Crime Prevention

Overview

This paper outlines our approach to measuring the impact of crime prevention programs in the Canadian context. In particular, we have explored research related to the short- and long-term benefits to individuals and society of crime prevention. Appendix III provides a partial bibliography of the studies that we used to inform our model[1]. Studies were selected based on their relevancy to different aspects of our model and availability of quantitative results. Results were weighted according to things like recency, geography, research design, and overall strength. These studies represent a fraction of the existing research literature on the benefits of crime prevention, a comprehensive review of which would exceed the limits of our resources. We acknowledge this limitation, and have done our best to provide as thorough a survey of the research as possible with the studies we have selected.

The Social Return on Investment (SROI) to Crime Prevention Programs

Outcome Categories

Our research finds multiple categories of outcomes connected to crime prevention – see Table I. This is not intended as an exhaustive list of all possible outcomes connected to crime prevention.

Table I – Crime Prevention Outcome Categories

Outcome Category	Description	Client Group
Crime Victim Costs	Tangible and intangible costs to victims of crime[2].	Adults and Youth
Criminal Justice System	The cost of police, courts, and corrections as a result of crime.	Adults and Youth
Income	Legitimate income lost to a criminal offender due to incarceration or otherwise as a result of criminal offending.	Adults

Social Return on Investment Model

We use a Social Return on Investment methodology to measure the impact of charitable activities. The SROI is an estimate of the total dollar value of social benefits that are realized as a result of a charity's programs divided by the charity's costs. Costs include program, administration, and fundraising costs, as well as the cost of goods in kind used in charitable activities and amortization on assets. Data informing the costs side of the SROI equation come from a charity itself, and generally are

[1] We focus on studies that were chosen as relating specifically to crime prevention, and exclude more general sources of data that inform multiple program models.

[2] Tangible costs to victims include things like damaged or stolen property. Intangible costs refer to pain and suffering caused by crime, as well as, in the case of homicide, lost life. In our estimates of crime victim costs, we take into account the costs of crimes that go unreported. For every crime that leads to arrest, there are often many more that are not reported to police, but which still involve some amount of loss or suffering for the victims.

readily accessible. As such, we focus our research and this paper on the data informing the benefits side of the SROI equation.

The total dollar value of social benefits is the sum of the dollar values of often dozens of individual outcomes (or changes) brought about by a charity's programs. The calculation of the dollar value of a particular outcome requires knowledge of several pieces of information. We summarize these in Table II, providing examples in the context of crime prevention.

Table II – Basic Components of Social Benefits Model

Model Component	Description	Example
Number of Clients	The total unique number of clients provided a service or involved in a program (i.e., the total number of clients where each client is counted only once).	The number of clients involved in a crime prevention program (e.g., 100).
Baseline Distribution	The percentage of clients in one of potentially multiple, mutually exclusive groups which differ in some important way, leading to different outcomes.	The percentage of clients expected to offend criminally at a low, medium, or high rate (e.g., 63, 25, and 12 percent).
Marginal Success Rate	The percentage of clients who achieve an outcome, net of the percentage of clients who would have achieved the outcome anyway, even without the program.	The percentage of clients who do not offend criminally, net of the percentage who would not have offended criminally anyway (e.g., 5 percentage points).
(Annual) Outcome Value	The annual, per person dollar value of a particular change that has happened due to a program or service.	The average annual value per person of lesser criminal justice system costs due to crime prevention (e.g., $2,900).
Start and End Years	The number of years that must pass after completion of a program, 1) before the annual outcome value begins to take effect (start year), and 2) after which the annual outcome value is no longer considered (end year).	In the context of adult crime, 1) the number of years until the benefits of lesser crime are realized, and 2) the expected age at cessation of criminal activity, minus the average age of clients (e.g., 0 and 6).
(Annual) Drop-Off	The percentage of clients who initially achieve an outcome but lose it over time.	The annual percentage of clients who initially do not commit crime who commit crime subsequently (e.g., 10 percent)
Baseline Attribution	The amount of credit a charity gets for a particular outcome, typically based on its contribution to the total cost of a service or program.	The share of the total cost of a crime prevention program borne by a focal charity (e.g., 100 percent).
In addition to the above, we consider various elements of outcome value depreciation over time. In this context, *attribution decay* accounts for the fact that, over time, other factors besides the initial intervention will contribute to a client's success, such that the original (baseline) attribution percentage should fall incrementally (we have chosen a rate of 10 percent per year). Similarly, *time discounting* is a standard adjustment in the field of economics to value outcomes that are achieved earlier in time more highly than those achieved later in time (we have chosen a discount rate of 3 percent per year). These adjustments apply to all programs.		

