

Benefit-Cost Analysis to Inform Policymaking

WASHINGTON STATE INSTITUTE FOR PUBLIC POLICY

Bethanne Barnes
Director

Investing in
Evidence-
Based
Prevention:
Supporting
Health and
Saving Public
Resources

Washington,
DC

May 30, 2017

Washington State Institute for Public Policy

Created by the WA Legislature

- ✓ Non-partisan staff with bi-partisan governance
- ✓ Projects assigned via legislative bills or Board of Directors



Recent Assignments:

What Works? What are the costs and benefits of policies to improve:

- ✓ Crime
- ✓ K-12 & early education
- ✓ Health Care
- ✓ Child welfare
- ✓ Mental health
- ✓ Substance abuse
- ✓ Public health
- ✓ Employment

WSIPP METHODS

Are there policies that improve outcomes and have a positive return on investment?

1. **Evidence:** What works to improve outcomes; what does not?

We meta-analyze all rigorous evaluations of policies to improve public outcomes of legislative interest.

2. **Economics:** What is the return on investment?

We compute benefits and costs to the people of Washington State using a consistent framework.

3. **Risk:** What is the likelihood that a program or policy will at least “break even?”

We model the uncertainty around measurement and assumptions to assess the riskiness of each option.

EXAMPLE: DOUBLE-DOSE CLASSES

1. Meta-analyzed evaluation findings from 5 studies.

Two of the key protocols WSIPP follows to ensure a rigorous analysis are:

- **Search for all studies on a topic**—We systematically review the national and international research literature and consider all available studies on a program, regardless of their findings. That is, we do not “cherry pick” studies to include in our analysis.
- **Screen studies for quality**—We only include rigorous studies in our analysis. We require that a study reasonably attempt to demonstrate causality using appropriate statistical techniques. For example, studies must include both treatment and comparison groups with an intent-to-treat analysis. Studies that do not meet our minimum standards are excluded from analysis.

EXAMPLE: DOUBLE-DOSE CLASSES

1. Meta-analyzed evaluation findings from 5 studies.
2. Found statistically significant improvements in high school graduation and test scores.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes (ES) and standard errors (SE) 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	2	10463	0.045	0.022	18	0.045	0.022	18	0.045	0.040
Test scores	5	30857	0.093	0.041	13	0.093	0.041	17	0.093	0.023

EXAMPLE: DOUBLE-DOSE CLASSES

1. Meta-analyzed evaluation findings from 5 studies.
2. Found statistically significant improvements in high school graduation and test scores.
3. Improvements in HS graduation also lead to:
 - ✓ Increased labor market earnings
 - ✓ Reduced crime
 - ✓ Improved health

