

Dual enrollment (for high school students) Higher Education

Benefit-cost estimates updated December 2019. Literature review updated December 2017.

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: Dual enrollment allows high school juniors and seniors to enroll in courses at a community, technical, and (some) four-year colleges. Students participating in dual enrollment simultaneously earn transferrable college and high school credits while still enrolled in high school. Students elect to participate in dual enrollment programs; the tuition costs are generally paid by the school district and the college. Washington State's dual enrollment program is Running Start. We report on college in the high school and early college high school programs separately.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	\$5,418	Benefit to cost ratio	\$14.10
Participants	\$11,343	Benefits minus costs	\$20,807
Others	\$6,492	Chance the program will produce	
Indirect	(\$856)	benefits greater than the costs	100 %
Total benefits	\$22,396		
Net program cost	(\$1,589)		
Benefits minus cost	\$20,807		

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	p-value
				ES	SE	Age	ES	SE	Age		
High school graduation	17	4	22848	0.177	0.114	18	0.177	0.114	18	0.193	0.210
Enroll in 4-year college	17	2	20206	0.053	0.205	18	0.053	0.205	18	-0.014	0.959
Grade point average [^]	17	2	275	0.106	0.061	17	n/a	n/a	n/a	0.228	0.023
Graduate with 2-year degree	17	1	1700	-0.270	0.035	21	-0.270	0.035	21	-0.270	0.001
Graduate with 4-year degree	17	1	9723	0.196	0.013	23	0.196	0.013	23	0.196	0.001

[^]WSIPP's benefit-cost model does not monetize this outcome.

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
High school graduation	Criminal justice system	\$42	\$0	\$104	\$21	\$167
Enroll in 2-year college	Labor market earnings associated with higher education	\$5,541	\$13,016	\$6,994	\$0	\$25,551
Enroll in 2-year college	Costs of higher education	(\$166)	(\$1,674)	(\$605)	(\$83)	(\$2,528)
Program cost	Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$794)	(\$794)
Totals		\$5,418	\$11,343	\$6,492	(\$856)	\$22,396

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.

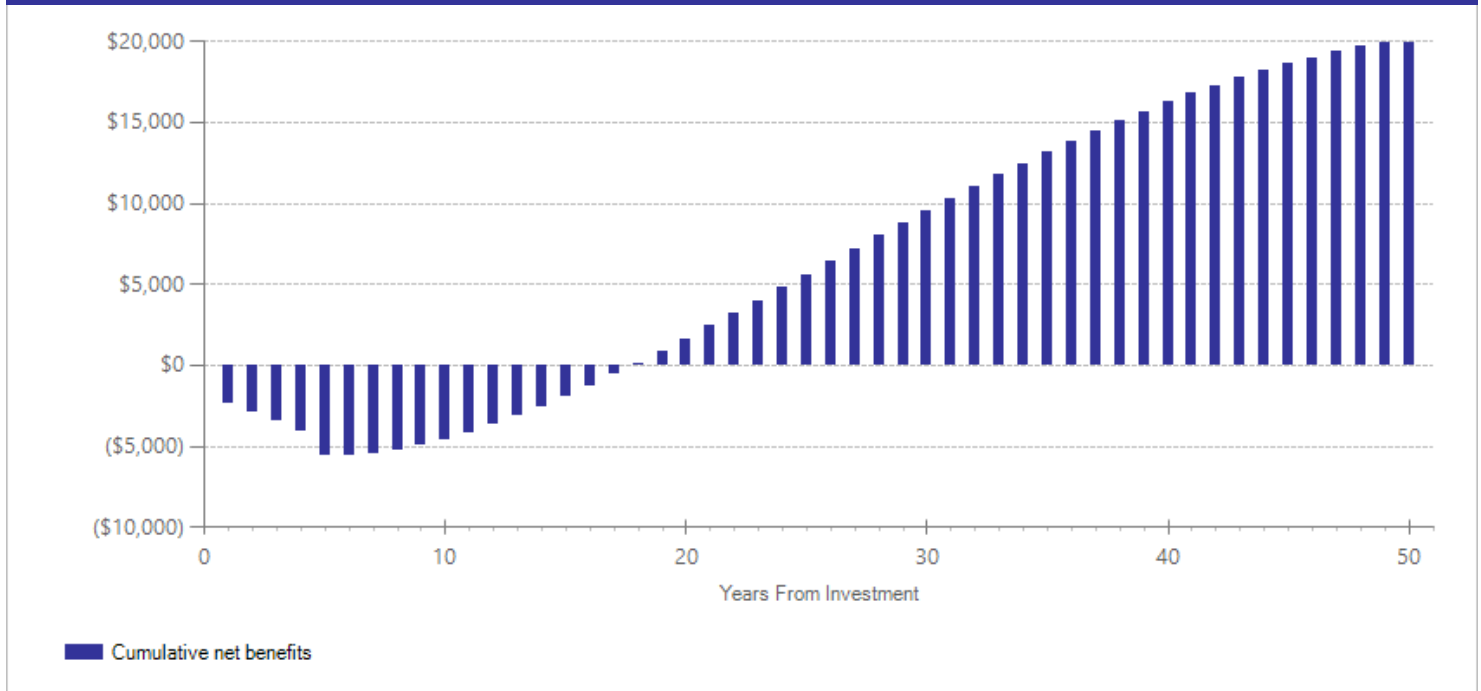
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$10,188	2015	Present value of net program costs (in 2018 dollars)	(\$1,589)
Comparison costs	\$8,695	2015	Cost range (+ or -)	20 %

