

Wilderness adventure therapy for court-involved youth Juvenile Justice

Benefit-cost estimates updated December 2019. Literature review updated July 2019.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our [Technical Documentation](#).

Program Description: Programs with wilderness experiences as the therapeutic milieu incorporate challenge and adventure as the youth's means of self-discovery to improve self-esteem, peer relationships, and teamwork. These programs typically target youth under age 18 who have behavioral or emotional problems, which may include criminal delinquency, substance use, physical or mental disabilities, and learning disorders. In the juvenile justice setting, wilderness experience programs can be delivered within the traditional justice system, as a diversion from the traditional system altogether, or as a less restrictive alternative to confinement. Three broad types of wilderness experience programs include adventure-based therapy (e.g., ropes courses), wilderness adventure therapy (e.g., expeditions), and residential outdoor therapy (e.g., living units) (see Gillis, H.L., Gass, M. A. & Russell, K.C., 2008. The effectiveness of Project Adventure's behavior management programs for male offenders in residential treatment. *Residential Treatment for Children & Youth*, 25(3), 227-246). All of the studies included in this analysis were wilderness adventure therapy models, which have an expedition format that takes place in the wilderness setting (e.g., canoeing, rock climbing, camping, or backpacking). All included studies were similar to an Outward Bound model. Wilderness adventure therapy programs are typically less than 60 days but can range from 7 to 120 days. Depending on the type of youth involved in the program, program leaders may be trained probation officers.

In this analysis, wilderness adventure therapy participants were convicted but diverted from traditional probation services. Youth participated in expeditions lasting from three weeks to three months with an average of 37 days in the program. Although risk level was not reported in these studies, youth had some degree of prior involvement with the justice system. Among included studies that report demographics, 37% of participants were youth of color and 5% were female. Comparison youth received probation and treatment as usual services.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$6,165	Benefit to cost ratio	\$3.04
Participants	\$1,450	Benefits minus costs	\$14,145
Others	\$14,208	Chance the program will produce	
Indirect	(\$744)	benefits greater than the costs	79 %
Total benefits	\$21,079		
Net program cost	(\$6,934)		
Benefits minus cost	\$14,145		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated				
				ES	SE	Age	ES	SE	Age	ES	p-value
Crime	15	3	112	-0.320	0.224	16	-0.320	0.224	24	-0.320	0.154

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our [Technical Documentation](#).

Detailed Monetary Benefit Estimates Per Participant

Affected outcome:	Resulting benefits: ¹	Benefits accrue to:				
		Taxpayers	Participants	Others ²	Indirect ³	Total
Crime	Criminal justice system	\$5,604	\$0	\$13,345	\$2,802	\$21,752
Crime	Labor market earnings associated with high school graduation	\$720	\$1,691	\$936	\$0	\$3,346
Crime	Costs of higher education	(\$159)	(\$241)	(\$72)	(\$80)	(\$552)
Program cost	Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$3,467)	(\$3,467)
Totals		\$6,165	\$1,450	\$14,208	(\$744)	\$21,079

