefit rate used in the analysis (See App. E.1).
Taxrate	=	The tax rate used in the analysis (See App. E.1).
Dis	=	The real discount rate used in the analysis (See App. E.1).

D.4.2 The Costs of Disordered Illicit Drug Consumption. The estimation of illicit drug costs follows the same general procedure as that described for disordered alcohol use in section D.4.1. For the United States, the aggregate level of costs associated with illicit drug abuse has been estimated by the Lewin Group (2001) using a cost-of-illness methodology.[50] That study estimated that, for the United States in 1998, drug abuse cost $143.4 billion. The costs included in the Lewin analysis cover these areas:

- Health care costs (9 percent of the total);
- Productivity losses (69 percent of the total); and
- Other costs (22 percent of the total).

Several critiques of the Lewin estimates have raised questions on the degree to which some of these costs are causally related to drug disorders.[51] In particular, there has been concern that the association between illicit drug abuse and labor market outcomes may not be causal.

In this study, we approach this question in two ways. First, we estimate the lost labor market productivity stemming from early mortality of drug abusers. We do not use the Lewin estimates directly; rather, we use our own methods to be consistent with the way in which all labor market outcomes are modeled in this benefit-cost analysis. Second, we estimate the morbidity effect that early marijuana use appears to have on labor market productivity via human capital formation. To estimate this effect, we meta-analyzed studies that have examined the relationship between marijuana use and subsequent human capital outcomes (see Appendix E). Based on this meta-analysis, we conclude that there is a significant, though fairly small, causal effect between youth marijuana use and high school graduation rates. As explained, we use the estimated effect size to derive the economic implications of the lower human capital resulting from early marijuana use.

In addition to our own mortality and morbidity estimates, we include the Lewin health care costs, which include drug abuse treatment costs and costs associated with the medical consequences of drug abuse.

Mortality Related Lost Earnings. We estimate the costs of lost lifetime earnings resulting from a death related to disordered drug use with the following procedures. For each year of age from 18 to 65, the lost earnings for a person's remaining working life are estimated with earnings data form the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement. To reflect the presumed lower SES of drug abusers, the earnings used for this outcome are the weighted average CPS earnings for individuals with less than a high school diploma, those with a high school diploma, and those with some college but no degree. The value of the lost earnings for the remaining working life are present valued and multiplied by the probability that a death due to drug abuse will occur during each year, where the death probability is modeled with a normal probability distribution. The mortality probability distribution uses the mean (and standard deviation) age of a person who dies from drug abuse. These two parameters were calculated for Washington State by analyzing the cause of death data for all deaths recorded during 2001. The mean age of drug caused deaths was 43, with a standard deviation of 13.1.

With these parameters, in any given year *y* of a person's working life, the expected present value of lost earnings for the person's remaining working life is estimated by equation (D.4.2a).

Next, this stream of lost lifetime earnings is present valued to the age of 18 in equation (D.4.2b). The lost earnings to the person who dies is then discounted to the age of the youth in a program in equation (D.4.2c).

This sum is then multiplied by a drug abuse causation factor, by a fringe benefit factor, and by one minus the tax rate to arrive at an estimate of the after tax lifetime lost earnings caused by drug abuse (D.4.2d). A second equation estimates this same sum, except that the sum is the present value of the lost taxes associated with the drug-caused early death (D.4.2e).

The causation factor for disordered drug use is used in these calculations to estimate the probability that a person with a lifetime DSM-IV definition of drug abuse or dependency will die from drug use. The derivation of this causation factor is displayed in Table D.4a.

[50] Executive Office of the President, Office of National Drug Control Policy. (2001, September) *The economic costs of drug abuse in the United States 1992-1998.* Washington, DC, available at <http://www.whitehousedrugpolicy.gov/publications/pdf/economic_costs98.pdf>.

[51] Reuter, "Are calculations of the economic costs of drug abuse either possible or useful?"; Kleiman, "Economic cost"; Kopp, "Economic costs, calculations and drug policy evaluation"; Cohen, "Alcohol, drugs and crime."

Table D.4d
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Estimated Causal Links Between a Program Outcome and Other Outcomes	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis***
		Fixed Effects Model			Random Effects Model		
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value		
		ES	p-value	p-value	ES	p-value	ES
Marijuana Use, and its longitudinal effect on:							
Educational outcomes	9	-.116	0.000	0.000	-.143	0.000	**-.071**

Studies Included in the Meta-Analytic Review of Outcomes

Study Author (Date)	Study Used to Assess This Outcome
Chatterji, 2003	Educational outcomes
Pacula et al., 2003	Educational outcomes
Register et al., 2001	Educational outcomes
Ellickson et al., 1998	Educational outcomes
Mensch and Kandel, 1988	Educational outcomes
Bray et al., 2000	Educational outcomes
Yamada et al., 1996	Educational outcomes
Fergusson and Horwood, 1997	Educational outcomes
Brook et al., 2002	Educational outcomes

Morbidity Related Lost Earnings. We estimated morbidity related lost productivity through the effect that early illicit drug use (marijuana) has on the acquisition of human capital. Table D.4d shows the results of a meta-analysis we conducted of studies that have examined the linkage between teen marijuana use and educational outcomes, particularly high school graduation. The meta-analysis was conducted with nine studies that have made some attempt to measure a causal effect. As describe in Appendix B, for those studies with relatively weaker research designs, we further reduce the observed effects to provide a cautious interpretation of causal effects.

After making these calculations, we estimate that the probability of high school graduation is reduced about three percentage points as a result of early involvement with marijuana. Equation (D.4.2f) models how this reduction in high school graduation rates affects expected lifetime earnings. Equation (D.4.2f) follows the same procedures discussed in Appendix D.1 for education outcomes.

Health Care Costs Related to Drug Disorders. As noted, in our analysis we use the Lewin (2001) estimates for the costs related to alcohol treatment and medical costs, motor vehicle crashes, fire destruction, and welfare administration.[52] In 1998 dollars, the total costs amount to $12.9 billion, and they are the annual costs assumed to be causally associated with drug disorders in that year.

To convert these costs to present-valued life cycle costs per person, we use the method described in Spoth et al., 2002.[53] The method assumes that the Lewin costs will be linked to drug disorders when users are disordered. That is, these costs are not ascribed to clinically non-disordered drug use but, rather, to the disordered current use of illicit drugs. The method estimates the current number of disordered persons by age as a function of information on the mean age of onset of disordered drug use (and its standard deviation), the mean age of cessation from disordered drug use (and its standard deviation), the lifetime and current year prevalence of disordered drug use in the general population, and the size of the U.S. adult population in 1998 (the year the Lewin costs are estimated). The distributions are assumed to be normally distributed and the number of disordered drug users is modeled between the ages of 18 and 74. The annual $12.9 billion in costs, divided by the number of disordered individuals in each year, are then discounted to present value at age 18, at the assumed discount rate used in our study. For any program under study, this present value amount is further discounted to the age of the person in a program. We distribute this sum to the three perspectives (participant, taxpayer, non-participant non-taxpayer) used in this analysis following the cost distributions for each of these costs provided in Harwood (1998).[54] The distribution of these costs by payer is shown in Appendix E.1.

[52] Executive Office of the President, Office of National Drug Control Policy, *The economic costs of drug abuse in the United States*.

[53] Spoth et al., "Universal family-focused interventions."
[54] Harwood et al., *The Economic Costs of Alcohol and Drug Abuse in the United States*.

Age of Initiation of Drug Use. As described in this section, we estimate the costs of disordered illicit drug consumption. These costs are tied to the lifetime prevalence of illicit drug consumption patterns. Many of the illicit drug measures used in evaluations of prevention and early intervention programs, however, are measures of the age at initiation of illicit drugs. Therefore, in order to estimate the long-term costs of disordered use, it is necessary to establish whether there is a causal link between the delay in the age at initiation and the ultimate disordered use of illicit drugs.

We assessed the research literature on this topic and found the following relationships. We followed the same procedures for the relationship between age at onset and illicit drug disorders that we did for alcohol. Studies by Grant and Pickering (1996) and Grant and Dawson (1998) were used to assess the linkage between the age at onset of drug use and subsequent disordered drug consumption. Grant and Dawson (1998) estimated a multivariate model to assess the linkage between age of onset of drug use to the odds of lifetime drug abuse and dependence. Drug disorders were defined to be consistent with the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV: American Psychiatric Association, 1994). The researchers used the National Longitudinal Alcohol Epidemiologic Survey (NLAES), a nationally representative sample. After controlling for the effects of sex, race, age, duration of drug use, current drug use status, and family history of alcoholism, they found that the odds of lifetime drug abuse and dependence were lowered by 5 percent and 4 percent with each increasing year of age of first use, respectively. Grant and Pickering (1996) used the NLAES and reported that the lifetime prevalence of DSM-IV drug abuse and/or dependence was 3.14 percent and 2.91 percent, respectively.

We combine these estimates in Table D.4e to calculate the marginal effect of age at onset of drug use on lifetime DSM-IV drug disorders. When used in the benefit-cost model, we also apply a causation/correlation factor, listed in Appendix E.1, to the -.04519 combined coefficient to reduce the slope parameter to better approximate a causal relationship.

Table D.4e
The Effect of Age at Onset of Drug Use With Lifetime DSM-IV Drug Disorders

	Abuse	Dependence	Both
Lifetime %[1]	0.0314	0.0291	0.0605
Logistic Regression Coefficient[2]	-0.05	-0.04	-0.04519
Marginal Effect	-0.00152	-0.00113	-0.00257

Sources
1. Grant, Bridget F. and Roger P. Pickering. (1996) "Comorbidity between DSM-IV alcohol and drug use disorders," Alcohol Health and Research World 20: 67-72.
2. Grant, B.F. and D.A. Dawson. (1997) "Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the national longitudinal alcohol epidemiologic survey." Journal of Substance Abuse 9: 103-110.
3. Marginal effect for a logistic: *b*Y(1-Y), Ramanathan, R. (2002) Introductory econometrics with applications, Fourth edition, Fort Worth: Harcourt Brace College Publishers, Table 6.1.

Equations Used to Calculate the Present Valued Costs of Illicit Drug Disorders Outcomes

(discussed in accompanying text)

Mortality: Lost earnings

(D.4.2a) $$PVEarnA_y = \left[\sum_{t=y}^{65} \frac{Earnings_y \times (1+Earnesc)^{t-y}}{(1+Dis)^{t-y}}\right] \times \frac{e^{-\frac{1}{2}\left(\frac{y-DeathageM}{DeathageSD}\right)^2}}{DeathageSD\sqrt{2\pi}}$$

(D.4.2b) $$PVEarnB_{18} = \sum_{y=18}^{65} \frac{PVEarnA_y \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.4.2c) $$PVEarnB_{progage} = \frac{PVEarnB_{18} \times (1+Earnesc)^{y-progage+1} \times \frac{IPD_{base}}{IPD_{yearearn}}}{(1+Dis)^{y-progage+1}}$$

(D.4.2d) $$DrgEarnA1 = PVEarnB_{progage} \times DrgCC \times (1+Fringe) \times (1-Taxrate)$$

(D.4.2e) $$DrgTaxA2 = PVEarnB_{progage} \times DrgCC \times (1+Fringe) \times (Taxrate)$$

Morbidity: Lost earnings

(D.4.2f) $$PVEarnC_{18} = \left(HSGradPct - \left(\sin\left(\arcsin\sqrt{HSGradPct} + \frac{ES}{2}\right)\right)^2\right) \times \sum_{y=18}^{65} \frac{(Earnhsgrad_y - Earnnonhsgrad_y) \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.4.2g) $$PVEarnC_{progage} = \sum_{y=progage}^{18} \frac{PVEarnC_{18} \times (1+Earnesc)^{y-progage+1} \times \frac{IPD_{base}}{IPD_{yearearn}}}{(1+Dis)^{y-progage+1}}$$

(D.4.2h) $$DrgEarnB1 = PVEarnC_{progage} \times (1+Fringe) \times (1-Taxrate)$$

(D.4.2i) $$DrgTaxB2 = PVEarnC_{progage} \times (1+Fringe) \times (Taxrate)$$

$Earnings_y$	=	Annual money earnings of an individual in year *y*, taken from the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement. To reflect the generally lower SES of heavy alcohol users, the earnings used for this outcome are weighted average CPS earnings for individuals with less than a high school diploma, those with a high school diploma, and those with some college but no degree.
Earnesc	=	An estimated long-run annual growth rate in real earnings (See App. E.1).
IPD_{base}	=	The implicit price deflator for the year chosen as the base year for the overall analysis (See App. E.1).
$IPD_{yearearn}$	=	The implicit price deflator for the year in which the Census Bureau earnings series is denominated (See App. E.1).
DeathageM	=	The mean age of death of a person who dies from one of the principal drug disorders, calculated for Washington State from an analysis of cause of death data from the Washington State Department of Health.
DeathageSD	=	The standard deviation of the mean age of death of a person who dies from one of the principal drug disorders.
progage	=	The age of the person who is the focus of the program under consideration.
DrgCC	=	A drug causation-correlation factor: the estimated probability that a drug disordered person will die from drugs.
HSGradPct	=	The high school graduation rate for non drug users (see App. E.1).
ES	=	The effect size from a meta analysis of studies that test whether marijuana use affects the rates of high school graduation.
Earnhsgrad	=	The annual CPS earnings of high school graduates (See App. D.1).
Earnnonhsgrad	=	The annual CPS earnings of non high school graduates (See App. D.1).
Fringe	=	The fringe benefit rate used in the analysis (See App. E.1).
Taxrate	=	The tax rate used in the analysis (See App. E.1).
Dis	=	The real discount rate used in the analysis (See App. E.1).

D.4.3 The Costs of Tobacco Consumption. For the United States, the aggregate level of costs associated with tobacco has been estimated by the United States Department of Health and Human Services' Center for Disease Control and Prevention (CDC).[55] CDC estimated that, for the United States in the late 1990s, the annual economic costs of smoking totaled $157.7 billion. The costs included in the CDC analysis cover these areas:[56]

- smoking-attributable productivity (mortality) costs (52 percent of the total);
- smoking-attributable adult medical expenditures (48 percent of the total);

In our analysis, we calculate our own estimates for lost future earnings due to premature deaths. We do this to be internally consistent with the procedures we use to estimate costs that relate to lost economic earnings. We use the CDC estimates for the adult medical expenditures linked to smoking. Each of these procedures is described.

