PRO BONO ECONOMICS

what works wellbeing

Guide to developing wellbeing cost effectiveness measures in the charity sector

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Introduction

Why should we worry about wellbeing?

Traditional economic analyses trade-off different interventions by comparing the cost-effectiveness of different outcomes on a monetary basis. However, for many charitable interventions there is no direct financial outcome to measure, for example; the benefit to an individual from alleviating anxiety or strengthening relationships in a local neighbourhood. In these cases the benefits must be imperfectly proxied for or assessed qualitatively which may result in them being undervalued. This often creates inconsistencies that makes comparisons between different interventions more difficult.

Wellbeing measurement offers a potential way to resolve this challenge – providing a more direct, meaningful indicator of the quality of an individual's life. Using wellbeing to assess different interventions should provide a more complete and accurate picture of the benefits and help to support better decisions to be made.

" Improving Wellbeing is a measure of social progress. Focussing on wellbeing would help people to live more satisfying and healthy lives "

Gus O'Donnell

Former Cabinet Secretary and Chairman of Pro Bono Economics

What is wellbeing cost-effectiveness?

Wellbeing cost effectiveness is a measure of how much an intervention costs to provide a unit improvement in wellbeing. We believe that the wellbeing cost-effectiveness of different initiatives should be an important factor in how we allocate budgets. For example, if initiative A costs £500 to generate a unit of wellbeing and initiative B costs £2000 to generate a unit of wellbeing we would conclude that more wellbeing can be generated for society by investing a fixed budget in initiative A. This leads to the question "what do we mean by a unit of wellbeing?".

Overview of wellbeing cost-effectiveness

How should we measure wellbeing?

The measurement and understanding of wellbeing – particularly subjective wellbeing where individuals are asked to evaluate their own wellbeing - has developed rapidly over the last 20 years. We are now at the point where there is a wealth of high-quality, validated measures of wellbeing with a robust evidence base on what can influence them over time. [1]

When making spending decisions it is helpful to concentrate on a single over-arching measure. We follow the approach recommended by Richard Layard suggesting that an appropriate unit of wellbeing is one point of Life Satisfaction for the period of a year, measured using the ONS's standard 11 point scale where overall satisfaction with life is measured subjectively on a scale of 0-10. [2]

How should we measure wellbeing cost effectiveness?

We use the life satisfaction measure to define wellbeing cost effectiveness as follows:

" The wellbeing cost effectiveness of an intervention is the cost to generate an improvement in Life Satisfaction of 1 point for a single year "

This is sometimes called a wellbeing adjusted life-year or WELBY.

Our suggested approach to assessing wellbeing cost effectiveness

How can we assess wellbeing cost-effectiveness for interventions in the charity sector?

Directly measuring the wellbeing impact of interventions using the ONS measure of Life Satisfaction is a pragmatic, practical approach to assessing a charity's impact. The What Works Centre for Wellbeing have published guidance for how to assess wellbeing cost effectiveness where this is possible.

However, in practice, many charities are only just starting to gather data using the ONS wellbeing measures and it will take time for the evidence base to build-up. As such there is often a need to estimate the wellbeing impacts of an intervention based on data about other outcomes.

This guide is targeted at economists and other evaluation professionals operating in the charity sector who are working with charities who have not directly measured wellbeing using the ONS measure of Life Satisfaction but are keen to assess their wellbeing cost effectiveness.

We outline a seven step approach to assessing the wellbeing cost-effectiveness of a charitable intervention:

Step 1	Develop a logic model of key wellbeing pathways for the intervention
Step 2	Estimate net additional outcomes
Step 3	Assess direct wellbeing impacts
Step 4	Assess indirect wellbeing impacts
Step 5	Assess direct costs of the intervention
Step 6	Estimate indirect fiscal cost savings
Step 7	Calculate the wellbeing cost-effectiveness measures

Step 1: Develop a logic model

What is a logic model?

A logic model is a simplified representation of how an intervention drives both wellbeing and costs. It should incorporate both direct effects and indirect effects via intermediate outcomes.

How do I know which intermediate outcomes to include?

