Using Taxpayer Dollars Wisely: The Costs and Benefits of Incarceration and Other Crime Control Policies

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his cost benefit analysis reveals that policymakers can affect the level of crime by making decisions that influence the rate of incarceration, as well as by making decisions on rehabilitation and prevention strategies. This study finds that a 10% increase in the state incarceration rate leads to a 2% to 4% reduction in the crime rate. Conversely, a 10% decrease in the state incarceration rate leads to a 2% to 4% increase in the crime rate. According to the economic law of diminishing marginal returns, however, the more incarceration rates are increased, the less each additional prison cell will be able to reduce crime. For Washington State, incarcerating more violent and high-volume property offenders continues to generate more benefits than cost, although the net advantage has decreased significantly since 1980. For drug-related offenders, however, it now costs taxpayers more to incarcerate additional offenders than the average value of the crimes avoided. This analysis also shows that some research-based and well-implemented rehabilitation and prevention programs can produce better returns for taxpayers' dollars than further prison expansion for certain types of offenders. For example, some but not all drug treatment programs for adult offenders and some but not all family-focused approaches for juvenile offenders have proven to be cost-effective crime reduction strategies. The Washington State Legislature has recently adopted sentencing policies and treatment programs to implement some of these strategies. The general lesson from the research is this: business-like economic analysis can be used by legislatures to give taxpayers a better return on their crime-fighting dollars.

In the past twenty years, the United States has seen a 220% increase in the incarceration rate. That is, incarceration rates, defined as the percent of the total adult population incarcerated on an average day, have more than doubled in the last two decades. During this same time period, violent crime rates have declined 15% nationally, and property crime rates are down almost a third (32%). For years, academic experts have argued about whether incarceration rates and crime rates are related to one another. While some argue that there is no relation between imprisonment and the number of crimes committed each year, others believe that the two are closely linked.

This chapter provides a summary of a cost-benefit analysis of a wide array of different public policies that attempt to control crime—from prevention programs to prison. Using data from Washington State, this chapter addresses three main questions. First, does prison affect crime rates for different types of crimes? Second, will further increases in the incarceration rate continue to have the same effect on crime as they have in the past? Answers to these two questions provide some of the information needed to address yet a third question: What are the

costs and benefits of various polices for controlling crime? The study presents comparative economic "bottom lines" for a number of public crime control policies—from prevention to prison—and concludes that, in Washington State, policymakers can modify some existing policies to give taxpayers a better overall return on their crime-fighting dollars.

How Do State Sentencing Laws Affect Incarceration Rates?

Each of the 50 states has developed its own system for sentencing adults and juveniles convicted of felonies. The main sentencing decisions that must be made in each state include determining which offenders will be incarcerated and for how long. In more than half of the states, the judicial branch of government (judges and juries) has considerable flexibility in making these decisions. Also, executive branch agencies, such as parole boards and correctional agencies, in these states typically have significant influence over how long offenders remain in prison.

In contrast, Washington's legislature has asserted the primary role in making decisions about punishments for felony offenses. As a result of bills passed in 1977 and 1981, Washington has a form of "determinate" sentencing. These laws require judges to use standard legislatively-adopted "sentencing grids" when they sentence convicted offenders. Judges can make exceptions to the statewide standards, but the grids are expected to determine the sentences for nearly all offenses. Currently, 14 other states in the U.S. have determinate sentencing systems for adult offenders, although Washington remains the only state with a form of determinate sentencing for juvenile offenders.

Does State Sentencing Policy Affect Crime Rates?

Since the 1980s, many state policymakers have turned to incarceration as the primary public policy to combat crime and administer justice. Adult incarceration rates in Washington State between 1980 and 2000 increased more than 125%, after remaining relatively stable from 1925-1980. Washington was not alone in this dramatic increase; nationally, incarceration rates during this time jumped 220%.

Crime rates have also changed significantly since 1980. In Washington, the rate of violent crime between 1980 and 2000 dropped 22%, and the rate of property crime by 28%. These numbers reflect the national trend of falling crime rates: over the same period of time, national rates of violent crime have gone down by 15%, and property crimes have declined by 32%.