Mortality Related Lost Earnings. We calculate an estimate of lost lifetime earnings from a death related to smoking. For each year of age from 18 to 65, the lost earnings for a person's remaining working life are estimated with earnings data from the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement. To reflect the generally lower SES of smokers, the earnings used for this outcome are the weighted average CPS earnings for individuals with less than a high school diploma, those with a high school diploma, and those with some college but no degree. This process is described in the first term of equation (D.4.3a).

We then multiply this sum, by year, by the second term in (D.4.3a), which indicates the cumulative probability, by year, that if a person is going to die from smoking (probability=1), the probability at each year from age 35 to 90. This probability distribution is estimated with SAMMEC data for 1998 on the number of deaths attributed to smoking for the 19 causes of death identified by SAMMEC. The SAMMEC data are presented for five-year age groups from 35 to 85+ years. Using Pallisade's @RISK probability distribution fitting software, we found that the Beta distribution fit the annualized SAMMEC data the best. Therefore, the second term in (D.4.3a) multiplies the first term by the probability of a smoking attributed death. The model uses Excel's BETADIST function for the second term in (D.4.3a).

With these parameters, in any given year *y* of a person's working life, the expected present value of lost earnings for the person's remaining working life is estimated by equation (D.4.3a).

Next, this stream of lost lifetime earnings is present valued to the age of 18 in equation (D.4.3b). The lost earnings to the person who dies is then discounted to the age of the youth in a program in equation (D.4.3c).

This sum is then multiplied by a tobacco causation factor, by a fringe benefit factor, and by one minus the tax rate to arrive at an estimate of the after tax lifetime lost earnings caused by regular tobacco consumption (D.4.3d). A second equation estimates this same sum, except that the sum is the present value of the lost taxes associated with a smoking caused early death (D.4.3e).

The causation factor for smoking is used in these calculations to estimate the probability that a person with lifetime regular use of tobacco will die from tobacco. The derivation of this causation factor is displayed in Table D.4a.

Costs Related to Smoking-Attributable Adult Medical Expenditures. As noted, in our analysis we use the CDC estimates for the adult medical costs related to smoking. In 1998 dollars, the total CDC costs amount to $75.5 billion. These include costs related to ambulatory care ($27 billion), hospital care ($17 billion), prescription drugs ($6 billion), nursing homes ($19 billion) and other care ($6 billion). These annual costs are estimated by CDC to be causally associated with smoking.

To convert these annual costs to present-valued life cycle costs per person, we use the method described in Spoth et al. (2002).[57] The method estimates the current number of smokers by age as a function of information on the mean age of onset of smoking (and its standard deviation), the mean age of cessation from smoking (and its standard deviation), the lifetime and current year prevalence of regular smoking in the general population, and

[55] Centers for Disease Control and Prevention. (2002) "Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Economic Costs—United States, 1995-1999." *Morbidity and Mortality Weekly Report* 51(April 12): 300-303. The details behind these national estimates of the costs of tobacco are described in the National Center for Disease Control and Prevention's Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) application. The web-based application is located at <http://apps.nccd.cdc.gov/sammec/login.asp>.

[56] The CDC also includes smoking-attributable infant neonatal medical expenditures, but these amount to only .002 percent of the CDC total.

[57] Spoth et al., "Universal family-focused interventions."

the size of the U.S. adult population in 1998 (the year in which the CDC medical costs are estimated). The distributions are assumed to be normally distributed and the number of smokers is modeled between the ages of 18 and 100. The annual $75.5 billion in costs, divided by the number of regular smokers in each year, are then discounted to present value at age 18, at the assumed discount rate used in our study. For any program under study, this present value amount is further discounted to the age of the person in a program.

Since smokers can be expected to live shorter lives than nonsmokers, some medical expenses that might otherwise be incurred late in the life of nonsmokers will be avoided by the early deaths of smokers. To account for this effect, we use the results obtained by Hodgson (1992) to reduce the lifetime stream of expected CDC medical costs when the individual is over 74 years of age.[58] The effect of this adjustment is to reduce the lifetime present value (at age 18) of smoking induced medical costs by about 12 percent.

We apply a smoking causation-correlation factor of .87 to these medical costs, following estimates made by Hodgson (1992), who cited the work of Manning (1989).[59]

We distribute this sum to the three perspectives (participant, taxpayer, non-participant non-taxpayer) used in this analysis following the cost distribution provided in Hodgson (1992).[60]

Age of Initiation of Tobacco Use. As described above, we estimate the costs of regular tobacco use. These costs are tied to the lifetime prevalence of tobacco consumption patterns. Many of the tobacco measures used in evaluations of prevention and early intervention programs, however, are measures of the age at initiation of tobacco. Therefore, in order to estimate the long-term costs of tobacco use, it is necessary to establish whether there is a causal link between the delay in the age at initiation and the ultimate regular use of tobacco.

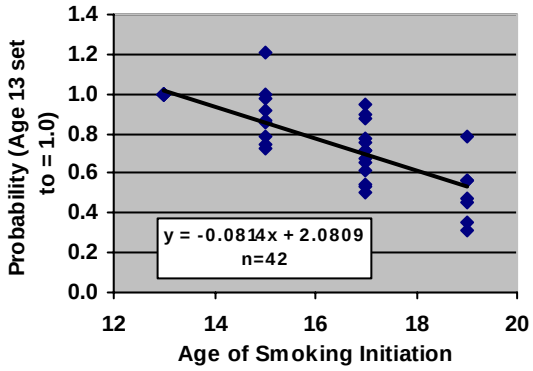
We assessed the research literature on this topic and found the following relationships. We conducted an analysis of several studies that have assessed the age at onset of smoking with lifetime prevalence of regular smoking.[61] These studies used different data sets covering different time periods. We combined the results and expressed each lifetime probability of regular tobacco use relative to the age of smoking initiation at age 13. This analysis produced 42 observations and these are arranged on Figure D.4a. An OLS regression yielded a slope of -.0814 for each age of onset of smoking. When this marginal effect is used in the benefit-cost model, we also apply a causation/ correlation factor, listed in Appendix E.1, to reduce the -.0814 slope parameter to better approximate a causal relationship.

[58] T. A.Hodgson. (1992) “Cigarette smoking and lifetime medical expenditures.” *Milbank Quarterly* 70(1): 81-125.
[59] *Ibid*; W. G. Manning, E. B. Keeler, J. P. Newhouse, E. M. Sloss, J. Wasserman. (1989) "The taxes of sin: Do smokers and drinkers pay their way?" *Journal of the American Medical Association* 261(11): 1604-1609.
[60] Hodgson, “Cigarette smoking and lifetime medical expenditures.”

[61] We used the results from:

- N. Breslau and E. L. Peterson. (1996) "Smoking cessation in young adults: Age at initiation of cigarette smoking and other suspected influences." *American Journal of Public Health* 86(2): 214-220.
- N. Breslau, N. Fenn, and E .L. Peterson. (1993) "Early smoking initiation and nicotine dependence in a cohort of young adults*." Drug and Alcohol Dependence* 33: 129-137.
- B. F. Grant. (1998) "Age at smoking onset and its association with alcohol consumption and DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey." *Journal of Substance Abuse* 10(1): 59-73.
- H. A. Lando, D. T. Thai, D. M. Murray, L. A. Robinson, R. W. Jeffery, N. E. Sherwood, and D. J. Hennrikus. (1999) "Age of initiation, smoking patterns, and risk in a population of working adults." *Preventive Medicine* 29(6): 590-598.
- S. A. Khuder, H. H. Dayal, and A. B. Mutgi. (1999) "Age at smoking onset and its effect on smoking cessation." *Addictive Behaviors* 24(5): 673-677.
- J. Chen and W. J. Miller. (1998) "Age of smoking initiation: Implications for quitting." *Health Reports* 9(4): 39-46.
- B. D'avanzo, C. La Vecchia, and E. Negri. (1994) "Age at starting smoking and number of cigarettes smoked." *Annals of Epidemiology* 4(6): 455-459.
- J. P. Caulkins, C. P. Rydell, S. M. S. Everingham, J. R. Chiesa, and S. Bushway. (1999) *An ounce of prevention, a pound of uncertainty: The cost-effectiveness of school-based drug prevention programs*. Santa Monica, CA: Rand.

Figure D.4a
Age of Smoking Initiation and
Lifetime Smoking



Equations Used to Calculate the Present Valued Costs of Smoking Outcomes

(discussed in accompanying text)

Mortality: Lost earnings

(D.4.3a) $$PVEarnA_y = \left[\sum_{t=y}^{65} \frac{Earnings_y \times (1+Earnesc)^{t-y}}{(1+Dis)^{t-y}}\right] \times \frac{(y-\min)^{a1-1} \times (\max - y)^{a2-y}}{(\max - \min)^{a1+a2-1} \times \int_0^1 t^{a1-1} \times (1-t)^{a2-1} \times dt}$$

(D.4.3b) $$PVEarnB_{18} = \sum_{y=18}^{65} \frac{PVEarnA_y \times (1+Earnesc)^{y-17}}{(1+Dis)^{y-17}}$$

(D.4.3c) $$PVEarnB_{progage} = \sum_{y=progage}^{18} \frac{PVEarnB_{18} \times (1+Earnesc)^{y-progage+1} \times \frac{IPD_{base}}{IPD_{yearearn}}}{(1+Dis)^{y-progage+1}}$$

(D.4.3d) $$SmkEarn = PVEarnB_{progage} \times SmkCC \times (1+Fringe) \times (1-taxrate)$$

(D.4.3e) $$SmkTax = PVEarnB_{progage} \times SmkCC \times (1+Fringe) \times (Taxrate)$$

$Earnings_y$	=	Annual money earnings of an individual in year y, taken from the U.S. Census Bureau's March 2002 Current Population Survey, Annual Demographic Supplement. To reflect the generally lower SES of heavy alcohol users, the earnings used for this outcome are weighted average CPS earnings for individuals with less than a high school diploma, those with a high school diploma, and those with some college but no degree.
Earnesc	=	An estimated long-run annual growth rate in real earnings (See App. E.1).
IPD_{base}	=	The implicit price deflator for the year chosen as the base year for the overall analysis (See App. E.1).
$IPD_{yearearn}$	=	The implicit price deflator for the year in which the Census Bureau earnings series is denominated (See App. E.1).
Min, max, a1, a2	=	The four parameters estimated for the BETA probability distribution for the cumulative probability of death due to one of the 19 smoking related illnesses in the SAMMEC model.
progage	=	The age of the person who is the focus of the program under consideration.
SmkCC	=	A smoking causation-correlation factor: the estimated probability that a regular smoker will die from smoking.
Fringe	=	The fringe benefit rate used in the analysis (See App. E.1).
Taxrate	=	The tax rate used in the analysis (See App. E.1).
Dis	=	The real discount rate used in the analysis (See App. E.1).

D.5 Valuation of Teen Birth Outcomes

In this benefit-cost model, the implications of a teen birth are expressed in terms of the birth's effect on the other outcomes we evaluate. That is, we evaluate the economic consequences of a teen birth based on its relationship to subsequent high school graduation rates, public assistance usage, crime rates, child abuse and neglect cases, and K-12 grade repetition. We evaluate these effects for both the teen mother and the child born to the teen mother. We also estimate these effects for births to teens under the age of 18.[62]

Table D.5 shows the linkages where we believe there is sufficient evidence to establish a causal relationship between a teen birth and some of the other outcomes we monetize in this study. These relationships are expressed as effect sizes using the meta-analytic techniques we describe in Appendix B. To estimate the effects, we gathered relevant existing research studies on the long-term consequences of teen births, focusing on studies that measured outcomes for births to teenagers less than 18 years old.

Table D.5 provides a summary of the findings from these meta-analyses, along with citations to the studies we used to study the relationships. The table reports the number of effects included in each meta-analysis, the weighted mean effect size and its significance level, the significance of the Q-test for homogeneity where appropriate, and the results of a random effects weighted mean effect size and its significance level, where appropriate.

The last column of Table D.5 shows the mean effect size after we make adjustments for the quality of the research design and other adjustment factors as described in Appendix B. These adjusted effect sizes are the estimates we use in the benefit-cost analysis to model the relationships between a teen birth and the other outcomes.

For the teen mothers, we found statistically significant relationships between having a birth before age 18 and these outcomes:

- High School Graduation
- Public Assistance

For the children of the teen mothers, we found statistically significant relationships between having been born to a woman who gave birth before age 18 and these outcomes:

- High School Graduation
- K-12 Grade Repetition
- Crime
- Child Abuse and Neglect

The effect sizes for some of these relationships are fairly small but statistically significant when meta-analyzed.

We did not find a statistically significant relationship between teen births and the K-12 test scores of the children.

The procedures used to monetize each of these effects are described in the separate sections of Appendix D. For example, Table D.5 shows that we estimate the mean difference effect size of a teen birth on the chances of high school graduation of the mother to be -.16. This finding was based on a meta-analysis of 18 independent effects contributed by 16 studies, and is the result after we employ all of the methods described in Appendix B. In the model, the -.16 effect size is then monetized by using it with the procedures described in Appendix D.1, which provides an estimate of the economic value of graduating from high school.

[62] In using the age 18 as a cut-off age, we follow the same approach found in R. A. Maynard, ed., *Kids having kids: Economic costs and social consequences of teen pregnancy*. Washington, DC: The Urban Institute Press.