¹In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

²"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

³"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

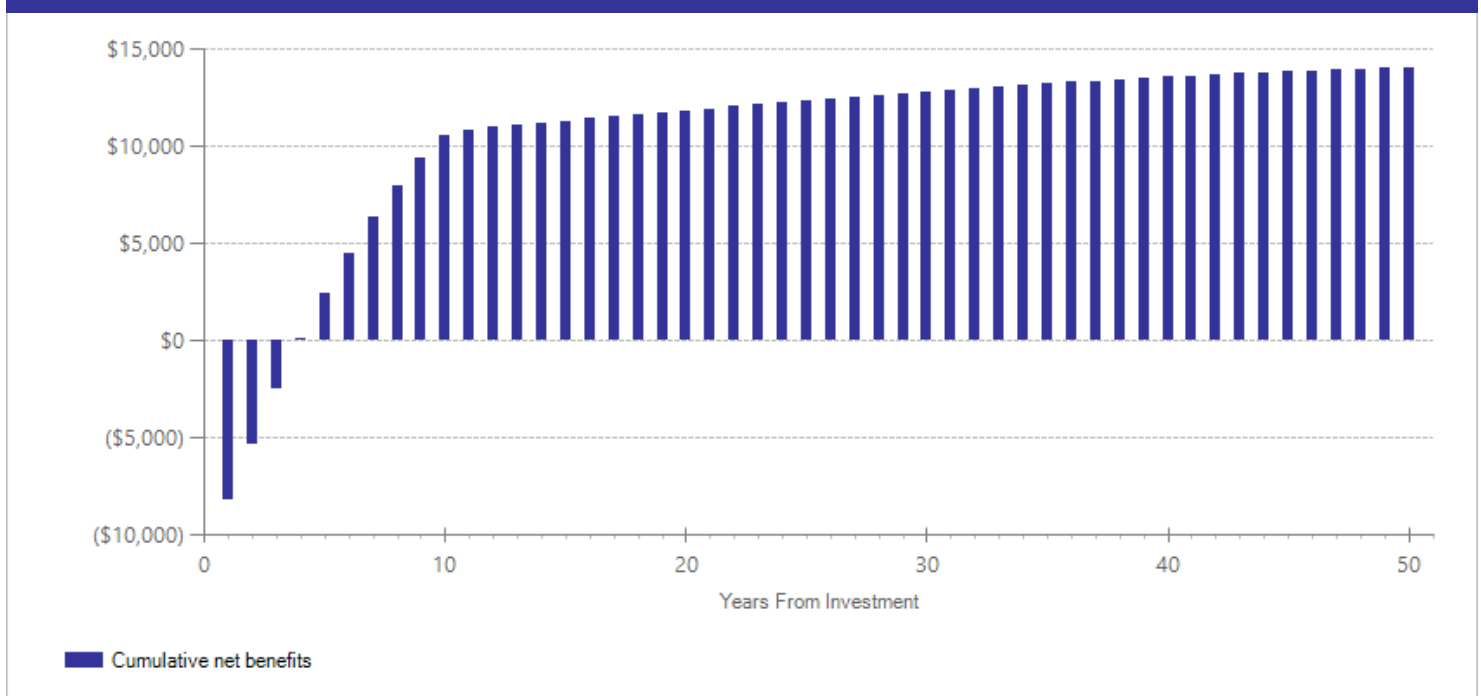
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$7,805	2015	Present value of net program costs (in 2018 dollars)	(\$6,934)
Comparison costs	\$1,289	2015	Cost range (+ or -)	20 %

The per-participant cost estimate was based on information retrieved from Outward Bound (<http://www.outwardbound.org>), Peak 7 Adventures (<http://peak7.org>), and other local non-profit organizations that provide wilderness adventure therapy for youth. The average daily cost estimate from these sources was multiplied by the average days in the program for the studies in our review (37 days). Youth in the comparison group received probation as usual in lieu of wilderness adventure therapy. To estimate the cost of probation for comparison youth, we multiplied the average length of stay of on local supervision (0.57 years) for Washington's probation population multiplied by the marginal operating cost for local supervision using WSIPP estimates from Washington State Institute for Public Policy. (December 2018). Benefit-cost technical documentation. Olympia, WA: Author.

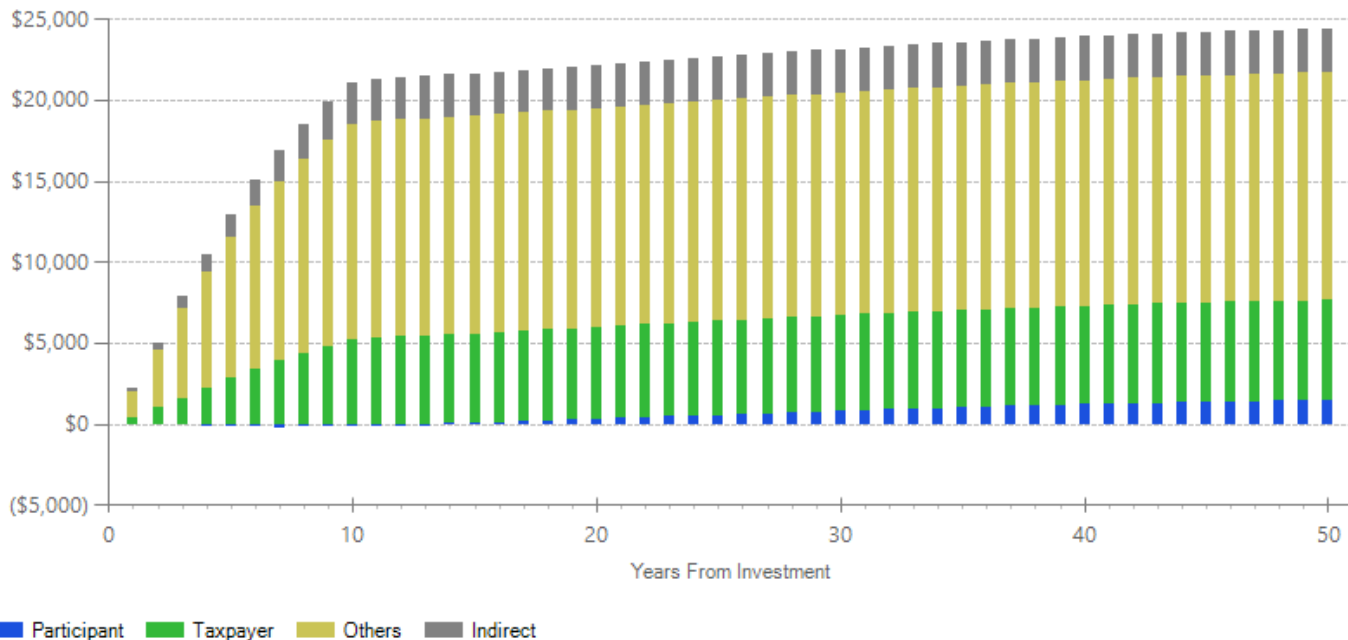
The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our [Technical Documentation](#).