An Example SROI

The total dollar value of social benefits of a crime prevention program will change based on several factors. We identify in Table III the variables affecting the crime prevention social benefits model.

Table III – Crime Prevention Social Benefits Model Variables

Variable	Description	Example
Number of Clients	The number of clients served.	100
Geography	The province or territory wherein clients are served, or Canada as a whole.	Canada
Age Group	The age group of clients (adults or youth).	Adult
Gender	The gender of clients (female or male[3]).	Male
Age	The average age of clients.	20
Attribution	The portion of program costs borne by the focal charity.	100 percent
Offender Distribution	The distribution of clients based on expected rate of offending (low-, medium-, or high-rate).	63, 25, and 12 percent
Marginal Success Rate, Crime Prevention	The percentage of clients who do not commit crime minus the percentage of clients who would not have committed crime even without the program.	5 percentage points
Duration of Offending	The expected number of years of criminal offending, in youth versus in adulthood.	0 and 6 years
Drop-Off	The annual percentage of clients who initially do not commit crime who commit crime subsequently.	10 percent

It is beyond the scope of this paper to identify all of the data that go into the impact model for a crime prevention program, as each outcome category involves several specific values for each of the components of our model, described in Table II. As such, a full account of each outcome would overwhelm this paper. Instead, based on the information in Table III, we present final estimates of social benefits of an example crime prevention program. In Appendix II we identify the types of data that inform the various components of our model. Some of these data are from program-specific research (e.g., the costs to victims of crime), while others are common to multiple program models (e.g., the cost of a full year of lost life).

As part of our process, we identify certain 'final' outcomes downstream from the outcome categories identified in earlier sections of this paper. We estimate the total social benefits of a program by summing the values of final outcomes. In cases where the same final outcomes are connected with multiple outcome categories, those with the greatest absolute values are included in the sum. This is to simplify the presentation of our findings and to account for potential double-counting in our model (e.g., overlapping values connected to different education outcomes, in the context of other models). We present in Table IV the total social benefits of our example crime prevention program. In Appendix I, we present our formula for bringing together all of the various components of our approach to valuing a particular final outcome – for example, in the context of crime prevention, lesser crime victim costs.

[3] Note that the binarization of this variable is for technical reasons, as we do not yet have research specific to non-binary individuals.

Table IV – Total Social Benefits, Example Crime Prevention Program

Outcome Category	Final Outcome	Total Social Benefits ($)
Crime Victim Costs	Crime Victim Costs	1,137,655
Criminal Justice System	Public Systems, Criminal Justice	89,575
Income	Cash on Hand, Income (Employment Income)	26,368
	Public Systems, Income Tax	7,982
		1,261,581

As can be seen in Table IV, the total social benefits of our example crime prevention program is about $1,300,000, or $13,000 in short- and long-term benefits per client. The SROI to this example program would then be calculated by dividing the total social benefits by the total cost of the program. Thus, if the program costs $13,000 per client, the SROI would be 1.0. If it costs $2,600, the SROI would be 5.0. That is, $5 of social value created for every $1 of costs.

These estimates are based on a particular set of circumstances, and there is a wide range of possible results for crime prevention programs. As identified in Table III, our crime prevention model involves several variables, differences in any one of which will affect the estimate of total social benefits. Depending on the unique circumstances of and data available from a charity, estimates of the impact of a program could vary considerably. In particular, the onus is on charities to present evidence showing that the effectiveness of their program matches or exceeds what we have found through our research. When charity data are not available, we make conservative assumptions about things like the effectiveness of a program, such that specific estimates of total social benefits may be smaller than those in this paper.