Are these two trends—incarceration rates and crime rates—related? After studying these factors statistically by controlling for economic, demographic, and other criminal justice trends, our analysis indicates that Washington policymakers do affect the crime rate by influencing the incarceration rate. We found that a 10% increase in the state incarceration rate leads to a 2% to 4% reduction in the crime rate. This same relationship works in reverse: a 10% decrease in state imprisonment results in a 2% to 4% increase in crime. This finding for Washington State is quite similar to the results that other analysts have obtained using data from other states. Furthermore, we found that this basic relationship varies for different types of offenders (that is, violent, property, and drug offenders) and for different types of crimes.

A 10% increase in the state incarceration rate leads to a 2%-4% decrease in the crime rate.

What Are the Costs of Increasing Incarceration?

The decline in crime rates comes at a cost to taxpayers, as data from Washington State can attest. Rising costs associated with corrections fall into four main areas:

- Police:
- Criminal courts and prosecutors;
- ❖ Local government sanctions for adults and juveniles, including jail, juvenile detention, and local community supervision; and
- ❖ State government sanctions for adults and juveniles, including the department of corrections and the juvenile rehabilitation administration.

When all of these factors are examined together, it is clear that there has been a substantial increase in the level of public spending on Washington's criminal justice system. Today, the average household in Washington spends about \$1,062 in taxes per year to fund the state's crime-fighting budget. Twenty-five years ago, after adjusting for inflation, the typical household spent \$539 per year. This means that inflation-adjusted taxpayer spending on the criminal justice system has nearly doubled since 1975.

While the police employment rate (officers per 1,000 residents) has grown about 13% in the past 20 years in Washington, the main factor driving criminal justice system spending has been the increased use of incarceration in county jails and state prisons. Over the period for which data are available, total criminal justice system spending has increased in step with changes in the rate of incarceration. Thus, while prison reduces crime, prisons also cost a lot of money. The analytical question is: What is the cost-benefit balancing point?

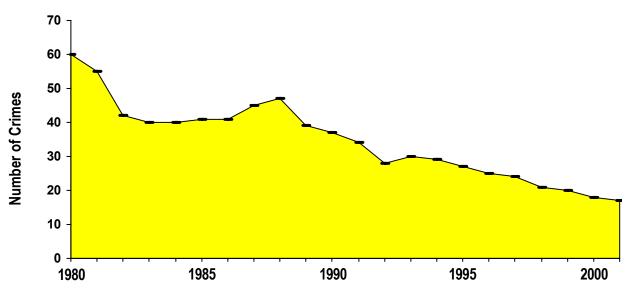
Will Increasing Incarceration Continue to Keep Crime Rates Down?

The key to understanding the costs and benefits of prison as a crime-control strategy is the economic concept of diminishing marginal returns—widely regarded as one of the "iron laws" of economics. When applied to prison policy, this means that as the state of Washington increased the incarceration rate significantly in the last two decades, the ability of the additional prison beds to reduce crime has declined. In 1980, the state had about two people per 1,000 behind bars; today the rate is over five people per 1,000. Diminishing returns means that locking up the fifth person per 1,000 did not, on average, reduce as many crimes as did incarcerating the second, third, or fourth person per 1,000.

For example, when the state incarceration rate first began to expand in the early 1980s, there were, on average, 50 to 60 crimes avoided per year by imprisoning one more offender per 1,000 Washingtonians. As the prison system continued to expand, however, the number of crimes avoided per average new prisoner declined. By 2001, we estimate that 18 crimes were avoided per year by adding a new prison bed. Therefore, as shown in Figure 1, we found that an increase in the incarceration rate today avoids considerably fewer crimes than it did just a decade or two ago.

An increase in the incarceration rate today avoids fewer crimes than it did a decade ago.

