# Using Evidence to Maximize Return on Taxpayer Investment

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*T*his chapter reviews procedures for making evidence-based and cost-effective budget decisions. At the request of the Washington State Legislature, the nonpartisan Washington State Institute for Public Policy developed procedures for using evidence to maximize return on taxpayer investment for prevention and intervention programs and policies. The return on taxpayer investment has been calculated for a number of policies and programs affecting child maltreatment, crime, education, employment, housing, mental health, public assistance, public health, and substance abuse outcomes. These results detail which programs yield the greatest benefit for the least cost. For interested states, software will soon be available to allow easy access to the Institute's findings and procedures. With this software, states can replicate these analyses based on their own demographics and program costs.

Are there more effective ways to use taxpayer money to achieve key state outcomes? At the request of the Washington State Legislature, the nonpartisan Washington State Institute for Public Policy has calculated the return on investment for a number of evidence-based prevention and intervention programs and policies.

This chapter summarizes the four-step approach used by the Institute over the last 15 years. Recently, the MacArthur Foundation and the Pew Center on the States have joined with the Washington State Legislature to fund the Institute to summarize what has been learned through the cost/benefit analyses on specific policy issues and how these lessons could be applied more broadly to state budget decisions.

When the project is complete, the Institute will have produced an investment guide—a comprehensive list of the cost effectiveness of programs and policies that improve outcomes for individuals, children, and families.[1] These results and procedures will be made available to interested policymakers through user-friendly software.

*The Institute is producing an investment guide of cost-effective programs and policies that improve outcomes for individuals, children, and families.*

## What is Washington State's Experience with Evidence-Based Budgeting?

For the last 15 years, the Washington State Legislature has requested evidence-based and cost-beneficial data on several issues:

- child maltreatment,
- crime,
- employment,
- housing,
- K–12 education,
- mental health,

- public assistance,
- public health, and
- substance abuse.[2-6]

These requests have raised two fundamental policy questions of interest to policymakers:

1) How can state government better achieve particular public outcomes, while providing citizens with a superior return on their tax dollars?

2) Can the legislature use "evidence" and "costs and benefits" to help craft strategic public policies that lead to measurable improvements in key statewide outcomes?

The Washington State Institute for Public Policy has developed procedures to respond to these questions and to maximize return on taxpayer investment. For example, the Legislature asked the Institute to identify evidence-based public policies shown to improve high school graduation rates. The rate of students in Washington State who graduate on time has not increased for several decades.[7] Thus, the project will examine:

- What evidence-based public policies could lead to improved high school graduation rates in Washington?

- Which of these public policies can also pass an economic test producing benefits that exceed costs?

- If Washington adopted a combination of the best policies, how could policymakers expect the state's high school graduation rate to change over the next decade?

- What are the measurable benefits to Washington's economy, and how could taxpayer costs of other public services, such as prisons or health care, be reduced if graduation rates increase?

*Based on cost-benefit studies, the Washington State Legislature has altered funding priorities to invest heavily in programs and policies shown to be cost-effective.*

The purpose of this project is to address these types of questions for the array of public outcomes listed above. The Washington State Legislature can then use the results to make funding decisions. For example, in the past, the Legislature has altered funding priorities and invested heavily in programs and policies that have been shown to work in a cost-effective manner.

## How Does the Research and Analysis Work?

Over the last decade, we at the Institute have developed and improved a consistent four-step analytical process:

1) We assess evidence on what works.

2) We calculate costs and benefits for Washington and produce a *Consumer Reports*-like list of public policy options.

3) We provide a "portfolio-level" analysis to look beyond a single study to examine how a set of policy options affects statewide outcomes of interest.

4) We measure the riskiness in our conclusions by testing how bottom lines vary when assumptions of the study are changed.

Each of these steps is described below:

## Step 1: Review of the Research Evidence on What Works (and What Does Not).

For each of the topics we study, we begin by carefully analyzing all high-quality research from anywhere in the United States and abroad to determine which options have best achieved desired outcomes (and which ones have not). We look for research studies with strong, credible evaluation designs and we discard studies with weak designs.

The goal of this stage of the analysis is to estimate an expected effect of "actionable" public policies. By "actionable," we mean the identification of specific kinds of decisions that state legislators can or do make when they craft legislation. We then systematically assess the entire research literature on a given topic using a process called meta-analysis. Instead of just reporting the results of one or two favorite studies, a competently done meta-analysis reviews all the credible studies on a topic, and carefully screens and adjusts the size of the effects depending upon the rigor of the research and other factors. Based on credible evidence, this process produces an average expected effect, as well as a measure of uncertainty.