WSIPP estimates the total cost of one year of dual enrollment by taking the difference between WSIPP's per-student estimate of the total expenditures per community and technical college (CTC) student and WSIPP's per-student estimate of the total cost of regular K-12 education. The average Running Start student in Washington enrolls in 11 credits per quarter (Cowan & Goldhaber, 2015). This equates to a 0.73 of a student FTE (based on a full-time load of 15 credits). WSIPP's estimates are based on this average credit load.

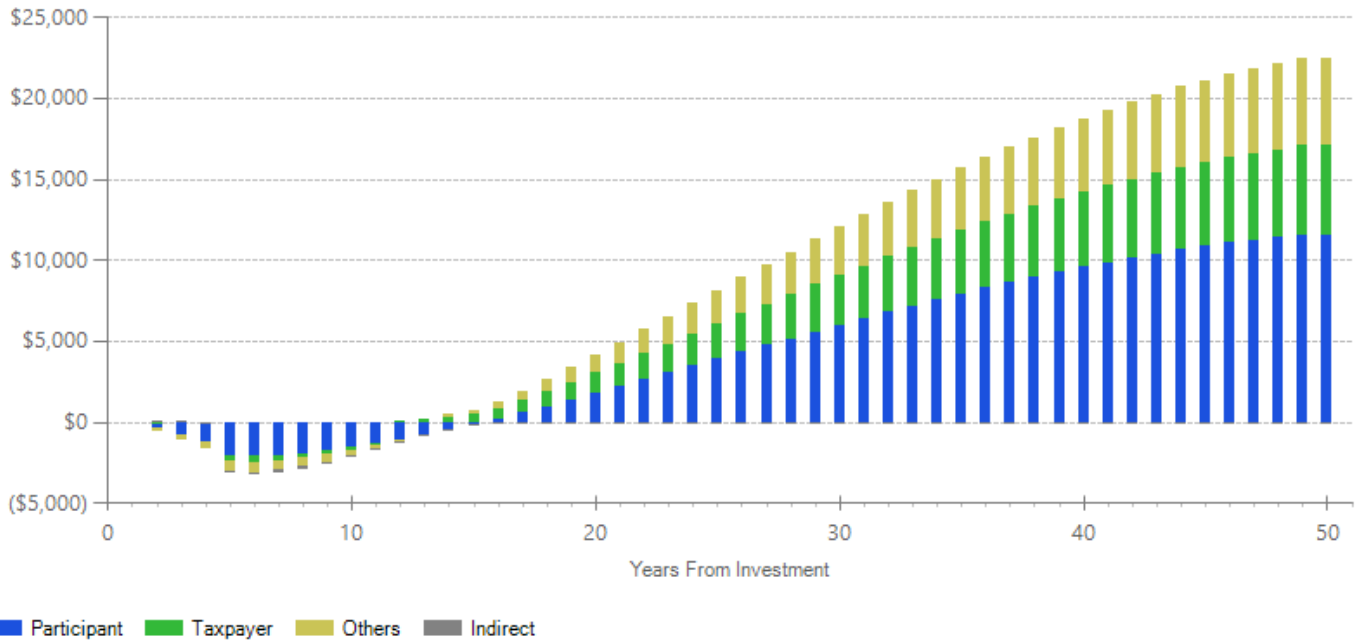
The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty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