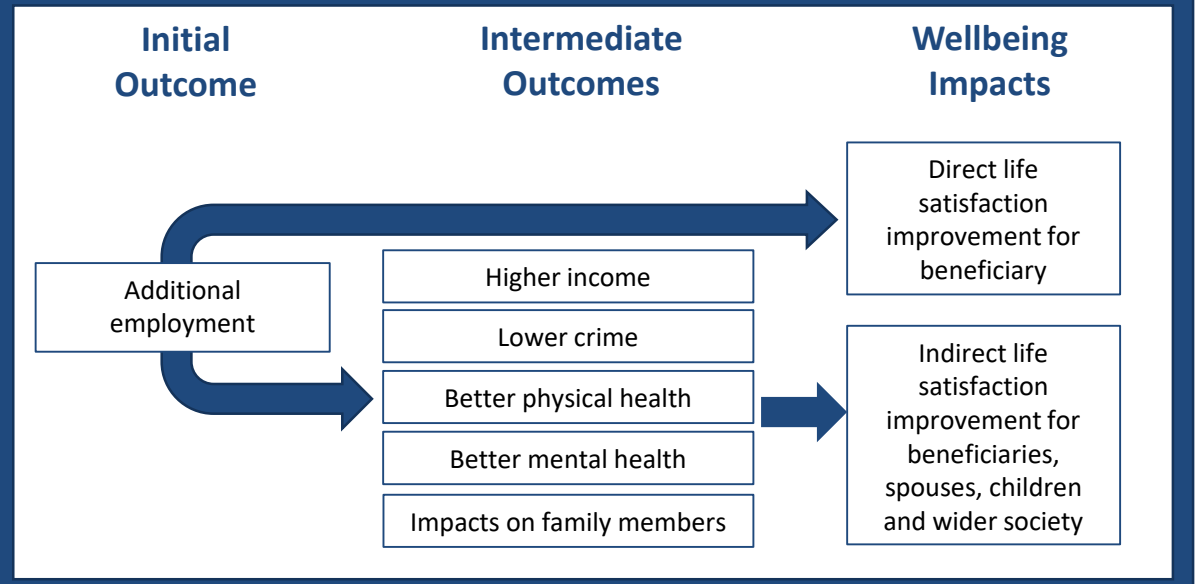
The aim is to identify those intermediate consequences of an intervention that are most likely to drive either a significant change in wellbeing or indirectly affect costs (typically to government).

A useful starting place is to consider the following intermediate outcomes that have been identified as having a significant impact on wellbeing:

- Physical and Mental Health
- Employment
- Relationships (personal and social)
- Childhood emotional health
- Changes in relative income
- Involvement in crime

An example: the wellbeing effects of an employment intervention

To illustrate the methodology we have drawn on recent work by Frijters & Krekel (2019)[3] that developed a wellbeing cost-effectiveness measure for a charitable intervention to support veterans into employment. The logic model identifies a direct link to improved wellbeing as well as six possible intermediate outcomes that could also improve an individual's wellbeing.



Step 2: Estimate net additional outcomes

Charities will typically maintain some data on some of the key outcomes identified in the logic model developed for Step 1. For some charities this could be a direct measure of wellbeing but for many it will be different outcomes relevant to their cause, such as getting somebody into stable accommodation, supporting them to find employment, helping them to improve their mental health or achieve academic outcomes.

For most charities this will be a measure of gross outcomes – the total number of individuals they've worked with who have achieved a particular outcome. However, for the purposes of economic evaluation we need to know what outcomes can be directly **attributed** to the intervention, as opposed to outcomes that might have occurred anyway even in the absence of the intervention (known as the counterfactual).

This is a complex issue and common to any type of impact evaluation so we do not cover in detail here, but there are a number of approaches that can be used to help identify what would have happened in the absence of the intervention.

Attribution of outcomes

There are a number of approaches to assessing a counterfactual from Randomised Control Trials, to matched control groups, to comparisons against national statistics, to broad-brush assumptions. Any of these approaches can be used but may significantly affect the level of certainty associated with final results.

An example: the wellbeing effects of an employment intervention

In our example, the charity had data suggesting that they had helped 291 individuals into jobs over the period 2014-2017. In order to identify how many of these could be attributed to the activity of the charity, we assumed that beneficiaries would have taken part in the Work Programme, the main government employment initiative at the time. Using data on employment outcomes of 'hard-to-'reach' individuals on the Work Programme allowed us to estimate that around 196 of these could be attributed to the activity of the charity.

Step 3: Assess direct wellbeing effects

There are two broad approaches to assessing the direct wellbeing effects of an intervention:

Approach 1: Use direct measures of wellbeing

Sometimes the change in wellbeing of participants will have been the outcome of focus in Step 2. If measures other than Life Satisfaction have been collected, such as the General Health Questionnaire or WEMWEBS, then we will need to translate from these measures to Life Satisfaction using the relationships discussed in Annex B.