Table D.5
Meta-Analytic Estimates of Standardized Mean Difference Effect Sizes

Estimated Causal Links Between a Program Outcome and Other Outcomes	Number of Effect Sizes Included in the Analysis	*Results Before Adjusting Effect Sizes*					***Adjusted Effect Size Used in the Benefit-Cost Analysis***
		Fixed Effects Model			Random Effects Model		
		Weighted Mean Effect Size & p-value		Homogeneity Test	Weighted Mean Effect Size & p-value		
		ES	p-value	p-value	ES	p-value	ES
Teen Births (to women less than 18 years of age), and its longitudinal effect on:							
High School Graduation (Mothers)	18	-.208	0.000	0.000	-.245	0.000	**-.160**
Public Assistance (Mother's)	7	.144	0.000	0.326	na	na	**.108**
High School Graduation (Child's)	4	-.111	0.000	0.811	na	na	**-.072**
K-12 Grade Repetition (Child's)	8	.193	0.000	0.000	.221	0.001	**.145**
Crime (Child's)	6	.083	0.000	0.016	.091	0.011	**.051**
Child Abuse and Neglect	4	.159	0.000	0.268	na	na	**.080**
K-12 Test Scores (Child's)	8	-.051	0.002	0.000	-.048	0.317	**.000**

Studies Included in the Meta-Analytic Review of Outcomes

Study Author (Date)	Study Used to Assess This Outcome
Ribar, 1999	High School Graduation (Mothers)
Hoffman et al., 1993	High School Graduation (Mothers)
Geronimus and Korenman, 1992	High School Graduation (Mothers)
Hofferth et al., 2001	High School Graduation (Mothers)
Ribar, 1994	High School Graduation (Mothers)
Upchurch and McCarthy, 1990	High School Graduation (Mothers)
Klepinger et al., 1995	High School Graduation (Mothers)
Grogger and Bronars, 1993	High School Graduation (Mothers)
Holmlund, 2004	High School Graduation (Mothers)
Hotz et al., 2002	High School Graduation (Mothers)
Marini, 1984	High School Graduation (Mothers)
Rindfuss et al., 1980	High School Graduation (Mothers)
Chevalier and Viitanen, 2001	High School Graduation (Mothers)
Forste and Tienda, 1992	High School Graduation (Mothers)
Levine and Painter, 2000	High School Graduation (Mothers)
Ermisch and Pevalin, 2003	High School Graduation (Mothers)
Hoffman et al., 1993	Public Assistance (Mother's)
Geronimus and Korenman, 1992	Public Assistance (Mother's)
Grogger and Bronars, 1993	Public Assistance (Mother's)
Hotz et al., 2002	Public Assistance (Mother's)
Ermisch and Pevalin, 2003	Public Assistance (Mother's)
Levine et al., 2003	K-12 Grade Repetition (Child's)
Angrist and Lavy, 1996	K-12 Grade Repetition (Child's)
Moore et al., 1997	K-12 Grade Repetition (Child's)
Levine et al., 2003	K-12 Test Scores (Child's)
Levine, 2003	Crime (Child's)
Grogger, 1997	Crime (Child's)
WSIPP	Crime (Child's)
Pogarsky et al., 2003	Crime (Child's)
Haveman et al., 1997	High School Graduation (Child's)
Hardy et al., 1999	High School Graduation (Child's)
Moore et al., 1997	High School Graduation (Child's)
Olsen and Farkas, 1989	High School Graduation (Child's)
Lee and George, 1999	Child Abuse and Neglect
Stier et al., 1993	Child Abuse and Neglect
Brown et al., 1998	Child Abuse and Neglect
Goerge and Lee, 1997	Child Abuse and Neglect

D.6 Valuation of Public Assistance Outcomes

Public assistance costs are treated as transfer payments in the benefit-cost models. If a prevention or early intervention program has an effect on public assistance use, then there is a redistribution of costs between program recipients and taxpayers. For example, if an early childhood education program lowers the use of public assistance, then the reduced public assistance payments are a benefit to taxpayers, but a loss of income to the family in the early childhood assistance program. The only cost that is a net real difference in this transfer is the effect that a change in public assistance caseloads has on costs related to the administration of the public assistance programs.

We model these costs with equations D.6a, D.6b and D.6c. The parameters for the equations are listed in Appendix E.1.

Equations Used to Calculate the Present Valued Costs of Public Assistance Outcomes

(D.6a) $$PVPA_{pastartage} = \sum_{y=1}^{Years} \frac{\$Year \times \frac{IPD_{base}}{IPD_{\$Year}}}{(1+Dis)^{y}}$$

(D.6b) $$PVPA_{progage} = \frac{\$PVPA_{pastartage}}{(1+Dis)^{pastartage-progage}}$$

(D.6c) $$PVPUBPA_{progage} = PBPA \times (1+PAadmn)$$

$PVPA_{pastartage}$	=	The costs of public assistance, present valued to the year a person is assumed to first use public assistance, *pastartage*.
$PVPA_{progage}$	=	The costs of public assistance, present valued to the year a person is assumed to begin the program under study, *progage*.
Years	=	The average number of years of welfare use without the program.
$Year	=	The average public expense for a year of welfare use.
PAadmn	=	The percent of the program administration costs spent on program administration.
$IPD_{base, \$Year}$	=	The implicit price deflator to adjust the year in which the costs are estimated, *$Year*, into the base year chosen for the analysis (See Appendix E.1).
Dis	=	The real discount rate (See Appendix E.1).

D.7 Valuation of Child Care Outcomes

Some of the programs reviewed in this analysis provide, in part, child care services for young children. For example, early childhood education (ECE) provides child care services. The economic model in this analysis treats these costs as incidental offsets to child care costs that would otherwise be paid by some party. Thus, if ECE is publicly funded, then there would be a reduction in other publicly funded child care costs to the extent that the ECE parents would have had their child in a public child care program.

We model these costs with equations D.7a and D.7b. The parameters for the equations are listed in Appendix E.1.

Equations Used to Calculate the Present Valued Costs of Child Care Outcomes

(D.7a) $$PVpubCCare_{progage} = \left(\frac{\left(HoursWeek \times WeeksYear \times Years \times \$Hour\right) \times \frac{IPD_{base}}{IPD_{\$Hour}}}{(1+Dis)^{Years}} \right) \times PubPct$$

(D.7b) $$PVpriCCare_{progage} = \left(\frac{\left(HoursWeek \times WeeksYear \times Years \times \$Hour\right) \times \frac{IPD_{base}}{IPD_{\$Hour}}}{(1+Dis)^{Years}} \right) \times (1-PubPct)$$

$PVpubCCare_{progage}$	=	The cost offset to other publicly funded child care services when the child attends the program being studied, present valued to the age of the youth who enters the system.
$PVpriCCare_{progage}$	=	The child care cost of the program under study that would otherwise have to be incurred privately by the parents of the child who attends the program being studied, present valued to the age of the youth who enters the system.
$progage$	=	The age of the youth who is the focus of the program under consideration.
$HoursWeek$	=	The hours per week the child attends the program under study.
$WeeksYear$	=	The number of weeks per year the child attends the program under study.
$Years$	=	The number of years the child attends the program under study.
$\$Hour$	=	The average hourly rate for child care only services.
$PubPct$	=	The percent of the program population that would otherwise use publicly-financed child care.
$IPD_{base,\ \$Hour}$	=	The implicit price deflator to adjust the year in which the costs are estimated, $\$Hour$, into the base year chosen for the analysis (See Appendix E.1).
Dis	=	The real discount rate (See Appendix E.1).

Appendix E
Model Inputs and Outputs

Table E.1

When an input to the model is denominated in another year's dollars, a general price index is used to convert all dollar values into the base year chosen for the analysis. We use the Implicit Price Deflator (IPD) for Personal Consumption Expenditures, although other price indices could be used. The IPD is convenient for analyses in Washington because it is forecast regularly by the Washington State Office of the Forecast Council, the official economic forecasting agency for Washington State government.

General Price Index Used in the Analysis

Year	Chain-Weighted Implicit Price Delfator for Personal Consumption Expenditures
1961	0.223
1962	0.225
1963	0.228
1964	0.231
1965	0.234
1966	0.240
1967	0.246
1968	0.256
1969	0.267
1970	0.280
1971	0.292
1972	0.302
1973	0.319
1974	0.351
1975	0.380
1976	0.401
1977	0.427
1978	0.458
1979	0.498
1980	0.552
1981	0.601
1982	0.635
1983	0.662
1984	0.686
1985	0.710
1986	0.727
1987	0.755
1988	0.784
1989	0.819
1990	0.856
1991	0.889
1992	0.916
1993	0.938
1994	0.957
1995	0.979
1996	1.000
1997	1.019
1998	1.030
1999	1.047
2000	1.074
2001	1.096
2002	1.111
2003	1.132
2004	1.147
2005	1.168

Table E.1 (Continued)

Model Parameters

(references in parentheses refer to footnotes at end of table)

Global Parameters	
0.03 *(1)*	Discount rate (real)
2003	Year in which all dollars are denominated
Education Related Parameters	
70.0% *(9)*	Base high school graduation rate
75.0% *(3)*	Multiplicative selection bias adjustment for earnings as a function of education parameters
25.0% *(4)*	Non-market benefits as a percent of earnings benefits of education
12.0% *(5)*	Percent change in earnings with a one standard deviation (SD) increase in test scores
10.0% *(6)*	Percent change in annual earnings per extra year of education
K-12 System: Grade Retention Parameters	
13.3% *(7)*	Percent of students retained in a grade
1.0 *(2)*	Average number of years of grades retained for those retained at all
17.0 *(2)*	Average age when the student would have the extra year
70.0% *(8)*	Probability that the student would not drop out before getting the extra year
$7,436 *(10)*	Cost of one year of regular K-12 education
2002 *(10)*	The year in which this cost is denominated
K-12 System: Special Education Parameters	
12.5% *(10)*	Percent of students given special education
4.0 *(11)*	Average number of years of special education for those who get it at all
8.0 *(12)*	Average age of student when special ed takes place
$931 *(13)*	Additional cost of one year of special K-12 education
2002 *(13)*	The year in which this cost is denominated
Teen Birth Rate	
16.8% *(14)*	Birth rate to younger than 18-year-old women, general population
Default Public Assistance Parameters	
36% *(48)*	Lifetime public assistance probability for low SES population
$1,465 *(43)*	Average public cost per year
2002 *(43)*	Year in which these dollars are denominated
1.96 *(44)*	Average number of years over which these costs are incurred
19 *(2)*	Age of person when welfare use begins
10% *(2)*	Percent of welfare use for administrative costs
Child Care Parameters	
15.0 *(2)*	Hours per week for program (e.g. ECE)
39.0 *(2)*	Weeks per year for program
$2.10 *(47)*	Cost per hour of child care
2002 *(2)*	The year in which this cost is denominated
28.0% *(46)*	Percent of the program population that would otherwise use public financed child care
Child Welfare Parameters	
12.4% *(49)*	CAN substantiated ifetime probability base rate for: general population
45.5% *(49)*	CAN substantiated lifetime probability base rate for: low SES, young population
Alcohol, Disordered Use: Parameters for Medical Costs	
$44,083,000,000 *(15)*	US medical care costs of alcohol abuse, motor vehicle crashes, fire damage
1998 *(15)*	Year for which these costs are estimated
18.17% *(16)*	Disordered drinking: lifetime alcohol dependence/abuse
7.70% *(17)*	Disordered drinking: current (12-mo) alcohol dependence/abuse
24.7 *(18)*	Age of onset of alcohol dependence: Mean
8.8 *(18)*	Age of onset of alcohol dependence: Standard Deviation
34.4 *(19)*	Age of cessation of alcohol dependence for some: Mean
6.2 *(19)*	Age of cessation of alcohol dependence for some: Standard Deviation
18.0 *(2)*	Age to begin modeling costs
74.0 *(2)*	Age to end modeling costs
204,426,000 *(20)*	Total US population being studied in year of cost estimates
Default Economic Parameters	
0.5% *(2)*	Annual real growth rate in wages
20.0% *(2)*	Tax rate applied to earnings
25.0% *(2)*	Fringe benefits rate applied to money income
0.5% *(2)*	Annual real growth rate in medical costs

Table E.1 (Continued)

Model Parameters

(references in parentheses refer to footnotes at end of table)

Alcohol, Disordered Use: Parameters for mortality and morbidity lost earnings	
57.0 *(21)*	Mean age of death in WA, alcohol causes
13.3 *(21)*	SD age of death in WA, alcohol causes
16.8 *(22)*	Age at initiation of alcohol
3.4 *(22)*	SD of age at initiation of alcohol
-0.018 *(23)*	Marginal effect of age at initiation (one year)
0.750 *(2)*	Multiplicative causation/correlation factor for the marginal effect
51% *(15)*	Percent to participants
44% *(15)*	Percent to taxpayers
5% *(15)*	Percent to other non-program participants
$25,413 *(24)*	Average earnings, age 24 to 34
$25,082 *(24)*	SD earnings, age 24 to 34
-0.13 *(25)*	Effect size, alcohol disorder on earnings
Tobacco Parameters	
$75,488,000,000 *(26)*	US Smoking attributable medical expenditures
1998 *(26)*	Year for which these costs are estimated
58.70% *(27)*	Lifetime tobacco daily smoking prevalence
21.03% *(28)*	Current daily or near daily prevalence
17.9 *(29)*	Age of onset of tobacco dependence: Mean
4.6 *(29)*	Age of onset of tobacco dependence: Standard Deviation
35.0 *(30)*	Age of cessation of tobacco dependence for some: Mean
4.8 *(30)*	Age of cessation of tobacco dependence for some: Standard Deviation
18.0 *(2)*	Age to begin modeling costs
100.0 *(2)*	Age to end modeling costs
204,426,000 *(20)*	Total US population being studied in year of cost estimates
0.87 *(31)*	Correlation-causation ratio. Selection bias multiple for medical costs
0.16 *(32)*	For medical cost estimates, percent paid by other taxpayers
15.17 *(33)*	Age at initiation
3.36 *(33)*	SD of age at initiation
-0.08 *(34)*	Marginal effect of age at initiation (one year)
0.50 *(2)*	Multiplicative causation/correlation factor for the marginal effect
Drug Parameters	
$12,862,000,000 *(35)*	US health care costs of drug abuse
1998 *(35)*	Year for which these costs are estimated
6.05% *(36)*	Lifetime drug abuse and dependence prevalence
3.00% *(37)*	Current drug abuse and dependence
20.2 *(38)*	Age of onset of drug abuse and dependence: Mean
4.0 *(2)*	Age of onset of drug abuse and dependence: Standard Deviation
30.0 *(2)*	Age of cessation of drug abuse and dependence for some: Mean
5.0 *(2)*	Age of cessation of drug abuse and dependence for some: Standard Deviation
18.0 *(2)*	Age to begin modeling costs
70.0 *(2)*	Age to end modeling costs
204,426,000 *(20)*	Total US population being studied in year of cost estimates
43.0 *(21)*	Mean age of death in WA, drug causes
13.1 *(21)*	SD age of death in WA, drug causes
17.4 *(39)*	Age at initiation, marijuana
3.4 *(39)*	SD of age at initiation, marijuana
-0.003 *(40)*	Marginal effect of age at initiation (one year)
0.750 *(2)*	Multiplicative causation/correlation factor for the marginal effect
41% *(41)*	Percent to participants
58% *(41)*	Percent to taxpayers
1% *(41)*	Percent to other non program participants
-0.07 *(42)*	Effect size, marijuana on high school graduation

Table E.1 (Continued)

Model Parameters

(references in parentheses refer to footnotes at end of table)

Default (Multiplicative) Program Evaluation Discount Factors	
100% *(45)*	study level 5
75% *(45)*	study level 4
50% *(45)*	study level 3
0% *(45)*	study level 2
0% *(45)*	study level 1
50% *(45)*	The program is not real world
75% *(45)*	The program has a weak measure or short follow-up period
Crime Model Parameters	
2.5% *(2)*	Real tax exempt financing rate for capital
30 *(2)*	Maximum follow-up age for crime outcomes
0.90 *(2)*	Multiplicative causation/correlation factor for taxpayer costs of criminal justice system

Notes to Table E.1

(1) The annual real discount rate is the factor that reduces all future annual values in the model to present value. As used in this analysis, the real discount rate represents the relative general preference for owning or consuming a resource today versus owning or consuming the resource in the future. There are several competing theories about the choice of a discount rate for use in cost-benefit analyses. For a discussion of these issues, see A. E. Boardman, D. H. Greenberg, A. R. Vining, and D. L. Weimer. (1996) *Cost-benefit analysis: Concepts and practice*. New Jersey: Prentice Hall, Chapter 5. See also R. J. Brent. (1996) *Applied cost-benefit analysis.* Cheltenham, UK: Edward Elgar, Chapter 11. Most cost-benefit analyses such as this one use real discount rates somewhere between 2 and 4 percent.

