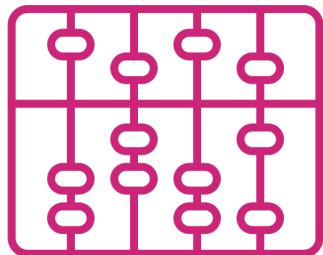# Data and information for economic evaluation of social interventions

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What **data and information** is needed for a credible economic "return on investment" analysis to help evaluate a social intervention?

Examples of social interventions:

A training programme to help unemployed young people find jobs

A new treatment pathway for a chronic illness

A support programme to reduce reoffending by young offenders

The data and analysis in an economic evaluation must address two key challenges:

Causality: What changes were caused by the intervention?

Valuation: What is the dollar value of those changes?

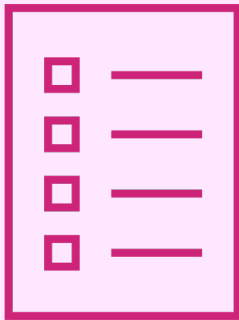It's important to consider data and information requirements **before the intervention is implemented**

Costs need to be tracked

Relevant outcomes need to be defined and measured consistently

Baseline data on outcomes prior to the intervention may be needed

It may not be easy to reconstruct all relevant data from administrative records

Overview

Goal: Gather data to support economic evaluation of a social intervention

Step 1: Understand the intervention

Step 2: Define a counterfactual

Step 3: Develop measures for outcomes

Step 4: Collect cost data

Step 5: Collect outcomes data

Step 6: Assign monetary values

Challenges: Causality and valuation

Goal

Gather data to support an economic "return on investment" evaluation of a social intervention

You are evaluating an intervention that is in progress or has completed (backward-looking analysis)

You want to compare the intervention's benefits with its costs in dollar terms

> Using the principles of social cost-benefit analysis
>
> May include benefits from changes in people's health and wellbeing, community benefits, or the natural environment
>
> Benefits may also include cost savings in other areas

One way to present the results is a benefit-cost ratio or return on investment: Each $1 spent on the intervention generated $X in benefits to society

It is often not possible to value all benefits of an intervention in this way, so a full evaluation will probably need to use other types of evidence as well

Step 1

Understand the intervention

Before doing an economic evaluation, it is essential to fully understand the intervention, including:

- What were the objectives and expected outcomes and impacts?

- How was it implemented in practice and what resources were used?

- What decision-making processes were used?

- What activities were performed?

- What pathways and end-points are relevant for people who were supported by the intervention?

- Were there any changes to the intervention after it started?

A **theory of change** should be developed to describe the expected links between resources used, activities or outputs, outcomes, and impacts

- The theory of change identifies connections between the intervention itself and potential changes in outcomes

- It is the foundation for claiming that the intervention caused changes in outcomes observed in data

Step 2

Do nothing?

Define a counterfactual

Benefits and costs of the intervention must be assessed *relative to a realistic counterfactual scenario*

The counterfactual is what would have happened in the absence of the intervention

The first step is to clearly define a counterfactual scenario so you can analyse the intervention's *incremental* benefits and costs

> Without an appropriate counterfactual, you risk over- or under-stating the benefits and costs of the intervention

> If you do not define a counterfactual explicitly, you are comparing the intervention to a "do nothing" scenario where no incremental costs are incurred, and outcomes are at baseline

> For social interventions, a "business as usual" counterfactual is often more appropriate and this may involve some costs and cause changes in outcomes over time

Step 3
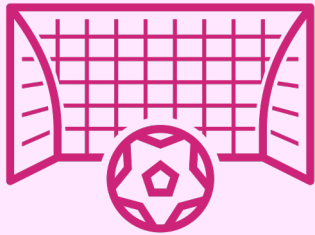
Define outcomes and how they will be measured

What outcomes does the intervention try to change?

How can each outcome be measured and what data is needed to do that?

- How can outcomes be defined and recorded based on events or actions that can be observed?

- For social interventions it may help to think about the different pathways that people can take and end-points that can be reached

- Create standards to be applied consistently for how the outcome data will be collected, recorded, and reported

It will also be necessary to estimate outcomes in the counterfactual scenario

- Counterfactual outcomes are not observed directly so need to be estimated from other data using statistical methods

- This estimation needs to account for other factors aside from the intervention that may also affect outcomes, to the extent possible

Step 4
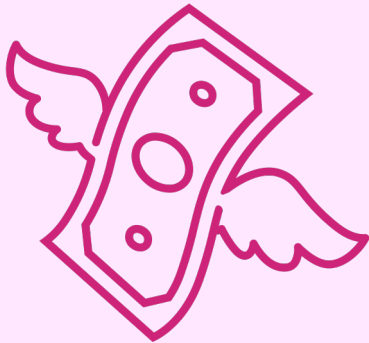
Collect cost data

What were the direct costs of the intervention and when were these costs incurred?

Were there also any costs to design, set up, govern, or monitor the intervention?

> If external agencies are contracted to provide social services, there will be costs associated with issuing and managing those contracts

> A contribution to other overhead costs like office space or IT services may need to be estimated if these are shared between the intervention and other activities

What costs would have been incurred in the counterfactual?