EXAMPLE: DOUBLE-DOSE CLASSES

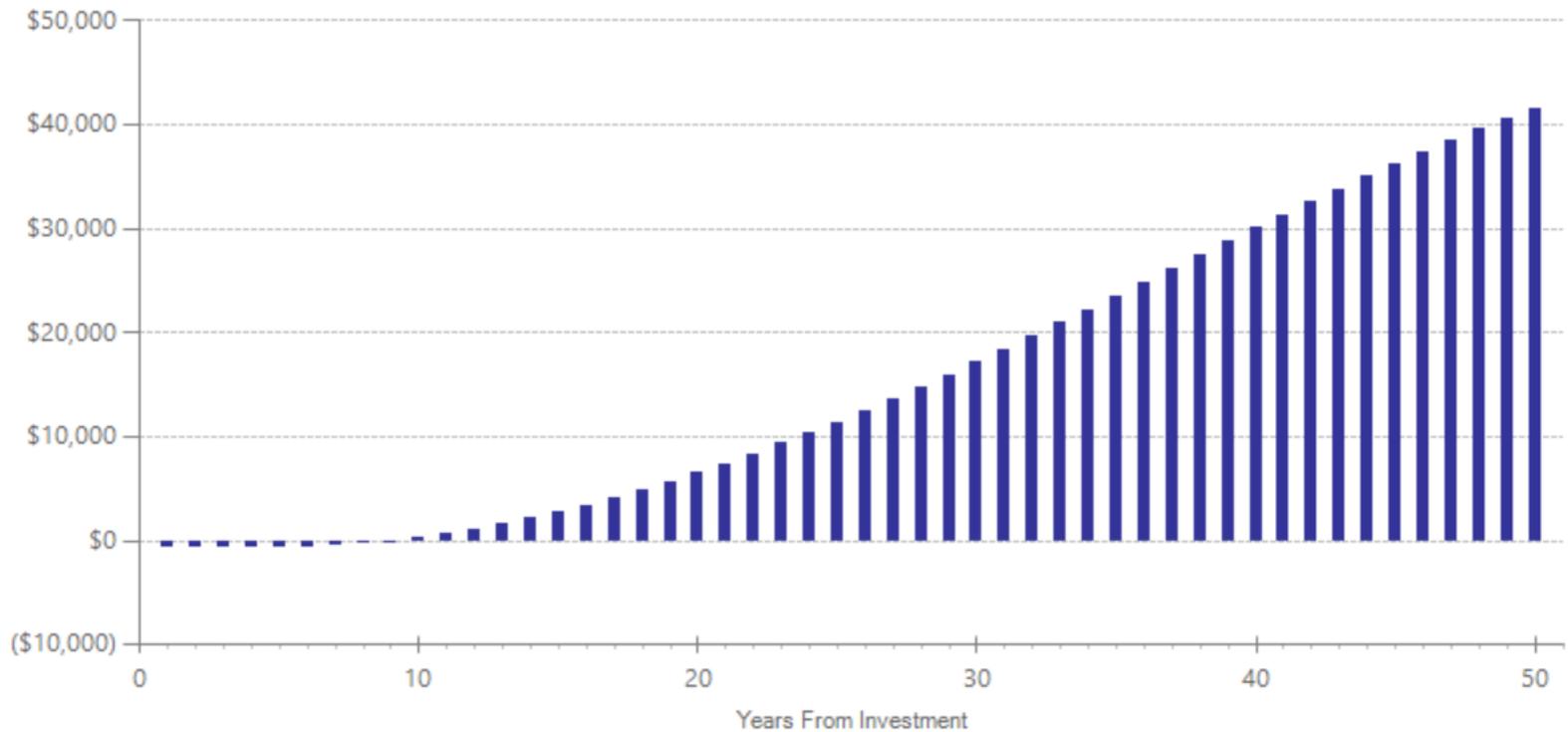
Return on Investment

Benefits from changes to:	
Crime	\$95
Labor market earnings associated with high school graduation	\$16,279
Health care associated with educational attainment	\$68
Adjustment for deadweight cost of program	(\$246)
Total benefits per participant	\$16,196
Cost per participant	(\$493)
Net present value	\$15,703
Benefit cost ratio	32.86
Chance that the program will break even	98%

EXAMPLE: DOUBLE-DOSE CLASSES

Time Horizon

Estimated Cumulative Net Benefits Over Time (Non-Discounted Dollars)



HIGH SCHOOL GRADUATION

More examples from WSIPP's current findings

Program	Monetary Benefits			Costs	Summary Statistics		
	Total	Tax-payer	Non Tax-payer		Benefits Minus Costs	Benefit to Cost Ratio	Odds of Positive Result
State and District early childhood education programs	\$41,684	\$13,510	\$28,174	\$7,260	\$34,424	5.74	89%
Mentoring for students: school-based (with volunteer costs)	\$28,056	\$8,708	\$19,348	\$1,847	\$26,208	15.19	73%
Quantum Opportunities Program	\$49,449	\$18,286	\$31,164	\$27,323	\$22,127	1.81	63%
Head Start	\$28,325	\$9,276	\$19,049	\$8,939	\$19,387	3.17	80%
Double-dose classes	\$16,196	\$4,431	\$11,766	\$493	\$15,703	32.86	98%

WSIPP-REPORTED RESULTS

All Research Areas

Juvenile Justice

Adult Criminal Justice

Child Welfare

Pre-K to 12 Education

Children's Mental Health

Health Care

Substance Use Disorders

Adult Mental Health

Public Health & Prevention

Workforce Development

Higher Education

Adult Criminal Justice



For questions on benefit-cost results relating to Adult Criminal Justice, contact [Elizabeth Drake](#).

Program name (click on the program name for more detail)	Date of last literature review	Total benefits	Taxpayer benefits	Non-taxpayer benefits	Costs	Benefits minus costs (net present value)	Benefit to cost ratio	Chance benefits will exceed costs
Offender Reentry Community Safety Program (for individuals with serious mental illness)	Apr. 2012	\$69,950	\$23,873	\$46,077	(\$36,726)	\$33,224	\$1.90	96 %
Circles of Support and Accountability NEW	Nov. 2016	\$28,512	\$6,931	\$21,581	(\$3,906)	\$24,606	\$7.30	92 %
Correctional education (post-secondary education) NEW	Jul. 2016	\$24,711	\$6,732	\$17,979	(\$1,248)	\$23,462	\$19.79	100 %
Employment counseling and job training (transitional reentry from incarceration into the community) UPDATED	Aug. 2016	\$23,721	\$6,632	\$17,089	(\$2,434)	\$21,287	\$9.75	97 %
Drug Offender Sentencing Alternative (for persons convicted of drug offenses) UPDATED	Nov. 2016	\$22,656	\$6,738	\$15,918	(\$1,629)	\$21,027	\$13.91	99 %
Vocational education in prison UPDATED	Jul. 2016	\$17,781	\$4,923	\$12,858	(\$1,495)	\$16,286	\$11.89	97 %
Case management ("swift, certain, and fair") for drug-involved persons UPDATED	Nov. 2016	\$15,069	\$4,389	\$10,681	\$381	\$15,451	n/a	100 %
Electronic monitoring (probation)	Dec. 2014	\$13,723	\$3,868	\$9,855	\$1,138	\$14,861	n/a	93 %
Mental health courts UPDATED	Oct. 2016	\$17,171	\$4,980	\$12,191	(\$3,106)	\$14,065	\$5.53	95 %
Intensive supervision (surveillance and treatment)	Dec. 2016	\$13,210	\$3,907	\$9,303	(\$813)	\$12,397	\$16.25	100 %
Reentry courts NEW	Aug. 2016	\$16,912	\$5,153	\$11,760	(\$4,922)	\$11,990	\$3.44	95 %

Benefits and Costs of Benefit-Cost Analysis

Benefits

- ✓ Provides additional information beyond “is this program effective?”
- ✓ Appeals to policymakers on both sides of the aisle
- ✓ Offers basis for comparison within policy areas

Costs

- ✓ Time- and labor-intensive
- ✓ Not exhaustive—we don't know how to value every outcome & results are limited to existing research base
- ✓ Does not answer all implementation questions

Thank You



Website: <http://www.wsipp.wa.gov>
E-mail: bethanne.barnes@wsipp.wa.gov