(2) Institute estimate.

(3) Institute estimate. The same 25 percent reduction factor was used in M. Cohen. (1998) "The monetary value of saving a high risk youth." *Journal of Quantitative Criminology* 14(1): 5-33.

(4) Institute estimate. The issue of non-market benefits is discussed in a collection of articles on the topic published in J. P. Behrman and N. Stacey, eds., (1997) *The social benefits of education*. Ann Arbor: The University of Michigan Press.

(5) Institute estimate. We based our estimate on E. A. Hanushek. (2003) "Some simple analytics of school quality" accessed from the author's website at <http://edpro.stanford.edu/eah/eah.htm>. Hanushek reviewed the literature and concluded that a one standard deviation in test scores equated to a 12 percent increase in annual earnings.

(6) We estimated this figure by taking the median of the estimates in J. D. Angrist and A. B. Krueger, (1991) "Does compulsory school attendance affect schooling and earnings?" *Quarterly Journal of Economics* 106: 979-1014. K. Conneely and R. Uusitalo, (1997) *Estimating heterogeneous treatment effects in the Becker schooling model*. Unpublished discussion paper. Industrial Relations Section, Princeton University. C. Harmon and I. Walker. (1995) "Estimates of the economic return to schooling for the United Kingdom." *American Economic Review* 85: 1278-1286. J. A. Hausman and W. E. Taylor. (1981) "Panel data and unobservable individual effects." *Econometrica* 49: 1377-1398. T. Kane and C. E. Rouse. (1993) *Labor market returns to two- and four-year colleges: Is a credit a credit and do degrees matter?* NBER Working Paper No. 4268. Cambridge, MA: NBER. J. Maluccio, (1997) Endogeneity of schooling in the wage function." Unpublished manuscript. Department of Economics, Yale University. D. Staiger and J. H. Stock. (1997) "Instrumental variables regression with weak instruments." *Econometrica* 65: 557-586. These studies are summarized in D. Card. (1999) "The causal effect of education on earnings." In E. Ashenfelter and D. Card, eds., *Handbook of Labor Economics* 3A: 1801-1863.

(7) Dropout Rates in the United States: 1995, National Center for Education Statistics, July 1997, (NCES 97-473), Table 24. Downloaded at <http://nces.ed.gov/pubs/dp95/97473-5.asp>.

(8) Dropout Rates in the United States: 1995, National Center for Education Statistics, July 1997, (NCES 97-473), Table 26. Downloaded at http://nces.ed.gov/pubs/dp95/97473-5.asp#table26>.

(9) This is a typical "on-time graduation rate." See the Appendix A in G. S. Shannon and P. Bylsma. (2003) *Helping students finish school: Why students drop out and how to help them graduate*. Olympia, WA: Office of the Superintendent of Public Instruction.

(10) Office of the Superintendent of Public Instruction, Olympia, WA, Total headcount enrollment and special education enrollment, 2003-2004 school year. <http://www.k12.wa.us/safs/data/statesummaryrpt2.asp>, and <http://www.k12.wa.us/safs/rep/enr/0304/s1735s.txt>.

(11) Institute estimate.

(12) Institute estimate.

(13) School District and ESD Financial Reporting Summary FY 02-03, Office of the Superintendent of Public Instruction, Olympia, WA, Table 4. Downloaded at <http://www.k12.wa.us/safs/PUB/FIN/0203/FinSum1.pdf>.

(14) Washington State Vital Statistics 2002, Table A10. Washington State Department of Health. Downloaded at <http://www.doh.wa.gov/ehsphl/chs/chs-data/Public/AnnSum_2002.pdf>.

(15) Selected costs taken from H. Harwood. (2000) *Updating estimates of the economic costs of alcohol abuse in the United States: Estimates, update methods, and data*. Report prepared by The Lewin Group for the National Institute on Alcohol Abuse and Alcoholism, Based on estimates, analyses, and data reported in H. Harwood, D. Fountain, and G. Livermore. (1998) *The economic costs of alcohol and drug abuse in the United States 1992*. Report prepared for the National Institute on Drug Abuse

and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services. NIH Publication No. 98-4327. Rockville, MD: National Institutes of Health.
(16) B. F. Grant and R. P. Pickering. (1996) "Comorbidity between DSM-IV alcohol and drug use disorders." *Alcohol Health and Research World* 20: 67-72.
(17) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: ABODALC: ALCOHOL ABUSE OR DEPENDENCE - PAST YEAR.
(18) M. A. Schuckit, J. E. Tipp, T. L. Smith, and K. K. Bucholz. (1997) "Periods of abstinence following the onset of alcohol dependence in 1,853 men and women." *Journal of Studies on Alcohol* 58(6): 581-589.
(19) L. Sobell, T. Ellingstad, and M. Sobell. (2000) "Natural recovery from alcohol and drug problems: Methodological review of the research with suggestions for future directions." *Addiction* 95(5): 749-764.
(20) U.S. Census Bureau. (2003) Statistical Abstract of the United States <http://www.census.gov/statab/www>.
(21) Institute analysis of Washington State Department of Health data on the cause of death for all deaths in 2001.
(22) National Survey on Drug Use and Health. (2002) online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: IRALCAGE: IMPUTATION-REVISED ALCOHOL AGE OF FIRST USE.
(23) See Table D.4c.
(24) Institute analysis of mean earnings (and the standard deviation) using data from the Census Bureau's Current Population Survey for 2001, downloaded from: <http://ferret.bls.census.gov/macro/032002/perinc/new04_001.htm>.
(25) See Table D.4b.
(26) Centers for Disease Control and Prevention. (2002) "Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995-1999." Morbidity and Mortality Weekly Report 51(14): 300-303. The details behind these national estimates of the costs of tobacco are described in the National Center for Disease Control and Prevention's Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) application. The web-based application is located at <http://apps.nccd.cdc.gov/sammec/login.asp.>.
(27) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: CIGDLYMO: EVER SMOKED CIG EVERY DAY FOR 30 DAYS.
(28) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: CIGMON: CIGARETTES - PAST MONTH USE multiplied by CIG30USE: HOW MANY DAYS SMOKED CIG IN PAST 30 DAYS. The multiplication was done to isolate the regular users (15 or more days per month) from all users within the past month.
(29) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: CIGAGE: AGE WHEN FIRST STARTED SMOKING CIGARETTES EVERYD.
(30) Estimated from data in J. P. Pierce and E. Gilpin. (1996). "How long will today's new adolescent smoker be addicted to cigarettes?" *American Journal of Public Health* 86(2): 253-256.
(31) T. A. Hodgson. (1992) "Cigarette smoking and lifetime medical expenditures." *Milbank Quarterly* 70(1): 81-125. W. G. Manning, E. B Keeler, J. P. Newhouse, E. M. Sloss and J. Wasserman. (1989) "The taxes of sin: Do smokers and drinkers pay their way?" *Journal of the American Medical Association* 261(11): 1604-1609.
(32) T. A. Hodgson. (1992) "Cigarette smoking and lifetime medical expenditures." *Milbank Quarterly* 70(1):81-125.
(33) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: IRCIGAGE: IMPUTATION-REVISED CIGARETTE AGE OF FIRST USE.
(34) See Appendix D.4.3. Figure 2.4a.
(35) Executive Office of the President. (2001, September) *The economic costs of drug abuse in the United States 1992-1998*. Washington, DC: Office of National Drug Control Policy.
(36) B. F. Grant and R. P. Pickering. (1996) "Comorbidity between DSM-IV alcohol and drug use disorders." *Alcohol Health and Research World* 20: 67-72.
(37) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: ABODILL: ANY ILLICIT DRUG ABUSE OR DEPENDENCE - PAST YEAR.
(38) H. Harwood, D. Fountain, and G. Livermore. (1998) *The economic costs of alcohol and drug abuse in the United States 1992*. Report prepared for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services. NIH Publication No. 98-4327. Rockville, MD: National Institutes of Health, Table 4.23.
(39) National Survey on Drug Use and Health, 2002, online analysis of survey data at <http://www.icpsr.umich.edu/cgi-bin/SDA12/hsda?samhda+03903-0001>, variable: IRMJAGE: IMPUTATION-REVISED MARIJUANA AGE OF FIRST USE.
(40) See Table D.4e.
(41) Selected costs taken from H. Harwood, D. Fountain, and G. Livermore. (1998) *The economic costs of alcohol and drug abuse in the United States 1992*. Report prepared for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services. NIH Publication No. 98-4327. Rockville, MD: National Institutes of Health, Table 7.3.
(42) See Table D.4d.
(43) Washington State Department of Social and Health Services, ESA Program Briefing Book 2003, TANF/WorkFirst—Page 19.
(44) Washington State Department of Social and Health Services, budget document for ESA FY2002, dollars per client, all ages.
(45) These default assumptions are Institute estimates. They are informed by studies such as Lipsey, M., W. (2003). Those confounded moderators in meta-analysis: Good, bad, and ugly. The Annals [of the American Academy of Political and Social Science], 587 (May), 69-81. Lipsey found that, for juvenile delinquency evaluations, random assignment studies produced effect sizes only 56 percent as large as nonrandom assignment studies, and programs in routine practice (i.e., "real world" programs) produced effect sizes only 61 percent as large as research/demonstration projects.
(46) Washington State Office of Financial Management model for forecasting FY2002 child care subsidy caseloads; we took the proportion of eligible families up to 140% of the federal poverty level.
(47) The average hourly subsidy payment for 3 and 4 year olds in 2002. Source: Institute analysis of Washington Department of Social and Health Service Social Service Payment System data.
(48) Institute analysis of public assistance use by families in home visitation programs.
(49) See Appendix D.3.4.

Table E.2a

Estimates of Marginal Resource Operating Costs, Per Unit

Resource	Units Used In Cost Estimate	Costs, Per Unit, By Type of Crime: Murder Man-slaughter	Rape	Robbery	Aggravated Assault	Property	Drug	Misdemeanor	Year in Which Unit Cost Estimates are Based	Annual Real Cost Escalation Rate
State and Local Governmental Operating Costs Paid by Taxpayers										
Police and Sheriff's Offices[1]	$ Per Arrest	$4,781	$4,781	$4,781	$4,781	$1,360	$1,360	$1,139	1996	0.0%
Superior Courts & County Prosecutors[1]	$ Per Conviction	$127,905	$5,685	$1,522	$1,522	$1,522	$1,522	$593	1996	0.0%
Juvenile Detention, with Local Sentence[2]	Annual $ Per ADP	$30,300	$30,300	$30,300	$30,300	$30,300	$30,300	$30,300	1995	0.0%
Juvenile Detention, with JRA Sentence[2]	Annual $ Per ADP	$30,300	$30,300	$30,300	$30,300	$30,300	$30,300	$30,300	1995	0.0%
Juvenile Local Probation[2]	Annual $ Per ADP	$1,928	$1,928	$1,928	$1,928	$1,928	$1,928	$1,928	1995	0.0%
Juvenile Rehabilitation, Institutions[1][3]	Annual $ Per ADP	$36,000	$36,000	$36,000	$36,000	$36,000	$36,000	$0	1996	0.0%
Juvenile Rehabilitation, Parole[3]	Annual $ Per ADP	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$0	1996	0.0%
Adult Jail, with Local Sentence[1]	Annual $ Per ADP	$17,047	$17,047	$17,047	$17,047	$17,047	$17,047	$17,047	1995	0.0%
Adult Community Supervision, Local Sentence[4][5]	Annual $ Per ADP	$2,688	$2,688	$2,688	$2,688	$2,688	$2,688	$0	1994	0.0%
Department of Corrections, Institutions[1]	Annual $ Per ADP	$18,400	$18,400	$18,400	$18,400	$18,400	$18,400	$0	1995	0.0%
Department of Corrections, Post-Prison Supervision[4][5]	Annual $ Per ADP	$2,688	$2,688	$2,688	$2,688	$2,688	$2,688	$0	1994	0.0%
Costs Paid by Crime Victims										
Victim Costs--Monetary, Out of Pocket Costs[6]	$ Per Crime	$1,098,828	$6,649	$2,513	$1,559	$587	$0	$0	1995	0.0%
Victim Costs--Quality of Life[6]	$ Per Crime	$2,038,965	$88,124	$6,221	$8,466	$67	$0	$0	1995	0.0%

Sources and Notes:
(1) Costs estimated by the Washington State Institute for Public Policy using expenditure and workload data for jurisdictions in Washington, See Table 5.
(2) Washington State Institute for Public Policy, *Washington State Juvenile Courts: Workloads and Costs,* April 1997.
(3) Washington State Senate Ways and Means Committee, *Roundtable Discussion on Criminal Justice Funding Issues,* January 28, 1997, page 7.
(4) State of Washington Sentencing Guidelines Commission, *Criminal Justice in Washington State,* January 1995, page 39. This is for "Level One" community supervision, custody, and placement.
(5) Communication with staff at the Washington Deparment of Corrections.
(6) Communication with Ted Miller, National Public Services Research Institute. Victim costs per violent crime for Washington State in 9/95 dollars. Monetary victim costs include the categories of of medical spending, mental health payments, future earnings, and property damage, less public programs. Quality of life victim costs are computed from jury awards for pain, suffering, and lost quality of life; for murders, the victim quality of life value is estimated from the amount people spend to reduce risks of death. See, *Victim Costs and Consequences: A New Look,* U.S. Dept. of Justice, 1996.