Approach 2: Link other measured outcomes to wellbeing evidence

If wellbeing data is not directly collected, for example if the outcome of interest to the charity is employment, health or criminal activity, then we can draw on evidence on the impact of these outcomes on wellbeing using the estimates of the net additional impact derived in step 2. Annex A provides a summary of some of the key factors relationships between typical outcomes and Life Satisfaction based on research by the What Works Centre for Wellbeing. Our worked example demonstrates this approach in practice.

Assessing evidence linking outcomes to wellbeing

If the outcome of interest is not included in the table in Annex A then you will have to complete a rapid evidence review to identify evidence of the potential relationship. It is important to consider what other factors have been controlled for in any study and the strength of evidence it provides.

An example: the wellbeing effects of an employment intervention

In our example the intervention did not directly measure wellbeing so we need to link the measured outcomes to wellbeing evidence. The table in Annex A reports that moving from unemployment to employment increases life satisfaction by 0.46 points on average (with a high level of confidence).

Once the duration of additional employment is taken into account this implies that the 196 additional employment outcomes could directly contribute a 55 WELBY improvement in wellbeing.

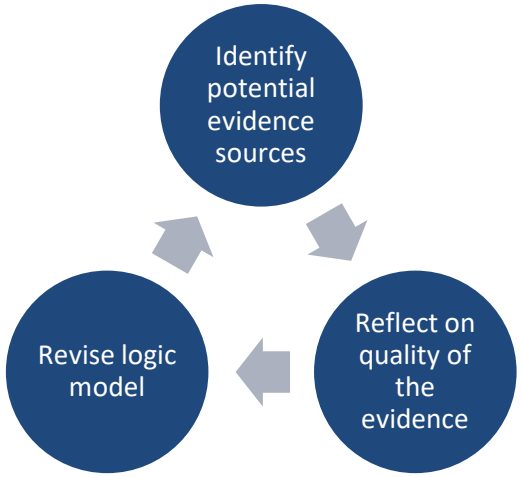
Step 4: Assess indirect wellbeing effects

To assess the indirect effects we must identify evidence on two key relationships

What impact does the intervention have on the intermediate outcomes?	What impact do intermediate outcomes have on wellbeing?

The process of identifying and reviewing evidence is iterative and may involve revising the original logic model. Quality considerations for the evidence include:

- The source of variation in studies and what other factors the estimated relationship is conditional on;
- The match with the target groups for the intervention;
- The age of the evidence.



Adding direct and indirect effects together

To be able to sum the direct and indirect impacts together, the estimates of wellbeing impacts taken from existing research must properly isolate the particular impact pathway in question. Check which variables have been controlled for in any studies used.

An example: the wellbeing effects of an employment intervention

Step 1 identified six possible intermediate outcomes that could have an additional indirect impact on life satisfaction. Research suggests that just two of these have sufficiently robust evidence to support an estimate of the magnitude of indirect effects:

- **Wellbeing impacts of reduced crime:** this includes the direct impact on victims as well as the impact on the fear of crime.
- **Wellbeing impacts from increased income:** the individuals that enter employment benefit from the higher levels of income. However, adjustments need to be made for the knock-on negative impacts on others who comparatively lose out

Step 5: Assess direct costs of the intervention

In order to complete a robust wellbeing cost-effectiveness analysis it is important to capture the full costs of an intervention, this should typically include all of the following types of cost.

Service costs	**Overheads**	**Opportunity Costs**
E.g. the cost of the direct service delivery	E.g. allocation of rent or management costs	E.g. volunteer time, donated goods or time of participants

Charities will typically already report data on these costs. However, it may sometimes be necessary to make an assumption for overhead or value of donated inputs on a cost replacement basis (i.e. how much would it cost to replace the donated inputs if they were purchased on the open market).

Counterfactual costs

In some circumstances it may be important to consider direct costs avoided in the counterfactual scenario and deduct these from the direct cost estimates for the intervention.

An example: the wellbeing effects of an employment intervention

In our example, the charity estimated that they had incurred costs of £1.4m in delivering the programme (including overheads). However, as our counterfactual scenario assumed that beneficiaries would have taken part in the Work Programme the cost of this programme was deducted from these direct costs (this was estimated at £0.8m for a similar number of participants). The direct cost of the intervention was therefore assessed as £0.6m.

