Teenage Parenthood

Overview

This paper outlines our approach to measuring the impact of programs intended to prevent teenage parenthood, in the Canadian context. In particular, we have explored research related to the short- and long-term benefits to individuals and society of not becoming a parent as a teenager[1]. Appendix III provides a partial bibliography of the studies that we used to inform our model[2]. 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 teenage parenthood, 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 Teenage Parenthood Prevention Programs

Outcome Categories

Our research finds multiple categories of outcomes connected to teenage parenthood – see Table I. These could be considered the various costs of teenage parenthood, or, reversely, possible benefits of avoiding teenage parenthood. This is not intended as an exhaustive list of all possible outcomes connected to teenage parenthood.

Table I – Teenage Parenthood Outcome Categories

Outcome Category	Description
High School Completion	Lesser high school completion due to teenage parenthood.
Postsecondary Completion	Lesser postsecondary completion due to teenage parenthood.
Social Assistance	Greater usage of social assistance due to teenage parenthood.
Employment Income	Lesser employment income due to teenage parenthood.

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

[1] With our teenage parenthood model, we consider the costs of teenage parenthood to teenage mothers, not to partners of teenage mothers or their children.

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

assets. Data informing the costs side of the SROI equation come from a charity itself, and generally are 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 teenage parenthood.

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 teenage parenthood 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.	In the context of high school completion, the percentage of high school graduates whose highest level of education is expected to be high school, college, university at the bachelor's level, or university at above the bachelor's level (e.g., 32, 42, 17, and 9 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 avoid teenage parenthood, net of the percentage who would have avoided teenage parenthood 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.	In the context of social assistance, the annual public cost per person of greater social assistance usage due to teenage parenthood (e.g., $1,100).
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 employment income, 1) the number of years until teenage parenthood, and 2) the start year plus the expected age at retirement minus the average age of clients (e.g., 1 and 48).
(Annual) Drop-Off	The percentage of clients who initially achieve an outcome but lose it over time.	*There is no drop-off value in the context of teenage parenthood.*
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 teenage parenthood 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 teenage parenthood prevention program will change based on several factors. We identify in Table III the variables affecting the teenage parenthood social benefits model.

Table III – Teenage Parenthood 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	The average age of clients.	17
Attribution	The portion of program costs borne by the focal charity.	100 percent
Marginal Success Rate, Prevention of Teenage Parenthood	The percentage of clients who avoid teenage parenthood minus the percentage of clients who would have avoided teenage parenthood even without the program.	5 percentage points

It is beyond the scope of this paper to identify all of the data that go into the impact model for a teenage parenthood 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 teenage parenthood 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., annual employment income among individuals who do and do not become parents as teenagers), while others are common to multiple program models (e.g., annual outcome values connected to high school completion).

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). We present in Table IV the total social benefits of our example teenage parenthood 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 teenage parenthood, lesser public costs related to social assistance.

Table IV – Total Social Benefits, Example Teenage Parenthood Program

Outcome Category	Final Outcome	Total Social Benefits ($)
High School Completion		
Income	Cash on Hand, Income (Employment Income)	~~60,677~~
	Public Systems, Income Tax	~~18,510~~
Tuition	Cash on Hand, Cost Savings (Tuition)	~~(5,202)~~
Mortality	Mortality, All Causes	23,554
Quality of Life	Quality of Life, Mental Health	2,952

		11,806
Health Care System	Public Systems, Health Care	772
Social Assistance	Public Systems, Social Assistance	~~8,683~~
Crime	Cash on Hand, Income (Employment Income)	~~164~~
	Crime Victim Costs	6,321
	Public Systems, Criminal Justice	523
	Public Systems, Income Tax	~~50~~
Postsecondary Completion		
Income	Cash on Hand, Income (Employment Income)	~~31,437~~
	Public Systems, Income Tax	~~9,726~~
Tuition	Cash on Hand, Cost Savings (Tuition)	(8,714)
Mortality	Mortality, All Causes	~~16,325~~
Quality of Life	Quality of Life, Mental Health	~~1,077~~
	Quality of Life Physical Health	~~4,307~~
Health Care System	Public Systems, Health Care	~~551~~
Social Assistance	Public Systems, Social Assistance	~~3,260~~
Social Assistance	Public Systems, Social Assistance	43,277
Employment Income	Cash on Hand, Income (Employment Income)	66,778
	Public Systems, Income Tax	20,215
		167,484

Note: Numbers with strikethrough format do not factor into the sum total social benefits. These represent values of particular final outcomes that are common to multiple outcome categories, where only the greatest absolute value of a particular outcome is included in the sum. Negative values are in parentheses.