Table E.2b

Resource Capital Cost Estimates

Generic Capital Resource	Capital Costs of Resource					Financing Assumptions				Calculated Cost-Per-Unit Estimates
	Units Used In Cost Estimate (see Sources Below)	Total Capital Costs (see Sources Below)	Year in Which Costs are Estimated	Capital Costs in Base Year Dollars	Capital Costs Per Unit in Base Year Dollars	Number of Years Over Which Capital is Financed	Real Tax-Exempt Financing Rate	Levelized Annual Payment	Levelized Real Payment	Annual Real Capital Cost Per Unit, in Base Year Dollars
Police Capital Expenditures[1]	322,233 arrests	$32,325,999	1992	$39,948,724	$124	5	2.5%	$8,598,837	$8,598,837	$27
Local Juvenile Detention Facility[2]	80 beds	$10,930,275	1995	$12,638,479	$157,981	20	2.5%	$1,003,393	$10,134	$10,134
State Juvenile Rehabilitation Facility[3]	64 beds	$4,635,000	1997	$5,148,989	$80,453	25	2.5%	$364,186	$4,367	$4,367
Local Adult Jail Facility[4]	288 beds	$11,248,200	1995	$13,006,090	$45,160	20	2.5%	$1,032,578	$834,303	$2,897
State Department of Corrections Facility[5]	1,936 beds	$191,485,235	1998	$210,447,850	$108,702	25	2.5%	$14,884,910	$11,422,251	$5,900

Sources for Capital Cost Estimates:
(1) U.S. Department of Justice, Bureau of Justice Statistics, *Justice Expenditure and Employment Extracts, 1992,* NCJ-148821.
(2) Based on the Thurston County Cost Model for a new 80 bed single story detention facility without a family court.
(3) Discussion with staff at the House Capital Budget Committee. The estimate assumes construction of a capital addition to an existing facility, not a new stand-alone facility.
(4) Based on cost estimates prepared for a new county minimum security facility in Thurston County.
(5) Legislative Budget Committee, *Department of Corrections Privatization Feasibility Study, Report 96-2,* pages A6-4 and A6-5.

Table E.2c

Regression Results Used to Estimate Marginal Operating Costs

Resource	Procedure & Data Used to Estimate Marginal Operating Cost	Final Estimated Equation (t-statistics below the coefficients in equations)	Dependent Variable	Independent Variables
Police and Sheriff's Offices	Pooled cross-sectional regression for 1994 and 1995 for jursidictions in Washington; 1994 costs escalated to 1995 dollars with IPD.	ln(Oper. Exp.)=9.55+.212ln(FVA)+.181ln(nFVA)+.266ln(nFA)+.203ln(TR) (5.2) (4.2) (6.1) (9.2) R2Adj=.84 N=341	Data from the State Auditor include all Law Enforcement expenses except Gambling Enforcement and DARE subcategories.	Felony violent arrests (FVA), felony non-violent arrests (nFVA), non-felony arrests (nFA), and traffic infraction filings (TR). Arrest data from WASPC, traffic data from OAC.
Superior Courts & Prosecutors	Pooled cross-sectional regression for 1994 and 1995 for counties in Washington; 1994 costs escalated to 1995 dollars with IPD.	ln(Oper. Exp.)=9.80+.160*ln(H)+.174*ln(S+R+A)+.247*ln(NVF)+.322(NCSCF) (2.65) (1.92) (2.22) (4.40) R2Adj=.94 N=74	All Superior Court expenditures except those for district court, family court fees, law library, and municipal court. All prosecutor costs except those for civil, traffic, consumer affairs, and child support enforcment. Data from the State Auditor.	Adult and juvenile convictions for homicide (H); sex offenses (S), robbery (R), aggravated assaults (A); non-violent felonies (NVF); and non criminal superior court filings (NCSCF). Data from OAC.
Local Juvenile Detention Facilities	Cross-sectional regression for 1995	ln(Oper. Exp.)= 10.38 +.987*ln(ADP) (11.6) R2Adj=.89 N=18	Data from Washington State Institute for Public Policy survey of juvenile courts in Washington.	Data from Washington State Institute for Public Policy survey of juvenile courts in Washington.
Local Adult Jails	Pooled cross-sectional regression for 1990 to 1995. Pre-1995 costs escalated to 1995 with IPD.	ln(Oper. Exp.)= 9.938 +.9479*ln(ADP) (52.3) R2Adj=.93, N=194	Data from the State Auditor include all operating expenses of local jails except probation and parole costs.	Jail average daily population data from the Washington Association of Sheriffs and Police Chiefs (WASPC).
Juvenile Rehabilitation, Institutions	Time series regression with annual data for 1984 to 1996. Model was run in log and non-log form with similar results. Dollars converted to 1996 dollars with IPD.	Inst. Oper. Exp. = 9,863,961 + 35,974 * (Institutional ADP) (6.58) R2Adj=.96, N=13	Data from the Juvenile Rehabilitation Administration include all instiutional operating expenses.	Data from the Juvenile Rehabilitation Administration for instiutional average daily population.
Dept. of Corrections, Institutions	Time series regression with annual data for 1984 to 1996. Dollars converted to 1995 dollars with IPD.	Inst. Oper. Exp. = 57,299,937 + 20,447 * (Inst. ADP) -19,999*(ADP-Capacity) (25.4) (-7.3) R2Adj=.98, N=13	Data from the Department of Corrections include all instiutional operating expenses.	Data from the DOC for all instiutional average daily population, and average daily population minus average institutional capacity.

Table E.2d

Adult Sentence and Resource Use Information

	State Prison and Local Resource Use for Adult Offenders, by Type of Crime							
	Sentence Outcome		Sentenced to Prison				Sentenced to Local Sanction	
Crime	Percent Receiving Prison Sentence[1]	Percent Receiving Local Jail or Community Supervison Sentence[1]	Average Prison Sentence, In Years[1]	Average Prison Length of Stay, In Years[2]	Post-Prison Supervision, In Years[2],[3]	Average Jail Length of Stay (Prior to Prison), in Years[2]	Average Jail Length of Stay, in Years[1]	Average Community Supervision Length of Stay, In Years[2]
Murder/Manslaughter	96%	4%	21.2	18.1	3.1	0.70	0.70	1.00
Rape	39%	61%	8.3	7.2	3.0	0.44	0.29	2.00
Robbery	74%	26%	5.0	3.8	2.0	0.29	0.50	1.00
Aggravated Assault	36%	64%	3.1	2.5	2.0	0.30	0.34	1.00
Property	26%	74%	2.1	1.5	0.0	0.19	0.22	1.00
Drug	31%	69%	2.5	1.8	1.0	0.19	0.22	1.00
Misdemeanor	0%	100%	0.0	0.0	0.0	0.00	0.25	0.50

Sources and Notes:
(1) Estimates derived from *Statistical Summary of Adult Felony Sentencing, Fiscal Year 2002* , State of Washington Sentencing Guidelines Commission, Table 1.
(2) Estimates from information from the Washington State Department of Corrections.
(3) From *Adult Sentencing Manual 1996,* State of Washington Sentencing Guidelines Commission, page I-23.

Table E.2e

Juvenile Sentence and Resource Use Information

	Juvenile Court Jurisdiction	State Institution & Local Resource Use for Juvenile Offenders, by Type of Crime						
		Outcome of Adjudication		Juveniles Committed to State			Committed to Local Sanction	
Crime	Last Age for Juvenile Court Jurisdiction	Percent Committed to JRA[(1)]	Percent Not Committed to JRA[(1)]	JRA Length of Stay, In Years[(1)]	Parole Length of Stay, In Years[(2)]	Detention Length of Stay, In Years[(3)]	Detention Length of Stay, in Years[(3)]	Probation Length of Stay, in Years[(3)]
Murder/Manslaughter	15	100%	0%	1.87	0.46	0.021	0.044	0.567
Rape	15	69%	31%	0.72	2.00	0.021	0.044	0.567
Robbery	15	80%	20%	1.22	0.31	0.021	0.044	0.567
Aggravated Assault	17	85%	15%	0.90	0.31	0.021	0.044	0.567
Property	17	10%	90%	0.40	0.23	0.021	0.044	0.567
Drug	17	5%	95%	0.51	0.23	0.021	0.044	0.567
Misdemeanor	17	0%	100%	0.00	0.00	0.000	0.000	0.567

Sources and Notes:
(1) From *Washington State Juvenile Rehabilitation Institutional Population Forecast*, Washington State Office of Financial Management.
(2) Estimates from information from the Washington State Juvenile Rehabilitation Administration.
(3) Washington State Institute for Public Policy, *Washington State Juvenile Courts: Workloads and Costs,* April 1997. Survey data were not collected by offense type, therefore average data for all offenses are used in this analysis.

Table E.2f

Estimated Probability of Arrest and Conviction in Washington, For Use in the WSIPP Crime Benefit-Cost Model

	Estimated Total Number of Crimes, by Type, in Washington, 1998					Estimated Probability of Arrest		Estimated Probability of Conviction	
Crime	Crimes[a] Reported to Police, 1998, Washington (1)	Adjust-ments (2)	Adjusted Crimes [Column(1)* Column(2)] (3)	Percent[d] of Crime Reported to Police, 1998, United States (4)	Estimated Total Crimes [Column(3)/ Column(4)] (5)	Arrests,[e] Juvenile and Adult, in 1998 (6)	Probability of Arrest for Use in Cost-Benefit Model [Column(6)/ Column(5)] (7)	Felony[g] Convictions, Juvenile and Adult, in 1998 (8)	Probability of Conviction for Use in Cost-Benefit Model [Column(8)/ Column(5)] (9)
Murder	224	1.00	224	100.0%	224	204	91.1%	222	99.1%
Rape, Sex Offenses	2,740	1.67 [b]	4,562	31.6%	14,437	2,857	19.8%	1,543	10.7%
Robbery	6,577	1.00	6,577	62.0%	10,608	2,172	20.5%	1,109	10.5%
Assault	14,839	1.00	14,839	57.6%	25,762	6,400	24.8%	4,105	15.9%
Property Subtotal	309,419	n/a	179,921	n/a	455,139	26,656	5.9%	12,717	2.8%
Burglary	60,446	1.00	60,446	49.4%	122,360	7,405	6.1%	n/a	n/a
Larceny	213,773	0.39 [c]	84,275	29.2%	288,613	16,033 [e]	5.6%	n/a	n/a
Auto theft	35,200	1.00	35,200	79.7%	44,166	3,218	7.3%	n/a	n/a
Drug Dealing	n/a	n/a	n/a	n/a	n/a	4,923 [f]	0.1% [i]	3,988 [h]	0.1% [i]
Misdemeanor1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Misdemeanor2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
					506,170			19,696	

Sources and Notes:

(a) FBI, *Uniform Crime Reports,* available at http://www.ojp.usdoj.gov/bjs/datast.htm

(b) This adjustment modifies the FBI UCR "rape" definition to add an estimated number of other sexual assaults. The ratio is total number of criminal victimizations (United States) in 1998 for "rape/sexual assault" divided by the number of "rape/attempted rape" victimizations, from Table 1 of the National Crime Victimization Survey, *Criminal Victimization 1998,* U.S.

(c) This adjustment estimates the portion of larceny/theft crimes that are felonies, to make the definition more compatible with Washington State's definition of felony convictions for theftm (in column 8). The number is the the number of thefts for greater than $200 as a percent of all thefts. Source: Crime in Washington Annual Report 1997, Washington Association of Sheriffs and Police Chiefs, page 65.

(d) *National Crime Victimization Survey, Criminal Victimization 1998,* U.S. Department of Justice, July 1999. The reporting rate for murder was set to 100%.

(e) Arrest totals from The Washington State Caseload Forecast Council (CFC), available at: http://www.wa.gov/cfc/CJdata/ARtotal.htm. The CFC adjusts the data on arrests to account for non-reporting jurisdictions in Washington. Special Note: the arrest total for larceny, as reported by the CFC, is reduced to remove an estimated portion of larceny arrests that are misdemeanors--the adjustment factor is reported in column (2) of this table for larceny.

(f) The estimate of felony drug dealing arrests is made by multiplying the total number of arrests for drug abuse offenses as reported by the Washington Caseload Forecast Countil (see note (e)) by the percent of all drug arrests that are for drug sale/manufacture. This last percentage is taken from the FBI's Uniform Crime Report for 1998 for Western States (available at:http://www.fbi.gov/ucr/Cius_98/98crime/98cius22.pdf at page 209, table 4.1).

(g) Washington State Office of the Administrator for the Courts, available at http://www.wa.gov/courts/case_ld98/jofcvtyr.htm (for juvenile convictions) and http://www.wa.gov/courts/case_ld98/sup/crmcvtyr.htm (for adult convictions).

(h) The estimate of felony drug dealing convictions is made by multiplying the total number of felony convictions for controlled substances in Washington (see note (g)) by the ratio of drug dealing convictions to total drug convictions for adult offenders. The last percentage is taken from *Statistical Summary of Adult Felony Sentencing FY 1998* published by the Washington Sentencing Guidelines Commission, Table 6, page 15.

(i) The estimated probabilities of arrest and convictions for drug dealing offenses are computed by assuming that each felony arrest or conviction is associated with 800 drug dealings. The 800 estimate is taken as a representative number from the survey reported in A. M. Piehl, B. Unseem & J. J. Dilulio (1999), Right-Sizing Justice: A Cost-Benefit Analysis of Imprisonment in Three States, Manhattan Institute.