Step 6: Calculate indirect fiscal savings

Typically when we are assessing wellbeing cost-effectiveness we are reviewing from the perspective of government expenditure. If this is the case, then impacts on a limited government budget are important, including changes in "transfers" such as benefit payments. To calculate these, consider whether the direct or intermediate impacts of the intervention would also lead to fiscal savings. There are three types of fiscal savings that may be relevant:

Tax receipt increases	Welfare payment savings	Resource cost savings
E.g. an increase in income tax	E.g. a reduction in unemployment benefits	E.g. reduced healthcare or criminal justice costs

There are a number of sources that can be helpful in assessing the impact of changed outcomes on government finances such as the PSSRU Unit Costs of Health and Social Care publication or the Unit Cost Database maintained by Greater Manchester Combined Authority.

Avoiding double counting

Care must be taken to avoid double counting when including both fiscal savings and private consumption increases as a result of higher income in WCE. For example, post-tax income should be used to estimate wellbeing impact via increases in consumption, whilst income tax is to be assigned as a fiscal saving.

An example: the wellbeing effects of an employment intervention

By helping individuals in to employment, the intervention will have led to additional tax receipts and reduced unemployment benefit payments for the Government. Data from the Unit Cost Database suggests that moving an individual from Job Seekers Allowance to employment leads to fiscal savings of around £10,500 per year (in 2017/18 prices).

We combined this figure with the estimates of net additional employment, and adjusted for duration of employment, to estimate fiscal savings of just under £1.2m.

Step 7: Calculating wellbeing cost effectiveness

The final wellbeing cost effectiveness metric is calculated using the following formula:

$$Cost\ Effectiveness = \frac{Net\ additional\ costs}{Net\ additional\ wellbeing} = \frac{\sum_t (1-\rho^c)^t \sum_i \left(C_{it}^{Policy} - C_{it}^0\right)}{\sum_t (1-\rho^W)^t \sum_i \left(W_{it}^{Policy} - W_{it}^0\right)}$$

W_{it} = wellbeing for individual i at time t (measured using life satisfaction points)
C_{it} = cost for individual I at time t
p^W = wellbeing discount rate
p^C = monetary flow discount rate

The end result of the analysis will be an estimate of how much an intervention costs in £ per life satisfaction point year gained. In the same way as the "cost-benefit ratio" is used in traditional economic appraisal to rank the potential outcomes from different interventions in a traditional economic appraisal, wellbeing cost effectiveness can be used to rank alternatives from a wellbeing perspective.

Those interventions with the lowest wellbeing cost effectiveness are likely to be the best interventions from a wellbeing perspective as they are the cheapest per unit of life satisfaction delivered. We anticipate that, as the number of examples of wellbeing cost-effectiveness is further increased, standardised benchmarks could start to evolve that show whether an intervention is considered cost-effective or not.

Discounting

It is standard practice to discount future benefits and costs of an initiative to reflect the preferences of society to consume benefits sooner rather than later. For monetary flows it is good practice to follow standard HM Treasury Green Book advice. However, for flows of wellbeing it is appropriate to use an alternative discount rate of 1.5%. This reflects:

- A pure rate of time preference of 0.5%
- A catastrophic risk rate of 1%

However it excludes the component of the standard Green Book rate relating to wealth effects as this relates to income equivalents rather than direct measures of wellbeing.

Results from employment example

An example: the wellbeing effects of an employment intervention

Our analysis suggests that the direct impacts of the employment intervention improve wellbeing by around 55 Life Satisfaction points at a cost of £600,000. This gives us a direct wellbeing cost effectiveness measure of around £11,000 per life satisfaction point.

However, the intervention also has indirect impacts, both in terms of cost savings to society through reduced demands on public expenditure and higher taxation, as well as improved wellbeing through reduced crime and increased income for participants.

Once these indirect effects are incorporated then we find that the intervention actually reduces costs on society whilst generating wellbeing with a wellbeing cost-effectiveness of around -£8,000 per life satisfaction point. This suggests it is a very good investment for society.

Summary of key results from analysis of wellbeing effects of a charitable employment intervention

	Life Satisfaction points	Cost	Wellbeing cost effectiveness
Direct wellbeing effects	55		
Direct costs		£0.6m	
Direct cost effectiveness	**55**	**£0.6m**	**£11,000**
Indirect Crime effects	9	-	
Indirect income effect	5		
Indirect fiscal savings		-£1.2m	
Total cost effectiveness	**70**	**-£0.6m**	**-£8,000**

Full details of this analysis are available on PBE's website.