Figure 1. Crimes Avoided Per Year, Per Average Inmate Added in the State of Washington's Prisons: 1980 to 2001



Source: http://www.wsipp.wa.gov/crime/pdf/SentReport2002.pdf

Are the Costs and Benefits of Incarceration the Same for All Types of Offenders?

To be more useful for policy purposes, the costs and benefits of incarceration were analyzed separately for violent, property, and drug offenders. The following cost-benefit ratios were computed by: (1) adding the victimization and taxpayer costs avoided for each type of crime, and (2) dividing by the estimated costs of the criminal justice system. (The 1980 figure for drug offenders is not meaningful because so few drug offenders were in prison in that year.)

Table 1. Incarceration Rates: Benefit to Cost (B/C) Ratios¹
(Dollar of Benefit Received per Dollar Invested)
for Various Types of Offenders in Washington State

Type of Offender	Year	Benefit/ Cost Ratio
Violent	1980	\$10.70
	1990	\$6.60
	2001	\$2.74
Property	1980	\$4.19
	1990	\$5.03
	2001	\$2.84
Drug	1980	\$9.22
	1990	\$0.98
	2001	\$0.37

¹The benefit-to-cost ratios for each type of offender are computed by summing the products of avoided crimes for each crime type by the victimization and taxpayer cost per crime. This sum is then divided by the estimate total costs of a year in prison. Few drug offenders were in prison in 1980; the benefit-cost ratio is not meaningful for that year.

Looking back to 1980, there was a substantial benefit to taxpayers and crime victims to expand the prison system, especially for violent offenders. As incarceration rates increased over the next two decades, however, diminishing returns began to erode the benefits of prison expansion.

Today, even given diminishing returns, incarcerating more violent and high-volume property offenders continues to generate more benefits than costs. During the 1990s, however, the economic bottom line for increasing the incarceration rate for drug offenders turned negative. That is, it now costs Washington taxpayers more to incarcerate additional drug-involved offenders than the average value of the crimes avoided.

What Are Cost-Effective Alternatives to Incarceration?

Our research has shown that some research-based and well-implemented rehabilitation and prevention programs can produce better returns for the taxpayer's dollar than prison expansion. We determined these results by systematically reviewing over 400 evaluations of programs conducted anywhere in the United States over the last 25 years. We then estimated the economics of these programs, asking the question: Would Washington taxpayers be better or worse off if they were to implement any of these programs?

This approach is similar to that used by a financial advisor to study rates of return on mutual funds, bonds, or other investments. A financial advisor compares these different options using the rate of return on investment as the common yardstick. Similarly, our cost benefit analysis focuses on the comparative economic bottom line. That is, given existing research evidence, which programs and policy options are likely to yield better returns than others to Washington taxpayers?

Table 2 lists the type of programs reviewed (Early Childhood Programs; Middle Childhood and Adolescent Programs; Juvenile Offender Programs; and Adult Offender Programs) as well as their costs and benefits. Column 3 is an estimate of the cost of the program per participant. Columns 4 and 5 show the estimated net economics of the program—that is, the benefits that a program is expected to produce in terms of future crime reduction, minus the costs of the program. Column 4 shows the bottom line from the "taxpayer-only" perspective—for every dollar of taxpayer money spent on a program, can rates of future criminal activity be reduced to avoid at least that amount in later taxpayer-financed criminal justice costs? A negative number means that the program does not provide a positive return on taxpayer investment. Column 5 provides an estimate that includes a broader perspective: the benefits of the avoided crime are those that not only accrue to taxpayers but, since fewer crimes mean fewer crime victims, we also include estimates of the victimization costs avoided. The costs to crime victims are obtained from national sources which include: (1) victim out-of-pocket costs for medical spending, property damage, and reductions in future earnings, and (2) quality of life costs calculated from jury awards for pain, suffering, and loss of quality of life. The results are also summarized graphically in Figure 1, which plots each type of program on a graph with three points: 1) the lower end of the range is the net value to taxpayers; 2) the higher value includes benefits to taxpayers and crime victims; and 3) the mid-point is the average.