Table E.3

Program Cost Estimates

Type of Prevention or Intervention Program	*Program Group Treatment Cost*			*Comparison Group Treatment Cost*			*Note*
	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	
Early Childhood Education for Low Income 3- and 4-Year-Olds*	$4,461	1998	1.50	$0	1995	0	Based on cost data in Reynolds, A.J., J.A. Temple, D.L. Robertson, and E.A. Mann. (2002) "Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers." Educational Evaluation and Policy Analysis 24(4): 267-303, table 3, page 275. The program is 1.5 years (see text on that page)
HIPPY (Home Instruction Program for Preschool Youngsters)	$1,250	2004	1.50	$0	2004	0	Based on materials and training costs from program's website http://www.hippyusa.org/FAQ/faq.html.
Parents as Teachers	$1,450	2004	2.50	$0	2003	0	Based on conversation with Lynn Tiede of the Parents as Teachers National Center.
Parent-Child Home Program	$2,000	2004	2.00	$0	2004	0	Based on materials and training costs from program's website http://www.parent-child.org/home.
Even Start	$4,708	2001	1.00	$0	2001	0	St. Pierre, R.G., A. Ricciuti, F. Tao, C. Creps, J. Swartz, W. Lee, A. Parsad, and T. Rimdzius. (2003) "Third National Even Start Evaluation: Program Impacts and Implications for Improvement." Cambridge, MA. Abt Associates, Inc.
Early Head Start	$11,892	2002	1.75	$0	2002	0	Based on materials and training costs from http://www1.dshs.wa.gov/pdf/esa/dccel/hsstateprofile2001-2002.pdf.
Nurse Family Partnership for Low Income Women	$3,659	2002	2.50	$0	2002	0	Olds D.L., J. Robinson, R. O'Brien, D.W. Luckey, L.M. Pettitt, C.R. Henderson Jr., R.K. Ng, K.L. Sheff, J. Korfmacher, S. Hiatt, and A. Talmi. "Home visiting by paraprofessionals and by nurses: a randomized, controlled trial." Pediatrics. 2002 Sep;110(3):486-96., page 488.

Program Cost Estimates

Type of Prevention or Intervention Program	*Program Group Treatment Cost*			*Comparison Group Treatment Cost*			*Note*
	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	
Home Visiting Programs for At-risk Mothers and Children*	$4,957	2004	1.00	$0	2004	0	WSIPP analysis, based on costs published in Black, M.M., H. Dubowitz, J. Hutcheson, J. Berenson-Howard, and R.H. Starr Jr. (1995) "A randomized clinical trial of home intervention for children with failure to thrive." Pediatrics 95(6): 807-814; Dawson, P., Van Doorninck, W.J., Robinson, J.L. (1989) Effects of home-based, informal social support on child health. Developmental and Behavioral Pediatrics 10(2):63-67; Ernst, C.C., T.M. Grant, A.P. Streissguth, and P.D. Sampson. (1999) "Intervention with high-risk alcohol and drug-abusing mothers: II. Three-year findings from the Seattle model of paraprofessional advocacy." Journal of Community Psychology 27(1): 19-38; and Hardy, J.B. and Streett, R. (1989) "Family support and parenting education in the home: An effective extension of clinic-based preventive health care services for poor children." Journal of Pediatrics 115: 927-931.
Parent-Child Interaction Therapy	$2,167	1997	1.00	$1,000	1997	1	Chaffin, M. (2003) Physical abuse treatment outcome project: Application of Parent-Child Interaction Therapy (PCIT) to physically abusive parents. U.S. Department of Health and Human Services, The Administration on Children, Youth and Families, Children's Bureau, Office of Child Abuse and Neglect.
System of Care/Wraparound Programs*	$1,618	1994	1.00	$0	1994	0	Based on an average of data from Swenson, C.C., J. Randall, S.W. Henggeler, and D. Ward. (2000) "The outcomes and costs of an interagency partnership to serve maltreated children in state custody." Children's Services 3(4): 191-209; and Bickman, L., P.R. Guthrie, M.E. Foster, W. Lamber, W.T. Sumerfelt, C.S. Breda, and C.A. Heflinger. (1995) Evaluating managed mental health services: The Fort Bragg Experiment. New York: Plenum Publishing Corporation.
Family Preservation Services (excluding Washington)*	$2,846	2003	1.00	$314	2003	1	Estimates from Institute for Family Development for Washington State program costs.
Healthy Families America	$2,764	2002	1.18	$0	2002	0	Based on materials and training costs from program's website http://www.healthyfamiliesamerica.org/downloads/hfa_funding_faq.pdf.
Comprehensive Child Development Program	$10,849	1994	3.00	$0	1994	0	St. Pierre, R.G. and J.I. Layzer. (1999) "Using home visits for multiple purposes: The comprehensive child development program." The Future of Children 9(1): 134-151.

Program Cost Estimates

Type of Prevention or Intervention Program	*Program Group Treatment Cost*			*Comparison Group Treatment Cost*			*Note*
	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	
The Infant Health and Development Program	$15,146	1997	3.00	$0	1997	0	McCarton, C.M., J. Brooks-Gunn, I.F. Wallace, C.R. Bauer, F.C. Bennett, J.C. Bernbaum, R.S. Broyles, P.H. Casey, M.C. McCormick, D.T. Scott, J. Tyson, J. Tonascia, and C.L. Meinert. (1997) "Results at age 8 years of early intervention for low-birth-weight premature infants: The Infant Health and Development Program." Journal of the American Medical Association 277(2): 126-132.
Seattle Social Development Project	$499	1984	6.00	$0	1984	0	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.
Guiding Good Choices (formerly PDFY)	$556	1992	1.00	$0	1992	0	Spoth, R.L., M. Guyll, and S.X. Day. (2002) "Universal family-focused interventions in alcohol-use disorder prevention: Cost-effectiveness and cost-benefit analyses of two interventions." Journal of Studies on Alcohol 63(2), p. 224.
Strengthening Families Program for Parents and Youth 10-14	$689	1992	1.00	$0	1992	0	Spoth, R.L., M. Guyll, and S.X. Day. (2002) "Universal family-focused interventions in alcohol-use disorder prevention: Cost-effectiveness and cost-benefit analyses of two interventions." Journal of Studies on Alcohol 63(2), p. 224.
Child Development Project ‡	$8	2003	2.00	$0	2003	0	Based on conversation with program coordinator, Ginger Cook.
Good Behavior Game ‡	$4	2003	2.00	$0	2003	0	Based on materials and training costs from http://www.hazelden.org/HAZ_MEDIA/gbg_checklist_productcomparison.pdf.
CASASTART (Striving Together to Achieve Rewarding Tomorrows)	$4,700	1994	1.00	$0	1994	0	Harrell, A., S. Cavanagh, and S. Sridharan. (1999, November) "Evaluation of the Children at Risk Program: Results 1 year after the end of the program." Research in Brief. U.S. Department of Justice, National Institute of Justice, p. 9.
Big Brothers/Big Sisters	$3,245	1992	1.00	$0	2002	0	Grossman, J.B. and J.P. Tierney. (1998) "Does mentoring work? An impact study of the Big Brothers Big Sisters Program." Evaluation Review 22(3): 403-426.
Big Brothers/Big Sisters (taxpayer cost only)	$1,000	1992	1.00	$0	2002	0	#N/A
Quantum Opportunities Project	$5,000	1998	5.00	$0	1991	0	Lattimore, C.B., S.F. Mihalic, J.K. Grotpeter, and R. Taggart. (1998) Blueprints for violence prevention, book four: The Quantum Opportunities Program. Boulder, CO: Center for the Study and Prevention of Violence.

Program Cost Estimates

Type of Prevention or Intervention Program	*Program Group Treatment Cost*			*Comparison Group Treatment Cost*			*Note*
	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	
Adolescent Transitions Program ‡	$474	2002	1.00	$0	2002	0	Jackson, A and L. Beckman. (2003) "Cost Analysis of the Adolescent Transitions Program." Honors Thesis , University of Oregon, p.29.
Project Northland ‡	$52	2003	3.00	$0	2003	0	Based on budget considerations provided in Hazelden's grant proposal template for Project Northland replication, at http://hazelden.org.
Family Matters	$140	1997	1.00	$0	1997	0	Bauman, K.E., S.T. Ennett, V.A. Foshee, M. Pemberton, T.S. King, and G.G. Koch. (2002) "Influence of a family program on adolescent smoking and drinking prevalence." Prevention Science 3(1): 37.
Life Skills Training (LST) ‡	$10	2003	3.00	$0	2003	0	Based on materials and training costs from program's website http://lifeskillstraining.com.
Project STAR (Students Taught Awareness and Resistance) ‡	$37	1987	3.00	$0	1995	0	Costs according to http://www.nida.nih.gov/pdf/monographs/monograph176/111-129_Pentz.pdf.
Minnesota Smoking Prevention Program ‡	$5	2003	1.00	$0	2003	0	Based on materials and training costs from http://www.hazelden.org.
Other Social Influence/Skills Building Substance Prevention Programs* ‡	$7	2003	1.00	$0	2003	0	Based on average costs of similar programs.
Project Towards No Tobacco Use (TNT) ‡	$5	2003	1.00	$0	2003	0	Material costs according to the ETR website http://www.etr.org/pub/php/result.php3. A video tape that was part of the original curriculum is included in this estimate.
All Stars ‡	$25	2003	2.00	$0	2003	0	Based on materials and training costs from http://www.tanglewood.net.
Project ALERT (Adolescent Learning Exp. in Resistance Training) ‡	$3	2003	1.00	$0	2003	0	Based on materials and training costs from http://www.projectalert.best.org. Does not include a subsidy provided by the Conrad Hilton Foundation.
STARS for Families (Start Taking Alcohol Risks Seriously)	$9	2002	2.00	$0	2002	0	Information provided by Maryland Blueprints (http://www.marylandblueprints.org) and NIMCO (http//www.nimco.com).
D.A.R.E. (Drug Abuse Resistance Education)	$96	2001	1.00	$0	2001	0	Shepard, E. "The Economic Costs of D.A.R.E." LeMoyne College Institute of Industrial Relations, 11-22-01, p. 20.
Teen Outreach Program	$600	2001	1.00	$0	2001	0	Allen, J.P. and S. Philliber. (2001) "Who benefits most from a broadly targeted prevention program? Differential efficacy across populations in the Teen Outreach Program." Journal of Community Psychology 29(6): 637-655.
Reducing the Risk Program ‡	$13	2004	1.00	$0	2004	0	Based on materials and training costs from http://www.etr.org/recapp/programs/rtr.htm.

Program Cost Estimates

Type of Prevention or Intervention Program	*Program Group Treatment Cost*			*Comparison Group Treatment Cost*			*Note*
	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	
Postponing Sexual Involvement Program ‡	$9	2004	1.00	$0	2004	0	Based on conversation with Marian Apomah, Adolescent Reproductive Health Center, Atlanta.
Teen Talk	$82	2004	1.00	$0	2004	0	Based on materials and training costs from http://www.socio.com/srch/summary/pasha/full/paspp02.htm.
School-Based Clinics for Pregnancy Prevention*	$213	2004	4.00	$0	2004	0	Based on materials and training costs from http://www.advocatesforyouth.org/publications/factsheet/fssbhc.htm.
Adolescent Sibling Pregnancy Prevention Project	$3,394	2004	1.00	$0	2004	0	Based on materials and training costs from http://www.mch.dhs.ca.gov/documents/pdf/Final%20AFLP-ASPPP%202003-04%20Alloc%20Table.pdf.
Children's Aid Society-Carrera Project	$4,000	2004	3.00	$0	2004	0	Based on materials and training costs from http://www.guttmacher.org/pubs/journals/3424402.html.
Dialectical Behavior Therapy (in Washington)	$800	2000	1.00	$0	2000	0	Barnoski, R. (2002) Preliminary Findings for the Juvenile Rehabilitation Administration's Dialectic Behavioral Therapy Program, Washington Institute for Public Policy.
Multidimensional Treatment Foster Care (v. regular group care)	$27,028	2004	1.00	$24,537	2004	1	Aos, S., P. Phipps, R. Barnoski and R. Lieb. (2001) The Comparative Costs and Benefits of Programs to Reduce Crime, v 4.0.
Adolescent Diversion Project	$1,600	1997	1.00	$0	1997	0	Based on WSIPP interpretation of the Adolescent Diversion Project.
Mentoring in the Juvenile Justice System* (in Washington)	$6,265	2001	1.00	$0	2001	0	Barnoski, R. (2002) Preliminary Findings for the Juvenile Rehabilitation Administration's Mentoring Program, and additional WSIPP analysis.
Functional Family Therapy (in Washington)	$2,100	2002	1.00	$0	2002	1	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.
Other Family-Based Therapy Programs for Juvenile Offenders*	$1,537	2000	1.00	$0	2000	0	Aos, S., P. Phipps, R. Barnoski and R. Lieb. (2001) The Comparative Costs and Benefits of Programs to Reduce Crime, v 4.0.
Multi-Systemic Therapy (MST)	$5,500	2001	1.00	$0	2001	1	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.
Aggression Replacement Training (in Washington)	$745	2002	1.00	$0	2002	0	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.

Program Cost Estimates

Type of Prevention or Intervention Program	*Program Group Treatment Cost*			*Comparison Group Treatment Cost*			*Note*
	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	Cost per Program Participant	Year Dollars are Denom-inated	Number of Years	
Juvenile Boot Camps (excluding Washington)*	$35,063	2004	1.00	$43,649	2004	1	Based on days for boot camp (from Barnoski, R. (2004) Washington's Juvenile Basic Training Camp: Outcome Evaluation), prices obtained from Ken Brown, Washington State Juvenile Rehabilitation Administration.
Juvenile Offender Interagency Coordination Programs*	$549	2002	1.00	$0	2002	0	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.
Diversion Progs. with Services (v. regular juvenile court processing)*	$400	2002	1.00	$0	2002	0	Aos, S. (2002) The Juvenile Justice System in Washington State: Recommendations to Improve Cost-Effectiveness.
Juvenile Intensive Probation Supervision Programs*	$2,773	2001	1.00	$1,338	2001	1	Aos, S. (2002) The Juvenile Justice System in Washington State: Recommendations to Improve Cost-Effectiveness.
Juvenile Intensive Parole (in Washington)	$7,785	2001	1.00	$1,984	2001	1	Barnoski, R. (2002) Evaluating How Juvenile Rehabilitation Administration's Intensive Parole Program Affects Recidivism.
Scared Straight	$50	1999	1.00	$0	1999	0	Based on WSIPP estimate.
Regular Parole (v. not having parole)	$1,991	2000	1.00	$0	2000	0	Aos, S. (2002) The Juvenile Justice System in Washington State: Recommendations to Improve Cost-Effectiveness.
Functional Family Therapy (excluding Washington)	$2,100	2002	1.00	$0	2002	0	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.
Aggression Replacement Training (excluding Washington)	$745	2002	1.00	$0	2002	0	Barnoski, R. (2004) Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders.
Juvenile Intensive Parole Supervision (excluding Washington)*	$7,785	2001	1.00	$1,984	2001	1	Aos, S. (2002) The Juvenile Justice System in Washington State: Recommendations to Improve Cost-Effectiveness.

Sources and Notes:
‡ Cost estimates for these programs do no include the costs incurred by teachers who might otherwise be engaged in other productive teaching activities. Estimates of these opportunity costs will be included in future revisions.