Annex A: Sample Effect sizes

Domain	Change	Effect on 0-10 life satisfaction	Dynamics	Reference	Confidence in effect and causality?
Work	From employment to unemployment	- 0.46 (UK) - 0.71 (Ger)	Immediate effect higher, then reducing, no long term adaptation	Clark et al (2017)	High. Large effects found in longitudinal studies, cross-sections, recession related, and employment shock related (plant closures)
	From unemployment to out-of-labour force	+ 0.32 (UK) + 0.57 (Ger)	Unknown	Clark et al (2017)	Effect very robust in cross-section and panels, but causality unclear
	Being in a white collar job (e.g. managers, officials, clerical or office workers) versus a blue collar job (e.g. construction, transport, farming)	Approx. +0.80 (worldwide)	Unknown	De Neve and Ward (2017)	Effect very robust in cross-section and panels, but causality unclear.
Income	Doubling of household income	+ 0.16 (UK) + 0.5 (E-Ger)	Persistent effect, with elation peak	Clark et al (2017) and Frijters et al (2004)	High. Effect found in panels, crosssections, and shock-related (lotteries). Height disputed and income measurement problematic.
Relationships	From single to partnered/married	+ 0.28 (UK) + 0.1 (Ger)	Permanent effect with initial peak	Clark et al (2017) and Ferrer-i-Carbonell and Frijters (2004)	High. Ubiquitous finding from around the world
Health	From healthy to poor physical health	- 1.08 (UK) - 0.96 (Ger)	Permanent effect but initial peak as well	Frijters et al (2014)	High as found everywhere, including due to health shocks.
	From depression to full mental health (4 points on a 0-12 scale)	+ 0.71	Permanent, little evidence of a peak	Clark et al (2017)	High as found everywhere, including large clinical trials.
Crime	A doubling of fear of crime	~-0.30 (Europe)	Unknown	Hanslmaier (2013)	Medium: panel-data based, often replicated, but drivers of fear not exogenous
Environment	Increase of 1 hectare of green space within 1 kilometre around household	+0.0066 (Ger) ~ +0.0031 (UK)	Seems permenant	Krekel et al (2016), White et al (2013), Alcock et al (2014)	Medium to high: panel-data based but no clear-cut exogenous variation, similar results by studies in UK

Annex B: Wellbeing exchange rates

The following table has been developed by the What Works Centre for Wellbeing and shows the relationship between changes in common outcome metrics and changes in wellbeing:

	Range of metric	Change in life satisfaction for a 1 unit change in outcome metric
General Health Questionnaire	0-36	- 0.21
General Health Questionnaire - positive	0-18	- 0.42
General Health Questionnaire - negative	0-18	- 0.3
Short Form 6 Dimensions (SF- 6D) – general health	0.3 - 1	+ 5.86
Shortened Warwick Edinburgh Mental Well-Being Scale (SWEMWBS)	7 – 35	+ 0.25
Satisfaction with social life	0 - 10	+ 0.194
Satisfaction with health	0 – 10	+ 0.172
Satisfaction with use of leisure	0 – 10	+ 0.174
Satisfaction with household income	0 – 10	+ 0.11
Satisfaction with job	0 - 10	+ 0.086

The dependent variable is Life Satisfaction (0-10). Data from Understanding Society and fixed effects multiple regression from BHPS 1996 – 2009). Source: Layard R (2016): *Measuring wellbeing and cost-effectiveness analysis – using subjective wellbeing,* What Works Centre for Wellbeing

References and useful information

References

[1] For example, see: https://whatworkswellbeing.org/about/what-is-wellbeing/

[2] Layard R (2016): *Measuring wellbeing and cost-effectiveness analysis – using subjective wellbeing,* What Works Centre for Wellbeing: https://whatworkswellbeing.files.wordpress.com/2016/08/common-currency-measuring-wellbeing-series-1-dec-2016.pdf

[3] Frijter P, Krekel C (2019): *A handbook for wellbeing policy-making in the UK: history, measurement, theory, implementation, and examples.* Awaiting publication.

Other useful sources of information

What Works Centre for Wellbeing (2018): *Wellbeing in policy analysis:*

https://www.whatworkswellbeing.org/wp-content/uploads/2018/03/Overview-incorporating-wellbeing-in-policy-analysis-vMarch2018.pdf

Guidance for evaluating wellbeing cost effectiveness where wellbeing is measured directly:

https://whatworkswellbeing.org/wp-content/uploads/2020/06/cea-how-to-June2020.pdf