## Step 2: Compute the Economics (Costs and Benefits) of Specific Policy Options.

After Step 1, we estimate the average effect of a policy or program. We then insert costs and benefits into the analysis by answering two further questions: (1) How much does it cost to produce the effect found in Step 1, and (2) How much is it worth to people in Washington to achieve the outcome?

We summarize the economic findings by reporting standard financial statistics: net present values, benefit-cost ratios, and return on investment. We also present the estimates from three distinct perspectives: the benefits that accrue directly to program participants; the benefits received by taxpayers; and the benefits to non-participants and non-taxpayers that don't fall into the other two categories. The addition of these three perspectives provides a "total state" bottom line.

For example, an early childhood education program may directly benefit the participant by increasing his or her lifetime economic earnings. It may also directly benefit taxpayers in two ways: some of these earnings will be taxed and other program benefits, such as reduced crime, will lower taxpayer costs of the criminal justice system. Finally, the program may achieve benefits for non-participants in other ways, such as reducing the costs of being a crime victim. Adding these three perspectives produces a total state perspective. We have found that it is useful in the public policy process to provide information for all three perspectives. Each can help answer specific questions that arise when legislators are considering particular policy options.

## Step 3: Analyze "Portfolio-Level" Effects.

The main products of Steps 1 and 2 are *Consumer Reports*-like lists of what works and what does not. We rank specific policy options according to estimates of those that provide the greatest benefit for the least cost. That information has proven to be helpful to Washington legislators as they make decisions. What is even more helpful, we have found, is to estimate how a set of adopted policies are likely to achieve broad public policy goals. In this

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*We rank specific policy options according to estimates of those that provide the greatest benefit for the least cost.*

third analytic step, we move beyond estimates of individual programs and policies; instead, we estimate the degree to which a portfolio of adopted policies is likely to affect measurable statewide outcomes.

*The Washington State Legislature placed a fiscal bet that evidence-based programs will deliver better results for taxpayers.*

For example, in the 2007 session, the Legislature began to use the Institute's estimates and invested in a portfolio of evidence-based and economically sound prevention, juvenile justice, and adult corrections programs. These programs are expected to reduce Washington State's crime rate, the need to build additional prisons, and criminal justice spending by state and local municipalities. In effect, the Washington Legislature placed a fiscal bet that these evidence-based programs will deliver better results for the taxpayers who are footing the bill.

**Step 4: Conduct Uncertainty Analysis to Assess the Riskiness of the Bottom-Line Estimates.** Our final analytical step involves testing the robustness of our results. Single-point bottom lines offer a convenient finding. Yet a considerable amount of uncertainty can exist in any estimates of benefits and costs, so it is important to see how conclusions change when assumptions are altered. This type of risk and uncertainty analysis is commonly used by many businesses in private sector decision making. We use the same tools to test the riskiness of the public sector options we have been assigned to study.

To do this, we perform an analysis to determine the probability that our estimates would produce a contrary finding—that is, that money would be lost rather than gained if a particular policy were adopted. Thus, this analysis produces two bottom-line statistics: an expected value of overall benefits minus costs, and an estimate of the risk that a given strategy could produce negative net benefits.

## What Resources are Available on Evidence-Based Budgeting?

Because of its success in Washington, we have been asked to develop user-friendly software that will allow easy access to the Institute's findings and procedures. Other interested states can use this software to adapt Washington's approach to their own state. With this tool, states can replicate these analyses based on their own demographics and program costs. State-specific benefits to taxpayers can be calculated for different portfolios of policy options. A final report on the project is expected in June 2011.

## Conclusion

The Washington State Legislature requested investment advice on how to better use taxpayer money to achieve key public outcomes. In response, procedures for making evidence-based and cost-effective budget decisions were developed by the Washington State Institute for Public Policy. This project offers an investment guide that details which programs provide the most benefit at the least cost. This comprehensive list of programs and policies that improve outcomes for individuals, children, and families in Washington can result in a more cost-efficient use of public resources. Soon software will be released that allows interested policymakers to replicate these analyses in ways that are tailored to a state's demographics and program costs.