* Programs marked with an asterisk are the average effects for a group of programs; programs without an asterisk refer to individual programs.

Adolescent Diversion Project
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$11,806	$12,262	$24,067	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$11,806	$12,262	**$24,067**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$11,806	$12,262	**$24,067**				
Program Costs	$0	-$1,777	$0	**-$1,777**				
Net Benefit (NPV)	$0	$10,028	$12,262	**$22,290**				
Total Benefit-to-Cost Ratio				$13.54				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $13.54

Adolescent Sibling Pregnancy Prevention Project
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$24	$29	$52
High School Graduation	$308	$77	$96	$482	$91	$23	$28	$142
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$6	$0	$6
Public Assistance	-$4	$5	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$4	$22	$26
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$304	$82	$96	**$482**				
Total Benefits (second sheet)*	$91	$56	$79	**$226**	$91	$56	$79	$226
Total Benefits (both sheets)*	$395	$138	$176	**$709**				
Program Costs	$0	-$3,350	$0	**-$3,350**				
Net Benefit (NPV)	$395	-$3,212	$176	**-$2,641**				
Total Benefit-to-Cost Ratio				$0.21				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.09

Adolescent Transitions Program
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$939	$197	$0	$1,136	$0	$0	$0	$0
Alcohol (prob of initiation)	$895	$366	$24	$1,285	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$1,834	$563	$24	**$2,420**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$1,834	$563	$24	**$2,420**				
Program Costs	$0	-$482	$0	**-$482**				
Net Benefit (NPV)	$1,834	$80	$24	**$1,938**				
Total Benefit-to-Cost Ratio				$5.02				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $1.22

Aggression Replacement Training (excluding Washington)
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$7,532	$8,074	$15,606	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$7,532	$8,074	**$15,606**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$7,532	$8,074	**$15,606**				
Program Costs	$0	-$759	$0	**-$759**				
Net Benefit (NPV)	$0	$6,773	$8,074	**$14,846**				
Total Benefit-to-Cost Ratio				$20.56				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $20.56

Aggression Replacement Training (in Washington)
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$4,616	$4,948	$9,564	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$4,616	$4,948	**$9,564**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$4,616	$4,948	**$9,564**				
Program Costs	$0	-$759	$0	**-$759**				
Net Benefit (NPV)	$0	$3,857	$4,948	**$8,805**				
Total Benefit-to-Cost Ratio				$12.60				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $12.60

All Stars
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$140	$29	$0	$169	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$140	$29	$0	**$169**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$140	$29	$0	**$169**				
Program Costs	$0	-$49	$0	**-$49**				
Net Benefit (NPV)	$140	-$20	$0	**$120**				
Total Benefit-to-Cost Ratio				$3.43				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.59

Big Brothers/Big Sisters
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$446	$533	$979	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$1,362	$341	$426	$2,129	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$573	$234	$15	$823	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$80	$47	$1	$127	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$2,015	$1,069	$974	**$4,058**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$2,015	$1,069	$974	**$4,058**				
Program Costs	$0	-$1,236	-$2,775	**-$4,010**				
Net Benefit (NPV)	$2,015	-$167	-$1,800	**$48**				
Total Benefit-to-Cost Ratio				$1.01				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $1.65

CASASTART (Striving Together to Achieve Rewarding Tomorrows)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$2,172	$2,592	$4,765	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$115	$68	$1	$185	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$115	$2,241	$2,593	**$4,949**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$115	$2,241	$2,593	**$4,949**				
Program Costs	$0	-$5,559	$0	**-$5,559**				
Net Benefit (NPV)	$115	-$3,319	$2,593	**-$610**				
Total Benefit-to-Cost Ratio				$0.89				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.87

Child Development Project
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$271	$111	$7	$389	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$37	$22	$0	$60	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$308	$133	$7	**$448**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$308	$133	$7	**$448**				
Program Costs	$0	-$16	$0	**-$16**				
Net Benefit (NPV)	$308	$117	$7	**$432**				
Total Benefit-to-Cost Ratio				$28.42				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $8.88

Children's Aid Society-Carrera Project
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$83	$99	$182
High School Graduation	$1,038	$260	$324	$1,622	$316	$79	$99	$493
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$20	$0	$20
Public Assistance	-$15	$16	$0	$1	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$13	$77	$90
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$1,024	$276	$324	**$1,624**				
Total Benefits (second sheet)*	$316	$195	$275	**$785**	$316	$195	$275	$785
Total Benefits (both sheets)*	$1,339	$470	$599	**$2,409**				
Program Costs	$0	-$11,501	$0	**-$11,501**				
Net Benefit (NPV)	$1,339	-$11,031	$599	**-$9,093**				
Total Benefit-to-Cost Ratio				$0.21				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.09

Comprehensive Child Development Program
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$91	-$101	$0	-$9	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$91	-$101	$0	**-$9**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$91	-$101	$0	**-$9**				
Program Costs	$0	-$37,388	$0	**-$37,388**				
Net Benefit (NPV)	$91	-$37,489	$0	**-$37,397**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

D.A.R.E. (Drug Abuse Resistance Education)
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$99	$0	**-$99**				
Net Benefit (NPV)	$0	-$99	$0	**-$99**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Dialectical Behavior Therapy (in Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$13,738	$18,348	$32,087	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$13,738	$18,348	**$32,087**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$13,738	$18,348	**$32,087**				
Program Costs	$0	-$843	$0	**-$843**				
Net Benefit (NPV)	$0	$12,895	$18,348	**$31,243**				
Total Benefit-to-Cost Ratio				$38.05				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $38.05

Diversion Programs with Services (vs. regular juvenile court processing)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$1,115	$1,158	$2,272	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$1,115	$1,158	**$2,272**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$1,115	$1,158	**$2,272**				
Program Costs	$0	-$408	$0	**-$408**				
Net Benefit (NPV)	$0	$707	$1,158	**$1,865**				
Total Benefit-to-Cost Ratio				$5.58				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $5.58

Early Childhood Education for Low Income 3- and 4-Year-Olds
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$2,165	$2,584	$4,749	$0	$121	$145	$267
High School Graduation	$4,767	$1,192	$1,490	$7,448	$356	$89	$111	$556
Test Scores	$3,147	$787	$983	$4,917	$4	$1	$1	$6
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$119	$0	$119	$0	$0	$0	$0
K-12 Grade Repetition	$0	$192	$0	$192	$0	$13	$0	$13
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$1,293	$503	$0	$1,796	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$253	$1,543	$1,796
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$118	$48	$3	$169
Illicit Drugs (disordered use)	$0	$0	$0	$0	$61	$36	$0	$97
Total Benefits (this sheet)*	$6,060	$4,170	$4,074	**$14,304**				
Total Benefits (second sheet)*	$535	$560	$1,803	**$2,898**	$535	$560	$1,803	$2,898
Total Benefits (both sheets)*	$6,596	$4,730	$5,876	**$17,202**				
Program Costs	$0	-$7,301	$0	**-$7,301**				
Net Benefit (NPV)	$6,596	-$2,571	$5,876	**$9,901**				
Total Benefit-to-Cost Ratio				$2.36				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $1.45

Early Head Start
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$3,052	$763	$954	$4,768	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$3,052	$763	$954	**$4,768**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$3,052	$763	$954	**$4,768**				
Program Costs	$0	-$20,972	$0	**-$20,972**				
Net Benefit (NPV)	$3,052	-$20,209	$954	**-$16,203**				
Total Benefit-to-Cost Ratio				$0.23				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.08

Even Start
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$4,863	$0	**-$4,863**				
Net Benefit (NPV)	$0	-$4,863	$0	**-$4,863**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Family Matters
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$511	$107	$0	$618	$0	$0	$0	$0
Alcohol (prob of initiation)	$438	$179	$12	$629	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$949	$286	$12	**$1,247**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$949	$286	$12	**$1,247**				
Program Costs	$0	-$156	$0	**-$156**				
Net Benefit (NPV)	$949	$131	$12	**$1,092**				
Total Benefit-to-Cost Ratio				$8.02				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $1.92

Family Preservation Services (excluding Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Non Program Taxpayers	Non Program Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$2,531	$0	**-$2,531**				
Net Benefit (NPV)	$0	-$2,531	$0	**-$2,531**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Functional Family Therapy (exluding Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Non Program Participants Taxpayers	Non Program Participants Non-Taxpayers	Total
Crime	$0	$13,686	$14,670	$28,356	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$13,686	$14,670	**$28,356**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$13,686	$14,670	**$28,356**				
Program Costs	$0	-$2,140	$0	**-$2,140**				
Net Benefit (NPV)	$0	$11,546	$14,670	**$26,216**				
Total Benefit-to-Cost Ratio				$13.25				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $13.25

Functional Family Therapy (in Washington)
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$7,942	$8,513	$16,455	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$7,942	$8,513	**$16,455**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$7,942	$8,513	**$16,455**				
Program Costs	$0	-$2,140	$0	**-$2,140**				
Net Benefit (NPV)	$0	$5,802	$8,513	**$14,315**				
Total Benefit-to-Cost Ratio				$7.69				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $7.69

Good Behavior Game
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$169	$35	$0	$204	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$169	$35	$0	**$204**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$169	$35	$0	**$204**				
Program Costs	$0	-$8	$0	**-$8**				
Net Benefit (NPV)	$169	$28	$0	**$196**				
Total Benefit-to-Cost Ratio				$25.92				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $4.50

Guiding Good Choices (formerly PDFY)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives: Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives: Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$3,142	$3,750	$6,892	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$498	$203	$13	$714	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$498	$3,345	$3,763	**$7,605**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$498	$3,345	$3,763	**$7,605**				
Program Costs	$0	-$687	$0	**-$687**				
Net Benefit (NPV)	$498	$2,658	$3,763	**$6,918**				
Total Benefit-to-Cost Ratio				$11.07				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $10.34

Healthy Families America
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives: Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives: Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$86	$103	$189
High School Graduation	$0	$0	$0	$0	$252	$63	$79	$394
Test Scores	$0	$0	$0	$0	$3	$1	$1	$4
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$9	$0	$9
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$179	$1,091	$1,270
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$85	$34	$2	$121
Illicit Drugs (disordered use)	$0	$0	$0	$0	$44	$25	$0	$69
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$380	$396	$1,275	**$2,052**	$380	$396	$1,275	$2,052
Total Benefits (both sheets)*	$380	$396	$1,275	**$2,052**				
Program Costs	$0	-$3,314	$0	**$3,314**				
Net Benefit (NPV)	$380	$2,918	$1,275	**$1,263**				
Total Benefit-to-Cost Ratio				$0.62				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.50

HIPPY (Home Instruction Program for Preschool Youngsters) — Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary: Non Program Participants: Taxpayers	Secondary: Non Program Participants: Non-Taxpayers	Secondary: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$2,120	$530	$663	$3,313	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$2,120	$530	$663	**$3,313**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$2,120	$530	$663	**$3,313**				
Program Costs	$0	-$1,837	$0	**-$1,837**				
Net Benefit (NPV)	$2,120	-$1,307	$663	**$1,476**				
Total Benefit-to-Cost Ratio				$1.80				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.65

Home Visiting Programs for At-risk Mothers and Children — Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary: Non Program: Taxpayers	Secondary: Non Program: Non-Taxpayers	Secondary: Total
Crime	$0	$0	$0	$0	$0	$76	$91	$167
High School Graduation	$0	$0	$0	$0	$223	$56	$70	$349
Test Scores	$0	$0	$0	$0	$6,080	$1,520	$1,900	$9,500
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$8	$0	$8
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$158	$967	$1,126
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$75	$30	$2	$107
Illicit Drugs (disordered use)	$0	$0	$0	$0	$39	$22	$0	$61
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$6,194	$1,815	$2,960	**$10,969**	$6,194	$1,815	$2,960	$10,969
Total Benefits (both sheets)*	$6,194	$1,815	$2,960	**$10,969**				
Program Costs	$0	-$4,892	$0	**-$4,892**				
Net Benefit (NPV)	$6,194	-$3,077	$2,960	**$6,077**				
Total Benefit-to-Cost Ratio				$2.24				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.98

Infant Health and Development Program
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$49,021	$0	**-$49,021**				
Net Benefit (NPV)	$0	-$49,021	$0	**-$49,021**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Juvenile Boot Camps (excluding Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	$8,474	$0	**$8,474**				
Net Benefit (NPV)	$0	$8,474	$0	**$8,474**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Juvenile Intensive Parole (in Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Taxpayers	Secondary Program Recipient: Non Program Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$5,992	$0	**-$5,992**				
Net Benefit (NPV)	$0	-$5,992	$0	**-$5,992**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Juvenile Intensive Parole Supervision (excluding Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Taxpayers	Secondary Program Recipient: Non Program Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$5,992	$0	**-$5,992**				
Net Benefit (NPV)	$0	-$5,992	$0	**-$5,992**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Juvenile Intensive Probation Supervision Programs
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$1,482	$0	**-$1,482**				
Net Benefit (NPV)	$0	-$1,482	$0	**-$1,482**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Juvenile Offender Interagency Coordination Programs
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$4,248	$4,412	$8,659	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$4,248	$4,412	**$8,659**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$4,248	$4,412	**$8,659**				
Program Costs	$0	-$559	$0	**-$559**				
Net Benefit (NPV)	$0	$3,688	$4,412	**$8,100**				
Total Benefit-to-Cost Ratio				$15.48				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $15.48

Life Skills Training (LST)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$370	$78	$0	$447	$0	$0	$0	$0
Alcohol (prob of initiation)	$172	$70	$5	$246	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$33	$20	$0	$53	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$574	$167	$5	**$746**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$574	$167	$5	**$746**				
Program Costs	$0	-$29	$0	**-$29**				
Net Benefit (NPV)	$574	$138	$5	**$717**				
Total Benefit-to-Cost Ratio				$25.61				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $5.90

Mentoring in the Juvenile Justice System (in Washington)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program: Taxpayers	Non Program: Non-Taxpayers	Total
Crime	$0	$5,572	$5,972	$11,544	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$5,572	$5,972	**$1,544**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$5,572	$5,972	**$1,544**				
Program Costs	$0	-$3,099	-$3,372	**-$6,471**				
Net Benefit (NPV)	$0	$2,473	$2,600	**$5,075**				
Total Benefit-to-Cost Ratio				$1.78				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $3.73

Minnesota Smoking Prevention Program
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Taxpayers	Secondary Program Recipient: Non Program Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$423	$89	$0	$511	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$423	$89	$0	**$511**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$423	$89	$0	**$511**				
Program Costs	$0	-$5	$0	**-$5**				
Net Benefit (NPV)	$423	$84	$0	**$506**				
Total Benefit-to-Cost Ratio				$102.29				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $17.72