Today, incarcerating drug-involved offenders costs taxpayers more than the value of crime avoided.

Table 2: Summary of Program Economics (All Monetary Values in 2000 Dollars)

	Number of Program Effects in	Average Size of the Crime Reduction	Net Direct Cost of the Program,	Net Benefits Per Participant (i.e., Benefits minus Costs)	Per l	Participant us Costs)
	the Statistical Summary	Effect* & (Standard Error) note that a negative effect size means lower crime	Per Participant	Lower End of Range: Includes Taxpayer Benefits Only	ם אַ	Upper End of Range: Includes Taxpayer and Crime Victim Benefits
	(1)	(2)	(3)	(4)		(5)
Early Childhood Programs						
Nurse Home Visitation (for low income single mothers)	7	-0.29 (0.21)	\$7,733	-\$2,067	to	\$15,918
Early Childhood Education for Disadvantaged Youth	9	-0.10 (0.04)	\$8,936	-\$4,754	to	\$6,972
Middle Childhood & Adolescent (Non-Juvenile Offender)	der) Programs	ms				
Seattle Social Development Project	1	-0.13 (0.11)	\$4,355	-\$456	to	\$14,169
Quantum Opportunities Program	-	-0.31 (0.20)	\$18,964	-\$8,855	Ç	\$16,428
Mentoring	Ν	-0.04 (0.05)	\$1,054	\$225	Ç	\$4,524
National Job Corps	Γ	-0.08 (0.03)	\$6,123	-\$3,818	ţ	\$1,719
Job Training Partnership Act	1	0.10 (0.05)	\$1,431	-\$4,562	to	-\$12,082
Juvenile Offender Programs						
Specific "Off the Shelf" Programs						
Multi-Systemic Therapy	ю	-0.31 (0.10)	\$4,743	\$31,661	ç	\$131,918
Functional Family Therapy	7	-0.25 (0.10)	\$2,161	\$14,149	Ç	\$59,067
Aggression Replacement Therapy	4	-0.18 (0.14)	\$738	\$8,287	t t	\$33,143
Multidimensional Treatment Foster Care	N	-0.37 (0.19)	\$2,052	\$21,836	t t	\$87,622
Adolescent Diversion Project	5	-0.27 (0.07)	\$1,138	\$5,720	t t	\$27,212
General Types of Treatment Programs						
Diversion with Services (vs. regular juvenile court processing)	13	-0.05 (0.02)	-\$127	\$1,470	ţ	\$5,679
Intensive Probation (vs. regular probation caseloads)	۷	-0.05 (0.06)	\$2,234	\$176	t t	\$6,812
Intensive Probation (as alterantive to incarceration)	9	0.00 (0.05)	-\$18,478	\$18,586	ţ	\$18,854
Intensive Parole Supervision (vs. regular parole caseloads)	۷	-0.04 (0.06)	\$2,635	-\$117	t t	\$6,128
Coordinated Services	4	-0.14 (0.10)	\$603	\$3,131	to	\$14,831
Scared Straight Type Programs	ø	0.13 (0.06)	\$51	-\$6,572	to	-\$24,531
Other Family-Based Therapy Approaches	9	-0.17 (0.04)	\$1,537	\$7,113	to	\$30,936
Juvenile Sex Offender Treatment	5	-0.12 (0.10)	\$9,920	-\$3,119	to	\$23,602
Juvenile Boot Camps	10	0.10 (0.04)	-\$15,424	\$10,360	to	-\$3,587