*Mr. Steve Aos is the Director of the Washington State Institute for Public Policy, a nonpartisan research arm of the Washington State Legislature. He has 34 years of experience conducting cost-benefit analyses and communicating the results to policymakers and the private sector. His cost/benefit studies cover a wide range of public policies including crime, K–12 education, substance use, and child abuse/ neglect. In fact, one of his earlier analyses has been downloaded 32,000 times. He is currently leading a project funded by the MacArthur Foundation and the Pew Center on the States on advancing the use of evidence and economics in state policymaking.*

This chapter was adapted from the following publication:

Aos, S. (2010, October). *Return on (taxpayer) investment: Evidence-based prevention and intervention* (Document No. 10-10-1201). Retrieved from http://www.wsipp.wa.gov/pub. asp?docid=10-10-1201

The reader is also referred to a chapter by Steve Aos, "Evidence-based public policy options to reduce criminal justice costs and crime rates" in the Wisconsin Family Impact Seminar briefing report, *Cost-effective approaches in juvenile and adult corrections: What works? What doesn't?* Retrieved from http://www.familyimpactseminars.org/s_wifis25c02.pdf[8]

## Endnotes

[1]Engrossed Substitute H. B.: 1244, Washington State Operating Budget, 4 Laws of 2009 § 564-610 (2009).

[2]Aos, S., Miller, M., & Drake, E. (2006). *Evidence-based public policy options to reduce future prison construction, criminal justice costs, and crime rates* (Document No. 06-10-1201). Olympia: Washington State Institute for Public Policy.

[3]Lee, S., Aos, S., & Miller, M. (2008). *Evidence-based programs to prevent children from entering and remaining in the child welfare system: Benefits and costs for Washington* (Document No. 08-07-3901). Olympia: Washington State Institute for Public Policy.

[4]Aos, S., Miller, M., & Pennucci, A. (2007). *Report to the Joint Task Force on Basic Education Finance: School employee compensation and student outcomes* (Document No. 07-12-2201). Olympia: Washington State Institute for Public Policy.

[5]Aos, S., Miller, M., & Mayfield, J. (2007). *Benefits and costs of K–12 educational policies: Evidence-based effects of class size reductions and full-day kindergarten* (Document No. 07-03-2201). Olympia: Washington State Institute for Public Policy.

[6]Aos, S., Mayfield, J., Miller, M., & Yen, W. (2006). E*vidence-based treatment of alcohol, drug, and mental health disorders: Potential benefits, costs, and fiscal impacts for Washington State* (Document No. 06-06-3901). Olympia: Washington State Institute for Public Policy.

[7]Lieb, R., Aos, S., & Pennucci, A. (2007). *Basic Education Finance Joint Task Force: Initial report to the Joint Task Force* (Document No. 07-09-2201). Olympia: Washington State Institute for Public Policy.

[8]Aos, S. (2007). Evidence-based public policy options to reduce criminal justice costs and crime rates. In K. Bogenschneider & H. Normandin (Eds.), *Cost-effective approaches in juvenile and adult corrections: What works? What doesn't?* (Wisconsin Family Impact Seminar Briefing Report No. 25; pp. 13-23). Madison, WI: Policy Institute for Family Impact Seminars.

# Glossary

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**Actionable Public Policies**

The identification of specific kinds of decisions that state legislators can or do make when they craft legislation.

**Benefit-Cost Ratio**

An economic indicator of cost-effectiveness, computed by dividing present value benefits by present value costs, which indicates the amount of benefits returned for each dollar invested.[1]

**Cost-Benefit Analysis (or Benefit-Cost Analysis)**

A technique used to compare the total expected costs associated with an investment to the benefits that it proposes to return. Both tangible and intangible factors should be addressed and accounted for in costs and benefits.[2]

**Evidence-Based**

Refers to intervention and treatment approaches that have been shown effective through research and evaluation studies that meet established standards of scientific rigor.[3]

**Meta-Analysis**

A process by which findings from several individual studies that address a common problem are statistically integrated and analyzed to determine an average effect size for a treatment or intervention.[4]

**Net Present Value**

The result of subtracting the total present value of costs from the total present value of benefits to obtain a net benefit or cost. All future benefits or costs are first converted into current or "present" dollar values.[5]

**Uncertainty Analysis (or Sensitivity Analysis)**

A technique of assessing the extent to which changes in assumptions or input variables will affect the ranking of alternatives.[6]

# Glossary Endnotes

[1, 5, 6]Administration for Children and Families, and Health Care Finance Administration. (1993). Appendix B: Glossary. In *Feasibility, alternatives, and cost/benefit analysis guide.* Retrieved from http://www.acf.hhs.gov/programs/cb/systems/sacwis/cbaguide/appendixb.htm

[2]U.S. Government Accountability Office. (1998). *BPR glossary of terms.* Retrieved from http://www.gao.gov/special.pubs/bprag/bprgloss.htm

[3]Re-Entry Policy Council. (2005). *Report of the Re-Entry Policy Council: Charting the safe and successful return of prisoners to the community.* Retrieved from http://www.reentrypolicy.org/publications/1694;file

[4]The Community Guide. (2010). *Guide to community preventive services glossary.* Retrieved from http://www.thecommunityguide.org/about/glossary.html