Multidimensional Treatment Foster Care (v. regular group care)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Taxpayers	Secondary Program Recipient: Non Program Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$12,910	$13,838	$26,748	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$12,910	$13,838	**$26,748**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$12,910	$13,838	**$26,748**				
Program Costs	$0	-$2,459	$0	**-$2,459**				
Net Benefit (NPV)	$0	$10,451	$13,838	**$24,290**				
Total Benefit-to-Cost Ratio				$10.88				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $10.88

Multi-Systemic Therapy (MST)
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$7,238	$7,758	$14,996	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$7,238	$7,758	**$14,996**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$7,238	$7,758	**$14,996**				
Program Costs	$0	-$5,681	$0	**-$5,681**				
Net Benefit (NPV)	$0	$1,557	$7,758	**$9,316**				
Total Benefit-to-Cost Ratio				$2.64				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $2.64

Nurse Family Partnership for Low Income Women
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$6,861	$7,616	$14,476	$0	$1,055	$906	$1,961
High School Graduation	$0	$0	$0	$0	$1,127	$282	$352	$1,762
Test Scores	$0	$0	$0	$0	$2,101	$525	$656	$3,282
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$42	$0	$42
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$800	$4,886	$5,686
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$379	$152	$10	$541
Illicit Drugs (disordered use)	$0	$0	$0	$0	$195	$113	$1	$309
Total Benefits (this sheet)*	$0	$6,861	$7,616	**$14,476**				
Total Benefits (second sheet)*	$2,674	$2,688	$6,459	**$11,822**	$2,674	$2,688	$6,459	$11,822
Total Benefits (both sheets)*	$2,674	$9,548	$14,075	**$26,298**				
Program Costs	$0	-$9,118	$0	**-$9,118**				
Net Benefit (NPV)	$2,674	$430	$14,075	**$17,180**				
Total Benefit-to-Cost Ratio				$2.88				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $2.59

Other Family-Based Therapy Programs for Juvenile Offenders
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$6,787	$7,275	$14,061	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$6,787	$7,275	**$14,061**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$6,787	$7,275	**$14,061**				
Program Costs	$0	-$1,620	$0	**-$1,620**				
Net Benefit (NPV)	$0	$5,167	$7,275	**$12,441**				
Total Benefit-to-Cost Ratio				$8.68				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $8.68

Other Social Influence/Skills Building Subtance Prevention Programs
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$225	$47	$0	$272	$0	$0	$0	$0
Alcohol (prob of initiation)	$153	$63	$4	$220	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$378	$110	$4	**$492**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$378	$110	$4	**$492**				
Program Costs	$0	-$7	$0	**-$7**				
Net Benefit (NPV)	$378	$103	$4	**$485**				
Total Benefit-to-Cost Ratio				$70.34				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $16.28

Parent-Child Home Program
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$3,890	$0	**-$3,890**				
Net Benefit (NPV)	$0	-$3,890	$0	**-$3,890**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Parent-Child Interaction Therapy
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Participants: Taxpayers	Non Program Participants: Non-Taxpayers	Total
Crime	$0	$0	$0	$0	$0	$198	$237	$435
High School Graduation	$0	$0	$0	$0	$581	$145	$182	$908
Test Scores	$0	$0	$0	$0	$6	$1	$2	$9
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$22	$0	$22
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$413	$2,519	$2,931
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$190	$77	$5	$272
Illicit Drugs (disordered use)	$0	$0	$0	$0	$98	$58	$1	$156
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$869	$912	$2,943	**$4,724**	$869	$912	$2,943	$4,724
Total Benefits (both sheets)*	$869	$912	$2,943	**$4,724**				
Program Costs	$0	-$1,296	$0	**-$1,296**				
Net Benefit (NPV)	$869	-$384	$2,943	**$3,427**				
Total Benefit-to-Cost Ratio				$3.64				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $2.97

Parents as Teachers
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$2,752	$688	$860	$4,300
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$2,752	$688	$860	**$4,300**	$2,752	$688	$860	$4,300
Total Benefits (both sheets)*	$2,752	$688	$860	**$4,300**				
Program Costs	$0	-$3,500	$0	**-$3,500**				
Net Benefit (NPV)	$2,752	-$2,812	$860	**$800**				
Total Benefit-to-Cost Ratio				$1.23				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.44

Postponing Sexual Involvement Program
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	-$13	-$15	-$28
High School Graduation	-$159	-$40	-$50	-$249	-$48	-$12	-$15	-$76
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	-$3	$0	-$3
Public Assistance	$2	-$2	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	-$2	-$12	-$14
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$2	-$2	$0	**$0**				
Total Benefits (second sheet)*	$0	-$18	-$27	**-$45**	$0	-$18	-$27	-$45
Total Benefits (both sheets)*	$2	-$20	-$27	**-$45**				
Program Costs	$0	-$9	$0	**-$9**				
Net Benefit (NPV)	$2	-$29	-$27	**-$54**				
Total Benefit-to-Cost Ratio				-$5.07				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs -$5.33

Project ALERT (Adolescent Learning Experience in Resistance Training)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Taxpayers	Secondary Program Recipient: Non Program Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$36	$21	$0	$58	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$36	$21	$0	**$58**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$36	$21	$0	**$58**				
Program Costs	$0	-$3	$0	**-$3**				
Net Benefit (NPV)	$36	$18	$0	**$54**				
Total Benefit-to-Cost Ratio				$18.02				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $6.78

Project Northland
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Participants Taxpayers	Secondary Program Recipient: Non Program Participants Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$719	$151	$0	$869	$0	$0	$0	$0
Alcohol (prob of initiation)	$423	$173	$11	$607	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$61	$36	$0	$98	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$1,203	$360	$12	**$1,575**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$1,203	$360	$12	**$1,575**				
Program Costs	$0	-$152	$0	**-$152**				
Net Benefit (NPV)	$1,203	$208	$12	**$1,423**				
Total Benefit-to-Cost Ratio				$10.39				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $2.45

Project STAR (Students Taught Awareness and Resistance)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program Participants: Taxpayers	Secondary Program Recipient: Non Program Participants: Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$399	$84	$0	$483	$0	$0	$0	$0
Alcohol (prob of initiation)	$184	$75	$5	$264	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$68	$40	$1	$109	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$651	$199	$5	**$856**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$651	$199	$5	**$856**				
Program Costs	$0	-$162	$0	**-$162**				
Net Benefit (NPV)	$651	$38	$5	**$694**				
Total Benefit-to-Cost Ratio				$5.29				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $1.27

Project Towards No Tobacco Use (TNT)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Program Participants	Secondary Program Recipient: Non Program: Taxpayers	Secondary Program Recipient: Non Program: Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$231	$48	$0	$279	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$231	$48	$0	**$279**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$231	$48	$0	**$279**				
Program Costs	$0	-$5	$0	**-$5**				
Net Benefit (NPV)	$231	$43	$0	**$274**				
Total Benefit-to-Cost Ratio				$55.84				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $9.67

Quantum Opportunities Project
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives: Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives: Program Participants	Secondary Program Recipient: Non Program Participants: Taxpayers	Secondary Program Recipient: Non Program Participants: Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$67	$80	$147	$0	$20	$24	$44
High School Graduation	$6,742	$1,686	$2,107	$10,535	$77	$19	$24	$120
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$5	$0	$5
Public Assistance	-$256	$281	$0	$26	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$3	$19	$22
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$6,486	$2,034	$2,187	**$10,708**				
Total Benefits (second sheet)*	$77	$48	$67	**$192**	$77	$48	$67	$192
Total Benefits (both sheets)*	$6,564	$2,082	$2,254	**$10,900**				
Program Costs	$0	-$25,921	$0	**-$25,921**				
Net Benefit (NPV)	$6,564	-$23,839	$2,254	**-$15,022**				
Total Benefit-to-Cost Ratio				$0.42				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.17

Reducing the Risk Program
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives: Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives: Program Participants	Secondary Program Recipient: Non Program Participants: Taxpayers	Secondary Program Recipient: Non Program Participants: Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$13	$0	**-$13**				
Net Benefit (NPV)	$0	-$13	$0	**-$13**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Regular Parole (vs. not having parole)
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Taxpayers	Non Program Non-Taxpayers	Total
Crime	$0	-$4,587	-$5,793	-$10,379	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	-$4,587	-$5,793	**-$10,379**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	-$4,587	-$5,793	**-$10,379**				
Program Costs	$0	-$2,098	$0	**-$2,098**				
Net Benefit (NPV)	$0	-$6,685	-$5,793	**-$12,478**				
Total Benefit-to-Cost Ratio				-$4.95				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs -$4.95

Scared Straight
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Non-Program Participants As: Taxpayers	Non-Program Participants As: Non-Taxpayers	Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Non Program Participants Taxpayers	Non Program Participants Non-Taxpayers	Total
Crime	$0	-$5,310	-$5,692	-$11,002	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	-$5,310	-$5,692	**-$11,002**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	-$5,310	-$5,692	**-$11,002**				
Program Costs	$0	-$54	$0	**-$54**				
Net Benefit (NPV)	$0	-$5,364	-$5,692	**-$11,056**				
Total Benefit-to-Cost Ratio				-$203.51				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs -$203.51

School-Based Clinics for Pregnancy Prevention
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$805	$0	**-$805**				
Net Benefit (NPV)	$0	-$805	$0	**-$805**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Seattle Social Development Project
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$1,804	$2,153	$3,957	$0	$0	$0	$0
High School Graduation	$6,605	$1,651	$2,064	$10,320	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$150	$0	$150	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$6,605	$3,605	$4,217	**$14,426**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$6,605	$3,605	$4,217	**$14,426**				
Program Costs	$0	-$4,590	$0	**-$4,590**				
Net Benefit (NPV)	$6,605	-$985	$4,217	**$9,837**				
Total Benefit-to-Cost Ratio				$3.14				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $1.70

STARS for Families (Start Taking Alcohol Risks Seriously)
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$18	$0	**-$18**				
Net Benefit (NPV)	$0	-$18	$0	**-$18**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Strengthening Families Program for Parents and Youth 10-14
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$1,566	$1,870	$3,436	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$1,175	$246	$0	$1,422	$0	$0	$0	$0
Alcohol (prob of initiation)	$1,098	$448	$29	$1,575	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$140	$83	$1	$223	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$2,413	$2,344	$1,900	**$6,656**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$2,413	$2,344	$1,900	**$6,656**				
Program Costs	$0	-$851	$0	**-$851**				
Net Benefit (NPV)	$2,413	$1,492	$1,900	**$5,805**				
Total Benefit-to-Cost Ratio				$7.82				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $4.98

System of Care/Wraparound Programs
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Secondary Program Recipient: Non Program Taxpayers	Secondary Program Recipient: Non Program Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$1,914	$0	**-$1,914**				
Net Benefit (NPV)	$0	-$1,914	$0	**-$1,914**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Teen Outreach Program
— Summary of Estimated Benefits and Costs —

Benefits By Area	Primary Program Recipient: Benefits and Costs From Different Perspectives — Program Participants	Primary Program Recipient: Non-Program Participants As: Taxpayers	Primary Program Recipient: Non-Program Participants As: Non-Taxpayers	Primary Program Recipient: Total	Secondary Program Recipient (or child abuse and neglect for primary program recipient): Benefits and Costs From Different Perspectives — Program Participants	Secondary Program Recipient: Non Program Participants Taxpayers	Secondary Program Recipient: Non Program Participants Non-Taxpayers	Secondary Program Recipient: Total
Crime	$0	$0	$0	$0	$0	$26	$31	$57
High School Graduation	$355	$89	$111	$555	$99	$25	$31	$154
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$6	$0	$6
Public Assistance	-$5	$6	$0	$1	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$4	$24	$28
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$350	$94	$111	**$555**				
Total Benefits (second sheet)*	$99	$61	$86	**$246**	$99	$61	$86	$246
Total Benefits (both sheets)*	$449	$155	$197	**$801**				
Program Costs	$0	-$620	$0	**-$620**				
Net Benefit (NPV)	$449	-$464	$197	**$181**				
Total Benefit-to-Cost Ratio				$1.29				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.57

Teen Talk
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program Participants		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$0	$0	$0	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$0	$0	**$0**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$0	$0	**$0**				
Program Costs	$0	-$81	$0	**-$81**				
Net Benefit (NPV)	$0	-$81	$0	**-$81**				
Total Benefit-to-Cost Ratio				$0.00				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs $0.00

Washington Basic Training Camp
— Summary of Estimated Benefits and Costs —

	Primary Program Recipient				Secondary Program Recipient (or child abuse and neglect for primary program recipient)			
	Benefits and Costs From Different Perspectives				Benefits and Costs From Different Perspectives			
	Program Participants	Non-Program Participants As:		Total	Program Participants	Non Program		Total
Benefits By Area		Taxpayers	Non-Taxpayers			Taxpayers	Non-Taxpayers	
Crime	$0	$4,576	$10,202	$14,778	$0	$0	$0	$0
High School Graduation	$0	$0	$0	$0	$0	$0	$0	$0
Test Scores	$0	$0	$0	$0	$0	$0	$0	$0
Education (years)	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Special Education	$0	$0	$0	$0	$0	$0	$0	$0
K-12 Grade Repetition	$0	$0	$0	$0	$0	$0	$0	$0
Public Assistance	$0	$0	$0	$0	$0	$0	$0	$0
Child Care	$0	$0	$0	$0	$0	$0	$0	$0
Child Abuse and Neglect	$0	$0	$0	$0	$0	$0	$0	$0
Teen Births (under age 18)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (prob of initiation)	$0	$0	$0	$0	$0	$0	$0	$0
Tobacco (regular use)	$0	$0	$0	$0	$0	$0	$0	$0
Alcohol (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Illicit Drugs (disordered use)	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits (this sheet)*	$0	$4,576	$10,202	**$14,778**				
Total Benefits (second sheet)*	$0	$0	$0	**$0**	$0	$0	$0	$0
Total Benefits (both sheets)*	$0	$4,576	$10,202	**$14,778**				
Program Costs	$0	$7,586	$0	**$7,586**				
Net Benefit (NPV)	$0	$12,162	$10,202	**$22,364**				
Total Benefit-to-Cost Ratio				NA				

* Note: total benefits may not equal the sum of the individual items because only one of the three human capital variables (high school graduation, test scores, education years) is counted.

Addendum: Non-participant benefits divided by taxpayer costs NA