As can be seen in Table IV, the total social benefits of our example teenage parenthood prevention program is about $170,000, or $1,700 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 $1,700 per client, the SROI would be 1.0. If it costs $340, 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 teenage parenthood prevention programs. As identified in Table III, our teenage parenthood 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 teenage parenthood prevention program, we estimate the total dollar value of lesser public costs of social assistance due to avoidance of teenage parenthood. Below, we identify the data informing the components of our model for valuing an outcome. 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	100.0 percent
Marginal Success Rate	5.0 percent
(Annual) Outcome Value	$1,122
Start Year	0.7
End Year	66.3
Drop-Off	0.0 percent
Baseline Attribution	100.0 percent
Attribution Decay	10.0 percent
Time Discounting	3.0 percent

Inputting these data into the formula, we get:

$$= \frac{\left(100.0\% \times 100 \times 100.0\% \times 5.0\% \times \$1{,}122 \times \left((1-0.0\%)\times(1-10.0\%)\right)^{-0.7} \times \left(\left((1-0.0\%)\times(1-10.0\%)\times(1-3.0\%)\right)^{0.7} - \left((1-0.0\%)\times(1-10.0\%)\times(1-3.0\%)\right)^{66.3}\right)\right)}{1-\left((1-0.0\%)\times(1-10.0\%)\times(1-3.0\%)\right)}$$

$$= \$43{,}277^{3}$$

[3] 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

High School Completion[4]	
Number of Clients	• The number of clients participating in a teenage parenthood prevention program.
Baseline Distribution	• The baseline distribution values associated with high school completion.
Marginal Success Rate	• The difference in the percentage of individuals do and do not participate in a teenage parenthood prevention program who avoid teenage parenthood. • The difference in the percentage of individuals who do and do not become parents as teenagers who complete high school.
(Annual) Outcome Value	• The annual values per person of outcomes associated with high school completion.
Start and End Years	• The start and end years of outcomes associated with high school completion.
(Annual) Drop-Off	*There is no drop-off value in the context of teenage parenthood.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.
Postsecondary Completion[5]	
Number of Clients	• The number of clients participating in a teenage parenthood prevention program.
Baseline Distribution	• The baseline distribution values associated with postsecondary completion.
Marginal Success Rate	• The difference in the percentage of individuals do and do not participate in a teenage parenthood prevention program who avoid teenage parenthood. • The difference in the percentage of individuals who do and do not become parents as teenagers who complete postsecondary.
(Annual) Outcome Value	• The annual values per person of outcomes associated with postsecondary completion.
Start and End Years	• The start and end years of outcomes associated with postsecondary completion.
(Annual) Drop-Off	*There is no drop-off value in the context of teenage parenthood.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.
Social Assistance	
Number of Clients	• The number of clients participating in a teenage parenthood prevention program.
Baseline Distribution	*There is no baseline distribution value in the context of social assistance.*
Marginal Success Rate	• The difference in the percentage of individuals do and do not participate in a teenage parenthood prevention program who avoid teenage parenthood.
(Annual) Outcome Value	• The annual public cost per person of greater social assistance usage due to teenage parenthood.
Start and End Years	• The age at teenage parenthood.

[4] For more information on educational attainment, see the Educational Support summary paper.

[5] Ibid.

	• The average age of clients. • Life expectancy in the general population.
(Annual) Drop-Off	*There is no drop-off value in the context of teenage parenthood.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.
Employment Income	
Number of Clients	• The number of clients participating in a teenage parenthood prevention program.
Baseline Distribution	*There is no baseline distribution value in the context of employment income.*
Marginal Success Rate	• The difference in the percentage of individuals do and do not participate in a teenage parenthood prevention program who avoid teenage parenthood.
(Annual) Outcome Value	• The annual value per person of lesser employment income due to teenage parenthood.
Start and End Years	• The age at teenage parenthood. • The average age of clients. • The age at retirement.
(Annual) Drop-Off	*There is no drop-off value in the context of teenage parenthood.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.

Appendix III – Bibliography of Studies Used to Inform Teenage Parenthood Model

Crude birth rate, age-specific fertility rates and total fertility rate (live births). (2021, September 29). Statistics Canada. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310041801

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