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	the Statistical Summary	Effect* & (Standard Error) note that a negative effect size means lower crime	Per Participant	Lower End of Range: includes Taxpayer Benefits Only	ב אַ	Upper End of Range: Includes Taxpayer and Crime Victim Benefits
	(1)	(2)	(3)	(4)		(5)
Adult Offender Programs						
Adult Offender Drug Treatment Programs (compared to no treatment)						
In-Prison Therapeutic Community, No Community Aftercare	2	-0.05 (0.05)	\$2,604	-\$899	to	\$2,365
In-Prison Therapeutic Community, With Community Affercare	1	-0.08 (0.02)	\$3,100	-\$243	to	\$5,230
Non-Prison TC (as addition to an existing community residential facility)	Ŋ	-0.17 (0.10)	\$2,013	\$4,110	ð	\$15,836
In-Prison Non-Residential Substance Abuse Treatment	5	-0.09 (0.03)	\$1,500	\$1,672	Q.	\$7,748
Drug Courts	27	-0.08 (0.02)	\$2,562	-\$109	ð	\$4,691
Case Management Substance Abuse Programs	12	-0.03 (0.03)	\$2,204	-\$1,050	þ	\$1,230
Community-Based Substance Abuse Programs	е	-0.07 (0.05)	\$2,198	\$237	ð	\$5,048
Drug Treatment Programs in Jails	7	-0.05 (0.05)	\$1,172	\$373	þ	\$3,361
Adult Sex Offender Treatment Programs (compared to no treatment)						
Cognitive-Behavioral Sex Offender Treatment	7	-0.11 (0.05)	\$6,246	-\$778	þ	\$19,534
Adult Offender Intermediate Sanctions (compared to regular programs)						
Intensive Supervision (Surveillance-Oriented)	19	-0.03 (0.03)	\$3,296	-\$2,250	to	-\$384
Intensive Supervision (Treatment-Oriented)	9	-0.10 (0.06)	\$3,811	-\$459	to	\$5,520
Intensive Supervision: Diversion from Prison	ဗ	0.00 (0.08)	-\$5,925	\$6,083	to	\$6,386
Adult Boot Camps	11	0.00 (0.03)	-\$9,725	\$9,822	to	\$10,011
Adult Boot Camps - As partial diversion from Prison	1-	0.00 (0.03)	-\$3,380	\$3,477	to	\$3,666
Cognitive-Behavioral Programs (compared to no treatment)						
Moral Reconation Therapy	80	-0.08 (0.05)	\$310	\$2,471	þ	\$7,797
Reasoning and Rehabilitation	9	-0.07 (0.04)	\$308	\$2,202	to	\$7,104
Other Programs (compared to no treatment or regular programs)						
Work Release Programs (vs. in-prison incarceration)	N	-0.03 (0.11)	\$456	\$507	þ	\$2,351
Job Counseling/Search for Inmates Leaving Prison	9	-0.04 (0.02)	\$772	\$625	to	\$3,300
In-Prison Adult Basic Education	ю	-0.11 (0.05)	\$1,972	\$1,852	to	\$9,176
In-Prison Vocational Education	7	-0.13 (0.04)	\$1,960	\$2,835	to	\$12,017
Correctional Industries Programs	3	-0.08 (0.02)	\$1,800	\$1,147	to	\$9,413

"The summary effect size shown on this table for each area is the weighted average standarized mean difference effect size. For those studies with bi-variate outcome measures, the mean difference effect sizes are approximated using the acrisine transformation as described in Lipsey & Wilson (2000), page 49, Equation 3.22. The weights are the inverse variance weights as described in Lipsey & Wilson (2000), page 49, Equation 5.23 and 3.24.

Early childhood programs: What works and what doesn't? The cost-benefit analysis examines the effectiveness of nurse home visitation and early childhood educational programs for disadvantaged youth. From a taxpayer-only perspective, the benefits of reductions in future criminality do not pay back the up-front costs of the programs. When the crime victim benefits are factored in, however, the programs provide a return of \$3.06 and \$1.78 respectively for every dollar spent. Of course, the cost effectiveness of these programs would be higher if our analysis took into account other documented benefits, such as better school performance, fewer births, and less time on welfare. The 2003 Washington Legislature directed the Institute to undertake an economic analysis of these other benefits (that report will be completed by March 2004).