> In a "business as usual" counterfactual, what existing services would have been provided and what would these cost?

> The net cost of the intervention is the difference between its costs and the counterfactual costs, and this is the relevant cost for calculating a "return on investment"

Step 5
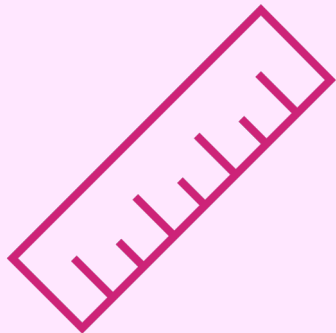
Collect outcomes data

Measure the outcomes of the intervention that were defined in step 2

Ensure that data is collected consistently across individuals, service providers, and time

Keep track of when services were provided, any changes in services over time, and when outcomes occurred

Social outcomes can take time, so you may need to wait to collect follow-up data

If different cohorts of people were supported at different times, this will need to be tracked and accounted for in the analysis

It is important to commit to reliable and consistent processes for data collection over time

Estimate corresponding outcomes in the counterfactual

Basic options include using outcomes from a comparison group or doing a before vs after comparison (see below)

Step 6

Assign and monetary values to benefits and costs

Find suitable dollar values for differences in outcomes caused by the intervention compared to the counterfactual

> Values should reflect the social "willingness to pay" for differences in outcomes
>
> This may reflect value to individuals as well as broader social value
>
> Benefits may also come from *cost savings* in other areas

Add any opportunity costs to the dollar costs of the intervention

> For example, the value of "in kind" contributions or other costs not directly paid for

A social rate of time preference (social discount rate) may be needed to convert benefits and costs to present values if spread over more than one year

Challenge 1
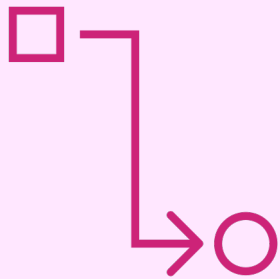
Causality: What changes in outcomes are caused by the intervention?

Evaluating the changes in outcomes caused by the intervention requires comparing intervention outcomes with counterfactual outcomes

Counterfactual outcomes must be estimated using suitable data and methods to minimise *bias*

> Bias comes from not properly accounting for other factors aside from the intervention that also affect outcomes

> If outcomes for a comparison group are used, the group needs to be as similar as possible to the intervention group

> Before-and-after comparisons need to account for other factors that may have affected outcomes over time
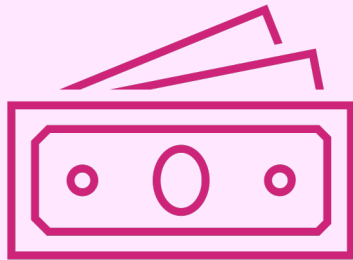
Some statistical methods for reducing bias:

> *Matching* to select a suitable comparison group

> *Regression* methods can be used to control for sources of bias that can be measured

> *Difference-in-differences* can be used to control for some sources of bias that can't be directly measured

Challenge 2

Valuation: What is the dollar value of the intervention's benefits?

The changes in outcomes caused by the intervention need to have dollar values assigned to them

Credibility of valuation factors is key

Empirical economic methods are used to estimate valuation factors

- Revealed preference estimates based on market prices

- Contingent valuation studies / choice experiments

- Direct calculation of cost savings if the intervention prevents some costs from being incurred

Some estimates can be found in the literature, but you need to check:

- Reliability of the estimates and methods used

- Applicability in different contexts or countries

Summary

Data and information required for economic "return on investment" analysis of social interventions

1. A clear understanding of the intervention and a theory of change

2. Definition of the counterfactual

3. Measures for relevant outcomes

4. Intervention costs

5. Estimated counterfactual costs

6. Intervention outcomes

7. Estimated counterfactual outcomes, e.g. outcomes for a matched comparison group

8. Valuation factors to translate changes in outcomes caused by the intervention into dollars

Options

Other evaluation methods

Cost effectiveness analysis avoids the need to put dollar values on outcomes

> This measures the cost per unit of outcome achieved, for example: It cost $X per illness prevented by the intervention

> The cost effectiveness of an intervention can't be interpreted on its own but can be compared with similar measures for other interventions to analyse relative value for money

Value for investment is an alternative framework for evaluating the value created by an intervention

> It can be used when monetary values can't be assigned to all outcomes and/or when issues such as the distribution of benefits and equity are important

> Explicit criteria and standards are developed for the intervention to guide evaluation of resource use and the value it creates

> A variety of quantitative and qualitative evidence can be used to inform these evaluative judgements

> See https://www.julianking.co.nz/vfi/

Regardless of the framework used, it is important to address the causality issue in any quantitative evaluation of intervention outcomes

Help?
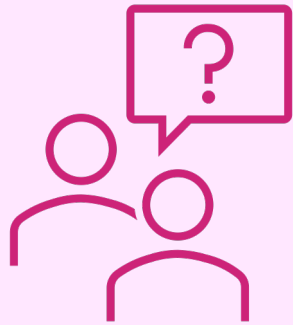
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