Appendix I – Charity Intelligence Outcome Valuation Formula

As it relates to the total social benefits of a charity program, we calculate the total dollar value of a particular outcome, for all clients who are candidate for it, using the following formula.

$$TV = \frac{\left(ba \times c \times bd \times msr \times ov \times \left((1-do)\times(1-ad)\right)^{-ys} \times \left(\left((1-do)\times(1-ad)\times(1-td)\right)^{ys} - \left((1-do)\times(1-ad)\times(1-td)\right)^{ye}\right)\right)}{1-\left((1-do)\times(1-ad)\times(1-td)\right)}$$

where:
TV is the total value of a particular outcome, for all clients
ba is baseline attribution
c is the total number of clients candidate for a particular outcome
bd is baseline distribution percentage
msr is the marginal success rate
ov is the annual per person value of an outcome
do is drop-off
ys is year start
ye is year end
ad is attribution decay
td is time discounting

Based on our example crime prevention program, we estimate the total dollar value of lesser crime victim costs due to lesser criminal activity. This value is a summation of three estimates, based on the rate of criminal offending (low-, medium-, or high-rate). Below, we identify the data informing the components of our model for valuing an outcome, for low-rate offending. Our intention here is not to explain the derivation of these data, but just to illustrate how the formula for valuing a given outcome works.

Model Component	Value
Number of Clients	100
Baseline Distribution	63.1 percent
Marginal Success Rate	5.0 percentage points
(Annual) Outcome Value	$36,783
Start Year	0.0
End Year	6.0
(Annual) Drop-Off	10.0 percent
Baseline Attribution	100.0 percent
Attribution Decay	10.0 percent
Time Discounting	3.0 percent

Inputting these data into the formula, we get:

$$= \frac{\left(100.0\% \times 100 \times 63.1\% \times 5.0\% \times \$36{,}783 \times \left((1-10.0\%)\times(1-10.0\%)\right)^{-0.0} \times \left(\left((1-10.0\%)\times(1-10.0\%)\times(1-3.0\%)\right)^{0.0} - \left((1-10.0\%)\times(1-10.0\%)\times(1-3.0\%)\right)^{6.0}\right)\right)}{1-\left((1-10.0\%)\times(1-10.0\%)\times(1-3.0\%)\right)}$$

$$= \$414{,}067^{4}$$

The comparable values for medium- and high-rate offending are $385,446 and $338,143. Summing these together, we get $1,137,655 for the total value of lesser crime victim costs.

[4] The difference between this figure and what you would get by the formula is due to rounding in the provided data.

Appendix II – Types of Data Informing Social Benefits Model Components

Crime Victim Costs	
Number of Clients	• The number of clients involved in a crime prevention program.
Baseline Distribution	• The distribution of clients based on rate of criminal offending – low-, medium-, or high-rate.
Marginal Success Rate	• The difference in the percentage of individuals who do and do not participate in a crime prevention program who do not commit crime.
(Annual) Outcome Value	• The annual tangible and intangible costs to victims per low-, medium-, and high-rate offender.
Start and End Years	• In the context of youth clients, the age at onset of criminal activity. • The average age of clients. • In the context of youth clients, the age at which youth crime becomes adult crime. • The age at cessation of criminal activity.
(Annual) Drop-Off	• The annual percentage of clients who initially do not commit crime who commit crime subsequently.
Baseline Attribution	• The charity's costs relative to the total cost of the program.
Criminal Justice System	
Number of Clients	• The number of clients involved in a crime prevention program.
Baseline Distribution	• The distribution of clients based on rate of criminal offending – low-, medium-, or high-rate.
Marginal Success Rate	• The difference in the percentage of individuals who do and do not participate in a crime prevention program who do not commit crime.
(Annual) Outcome Value	• The annual criminal justice system costs per low-, medium-, and high-rate offender.
Start and End Years	• In the context of youth clients, the age at onset of criminal activity. • The average age of clients. • In the context of youth clients, the age at which youth crime becomes adult crime. • The age at cessation of criminal activity.
(Annual) Drop-Off	• The annual percentage of clients who initially do not commit crime who commit crime subsequently.
Baseline Attribution	• The charity's costs relative to the total cost of the program.
Income	
Number of Clients	• The number of clients involved in a crime prevention program.
Baseline Distribution	• The distribution of clients based on rate of criminal offending – low-, medium-, or high-rate.
Marginal Success Rate	• The difference in the percentage of individuals who do and do not participate in a crime prevention program who do not commit crime.
(Annual) Outcome Value	• The annual value of legitimate income lost per low-, medium-, and high-rate offender.
Start and End Years	• In the context of youth clients, the age at onset of criminal activity. • The average age of clients. • In the context of youth clients, the age at which youth crime becomes adult crime. • The age at cessation of criminal activity.

(Annual) Drop-Off	• The annual percentage of clients who initially do not commit crime who commit crime subsequently.
Baseline Attribution	• The charity's costs relative to the total cost of the program.

Appendix III – Bibliography of Studies Used to Inform Crime Prevention Model

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