Benefits Minus Costs Over Time (Cumulative Discounted Dollars)



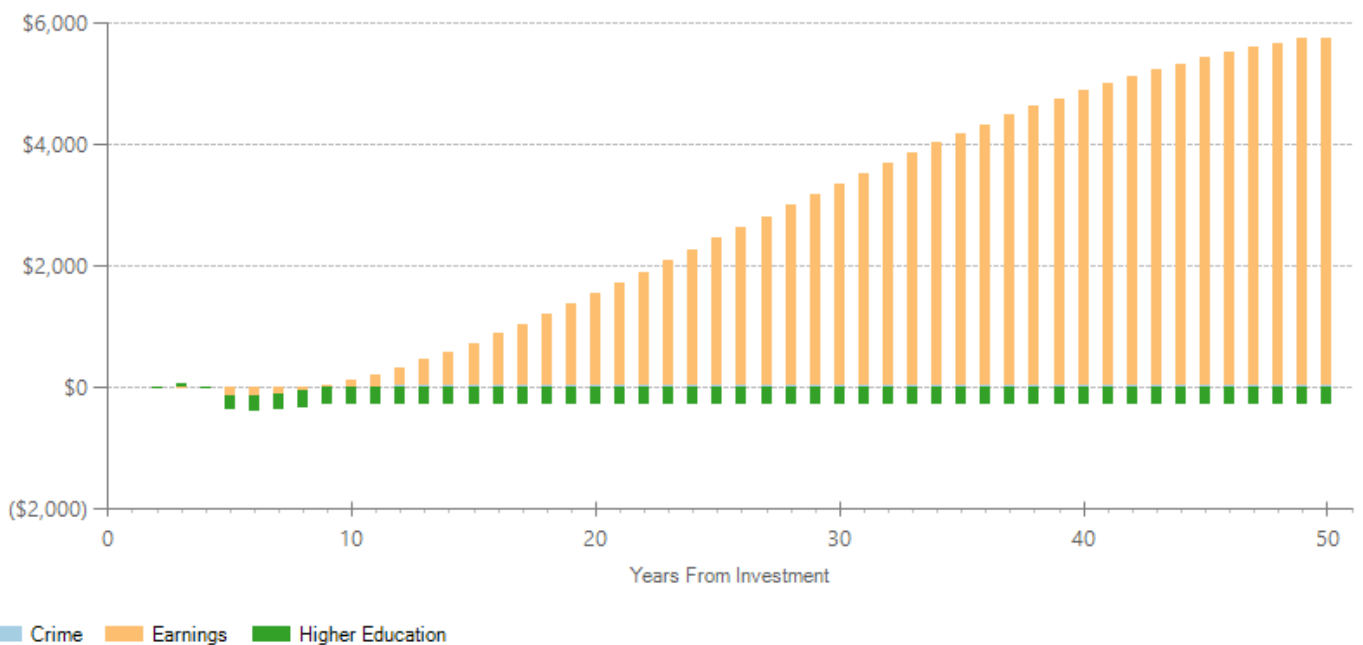
The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below \$0 line), the cumulative benefits do not outweigh the cost 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

- Cowan, J., & Goldhaber, D. (2015). How much of A "Running Start" do dual enrollment programs provide students? *Review of Higher Education*, 38(3), 425-460.
- Karp, M.M., Calcagno, J.C., Hughes, K.L., Jeong, D.W., & Bailey, T.R. (2007). *The postsecondary achievement of participants in dual enrollment: An analysis of student outcomes in two states*. St. Paul, MN : National Research Center for Career and Technical Education.
- Rodriguez, O., Belfield, C., Hughes, K.L., & National Center for Postsecondary Research (Ed). (2012). *Bridging college and careers: Using dual enrollment to enhance career and technical education pathways*. Ncpr Brief.
- Speroni, C. (2012). *High school dual enrollment programs: Are we fast-tracking students too fast?* Ncpr Brief. New York: National Center for Postsecondary Education.

For further information, contact:
(360) 664-9800, institute@wsipp.wa.gov

Printed on 03-31-2023



Washington State Institute for Public Policy

The Washington State Legislature created the Washington State Institute for Public Policy in 1983. A Board of Directors—representing the legislature, the governor, and public universities—governs WSIPP and guides the development of all activities. WSIPP's mission is to carry out practical research, at legislative direction, on issues of importance to Washington State.