Middle childhood and adolescent (non-juvenile offender programs): What works and what doesn't? Mentoring programs and a social development program for high risk schools for this age group are designed to promote students' bonding to the family and the school. From a taxpayer's perspective, this analysis found that these programs break even and that they earn positive returns when considering the crime victim costs avoided. However, the National Job Corps, the Job Training Partnership Act, and the Quantum Opportunities Program which provide education, services, and development activities to disadvantaged adolescents were not cost effective from the taxpayer's perspective only, although the Quantum Opportunities Program produced positive returns when considering victimization benefits.

Programs for juvenile offenders: What works and what doesn't? According to our estimates on Table 2, the economics of these programs are the most attractive of any of the programs reviewed in the cost-benefit analysis. Those with a prescribed curriculum were more effective than those without. The benefits to taxpayers for the juvenile programs with a prescribed curriculum ranged from \$5,720 to \$31,661 per participant. When victim costs are considered, taxpayers receive a return of \$28 to \$46 for every dollar spent (see Figure2). Most of these programs are designed for youthful offenders in a juvenile court setting, or as an alternative to juvenile court processing. Three of the five most cost-effective programs are approaches that deliberately work with families, which has the potential not only to benefit the young offender, as these analyses indicate, but also siblings growing up in the family.

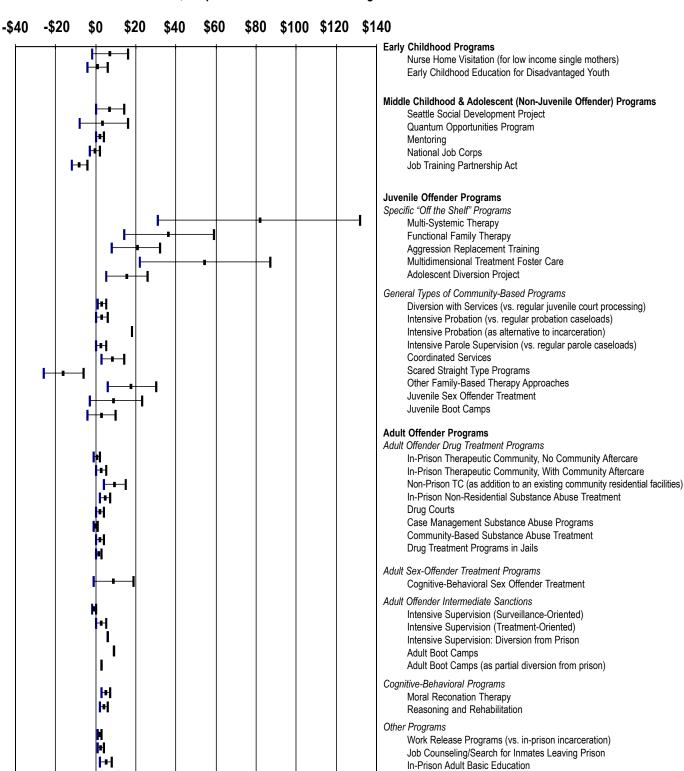
Although the effects are not as strong as those above, taxpayers also benefit from programs such as diversion with services (compared to regular juvenile court processing), intensive probation (as alternative to incarceration), coordinated services, and other family-based therapy programs.

On the other hand, "Scared Straight" type programs apparently generate no net benefit. These programs typically take young juvenile offenders to an adult prison where they are lectured by adult offenders about how their life will turn out if they do not change their ways. Additionally, studies of juvenile boot camps actually show that the average camp increases recidivism rates by 10% compared to regular juvenile institutional facilities. Our evaluation of Washington's juvenile boot camp, however, reached the opposite conclusion.

Programs for juveniles are economically the most attractive; three of the five that are most cost-effective deliberately work with families.

Figure 2. Net Economic Benefits of Programs Designed to Reduce Crime, Monetary Values in 2000 Dollars

Net economic benefit (cost) per participant, thousands of dollars
The lower value in the range is the taxpayer estimate, the higher value
includes crime victim benefits, the point in the middle is the average.