Benefits Minus Costs Over Time (Cumulative Discounted Dollars)



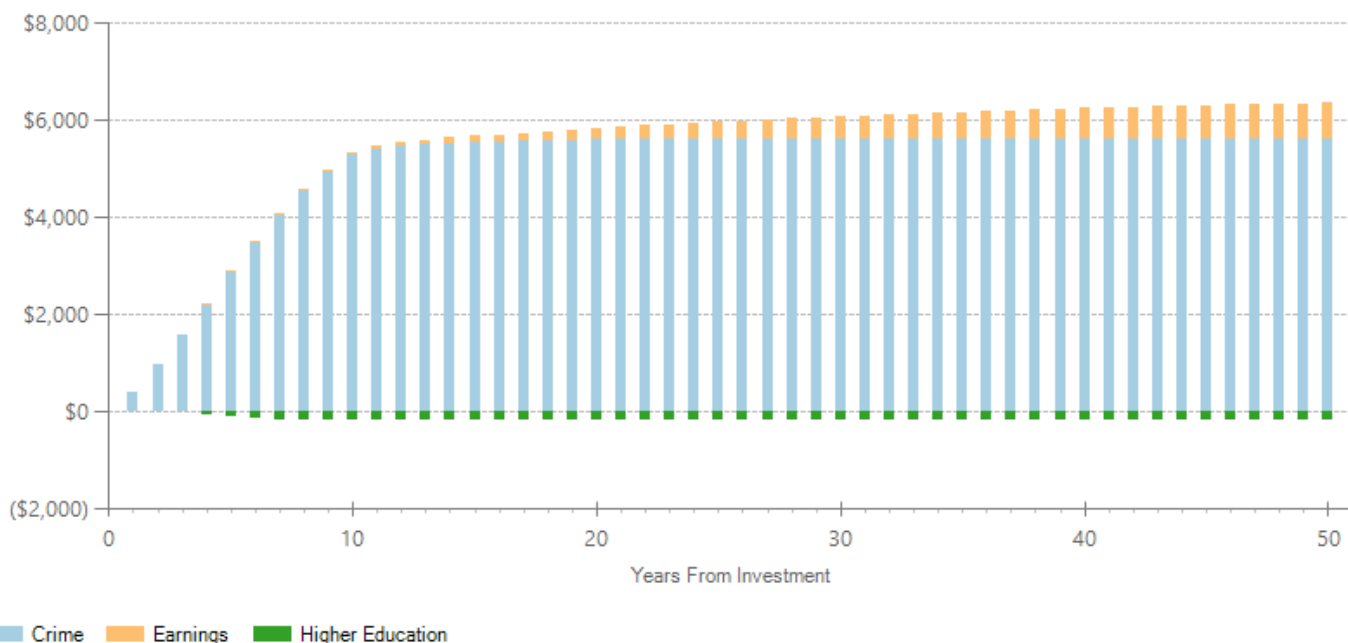
The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below \$0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach \$0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above \$0, the benefits of the program exceed the initial investment.

Benefits by Perspective Over Time (Cumulative Discounted Dollars)



The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. "Taxpayers" includes expected savings to government and expected increases in tax revenue. "Participants" includes expected increases in earnings and expenditures for items such as health care and college tuition. "Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance. "Indirect benefits" includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the \$0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.

Taxpayer Benefits by Source of Value Over Time (Cumulative Discounted Dollars)



The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

Citations Used in the Meta-Analysis

- Elrod, P.H., & Minor, K. (1992). Second wave evaluation of a multi-faceted intervention for juvenile court probationers. *International Journal of Offender Therapy and Comparative Criminology*, 36(3), 247-262.
- Kelly, F.J. & Baer, D.J. (1971). Physical challenge as a treatment for delinquency. *Crime and Delinquency*, 17(4), 437-445.
- Winterdyk, J., & Roesch, R. (1982). A wilderness experiential program as an alternative for probationers: An evaluation. *Canadian Journal of Criminology*, 24, 39-49.

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