In-Prison Vocational Education Correctional Industries Program **Programs for adult offenders: What works and what doesn't?** Generally, drug treatment for adult offenders works to lower recidivism rates. The reductions are not large, but are still cost-effective given that treatment costs are moderate at about \$2,500 per participant. The average cognitive-behavioral sex offender treatment program saves more than it costs, although this finding depends on the specific type of program implemented.

Programs such as work release, job counseling, in-prison adult and vocational education, and correctional industries provided a return greater than the taxpayer investment. Intensive supervision and adult boot camps were cheaper than prison, but neither was successful in deterring future crime.

One of the least cost effective adult offender interventions is surveillance-oriented intensive supervision. The economics of surveillance-oriented intensive supervision are not attractive: taxpayers lose \$2,250 per participant and the losses are still evident even when the crime victim perspective is included.

Conclusion: What Are the Lessons Learned from a Cost-Benefit Analysis of Incarceration and Other Programs to Reduce Crime?

In the last two decades, research has advanced on what works and what doesn't to reduce crime. Now that information can be used to help policymakers direct resources toward programs that are cost effective and away from those that are not. Thus, even in the absence of new funding sources, policymakers can make "portfolio" adjustment decisions that will provide taxpayers with a better return on their investment. The major lessons learned for Washington State are:

- ❖ A 10% increase in the state incarceration rate leads to a 2% to 4% reduction in the crime rate.
- ❖ Due to diminishing marginal returns, and as a result of significant increases in incarceration rates in recent years, an increase in the incarceration rate today avoids considerably fewer crimes than it did just a decade ago.
- ❖ Incarcerating more violent and high-volume property offenders continues to generate more benefits than costs, although the net advantage of increasing incarceration rates for these offenders has diminished.
- Since the early 1990s, however, incarcerating drug offenders has generated more costs than benefits. That is, today it costs taxpayers more to incarcerate additional drug-involved offenders than the average value of the crimes avoided.
- Some research-based and well-implemented rehabilitation and prevention programs can produce better returns for the taxpayer's dollar than prison expansion for certain types of offenders. Several research-based interventions, particularly family-based approaches for juvenile offenders and drug treatment for drug-related adult offenders, have returns well in excess of their costs.

Incarcerating violent and high-volume property offenders continues to generate more benefits than costs.

The Washington State Legislature has recently adopted sentencing policies and treatment programs to implement some of these strategies. The general lesson from this research is this: business-like economic analysis can be used by legislatures to give taxpayers a better return on their crime fighting dollars.

This paper is based on the following three publications which are available in full on the Washington State Institute for Public Policy's web page at the following locations.

Aos, S., Phipps, P., Barnoski, R. and Lieb, R. (May, 2001). The Comparative Costs and Benefits of Programs to Reduce Crime. Washington State Institute for Public Policy. http://www.wsipp.wa.gov/crime/pdf/costbenefit.pdf

Aos, S. (January, 2003). The Criminal Justice System in Washington State: Incarceration Rates, Taxpayer Costs, Crime Rates, and Prison Economics. Washington State Institute for Public Policy. http://www.wsipp.wa.gov/crime/pdf/SentReport2002.pdf

Aos, S., & Barnoski, R. (October, 2002). The Juvenile Justice System in Washington State: Recommendations to Improve Cost-Effectiveness. Washington State Institute for Public Policy. http://www.wsipp.wa.gov/crime/pdf/WhatWorksJuv.pdf

Steve Aos is an economist and is the Interim Director of the Washington State Institute for Public Policy. He has 25 years of experience in conducting costbenefit analyses in a wide range of public policy areas, as well as in the private sector. His current work focuses on identifying and evaluating the costs and benefits of programs and policies for reducing crime in Washington State. Mr. Aos is also involved in evaluating Washington's foster care system and has many years of experience in energy and telecommunications policies. He has worked for the Washington State Budget Office, Seattle City Light, The Northwest Power Planning Council, the Washington Utilities and Transportation Commission, and he has run his own consulting firm where he wrote a newsletter on Washington State's economy. He received his BA from California State University and his MS from the University of California, Irvine