Charity Impact: working out what would have happened anyway

*jointly organised by PEPA and Pro Bono Economics as part of the ESRC Festival of Social Science*
Estimating Impact for charities: working out what would have happened anyway

Mike Brewer (Programme Evaluation for Policy Analysis) and Sue Holloway (Pro Bono Economics)

Today’s event is kindly supported by the Economic and Social Research Council as part of the 2012 Festival of Social Science
What is today about?

• We will introduce the basic concepts of impact…
  – Impacts and outcomes are different
  – Outcomes can be measured, but impacts have to be estimated
  – Key to estimating impact is identifying a counter-factual, or a comparison group

• …and show you how these have been put into practice amongst some charities
Overview of the workshop

I. Why do we need a counterfactual, and how can we produce one?
   Mike Brewer

II. Case study 1: Comparison with the national average (Foundation Training Company)
    Fraser Thompson

III. Case study 2: Before and after (Making Every Adult Matter pilots)
     Tim Battrick

IV. Case study 3: Synthetic counterfactual (Barnardo’s)
    Greg Thwaites

V. Q&A
   Lorraine Dearden and Sue Holloway
Why do we need a counterfactual, and how can we produce one?

Mike Brewer
University of Essex and Institute for Fiscal Studies
• Impact evaluation: what difference did the policy make?
  – Alternatively, “what is the causal effect of the policy?”
• Impacts are different from outcomes
  – Compare the health outcomes for those people who visit a GP with the impact of visiting a GP on those health outcomes
• Outcomes can be measured, but impacts can never be measured. Instead, impacts are estimated
• In the rest of this talk, I will assume you have data on outcomes, but want estimates of the programme’s impact
Example

“What is the impact of visiting a GP on your health?”

- To measure the outcome, we simply record someone’s health status some time after the GP visit

- Conceptually, the impact of visiting the GP is the difference between someone’s health having gone to the GP and their (hypothetical) health had they not gone to the GP

- This can never be known, and needs to be estimated
Health if visit GP

−

Health if not visit GP

= impact of visiting GP
For someone who visits a GP, we
- can observe their *health given they visited a GP*
- cannot observe their *health given they did not visit a GP*

For other people, we
- can observe *health given they did not visit a GP*
- cannot observe *health given they visited a GP*

We can never measure directly the *impact of visiting a GP for a given individual*

Instead, we observe an outcome, and need to estimate the counter-factual:
- Counter-factual: “the health status given that they did not visit a GP for those people who actually did”

The key problem in estimating impact is identifying a suitable (plausible) counter-factual
If we could observe everything...

Outcome if visit GP

Outcome if do not visit GP

Causal impact of visit to GP =
But we don’t know what would have happened had they not visited the GP

Causal impact of visiting GP = \[ \text{Unobserved} - \text{Observed} \]
Use people who did not visit the GP ??

People who visit GP

People who did not visit GP

Estimated impact of visiting GP = ???
Impact question: For those people who visited a GP ("patients"), what was the impact on their health?

Can’t directly observe health of patients had they not gone to GP

- Potential solution: use *health of those who did not visit GP* as guide to (unobservable) *health of patients had they not visited a GP*

This implies:

- Estimated impact of GP = health of patients – health of non-patients

But:

- health of patients = health of patients without GP + true impact of GP

So:

- Estimated impact of GP = (health of patients without GP + true impact of GP) – health of non-patients

Or:

- Estimated impact of GP = true impact of GP + (health of patients without GP – health of non-patients)

Nuisance term in brackets called “selection bias”
Use people who did not visit the GP??

People who visit GP

People who did not visit GP

Estimated impact of visiting GP =

True impact of treatment =

= (People who visit GP - People who did not visit GP) - (People who visited GP - People who did not visit GP) - (People who visited GP - People who did not visit GP)
Impact question: For those people who visited a GP (“patients”), what was the impact on their health?

Naïve estimate = true impact of GP + (health of patients without GP – health of non-patients)

Estimate will be good only if the term in brackets (“selection bias”) is zero

ie if health of patients without GP (“underlying health”) same as underlying health of non-patients

How to assess likelihood of selection bias?

If I tell you someone visited the GP, does that help you guess their underlying health?

If I tell you someone has not visited the GP, does that help you guess their underlying health?

Ideally, to estimate impact of GP on patients, we want to compare patients with non-patients who have comparable underlying health
Estimating counter-factuals

1. Use a randomised control trial
   - randomise who is allowed to visit a GP (!!)

2. Use previous health outcomes for people who did visit a GP
   - “How did someone’s health change when they visited a GP?”

3. Use actual outcomes for people who did not visit a GP
   - Is it easy to collect this data?
   - Why did these people not visit a GP? Is selection bias going to be a problem?
Summary

- Impact evaluation seeks to determine how outcomes were causally affected by a programme or treatment

- **Key problem: construction of a counter-factual:**
  - what outcomes would participants have experienced in the absence of treatment?
  - This is never observed and must be estimated

- Different methods invoke different assumptions in order to construct a counter-factual (deal with selection bias), and they will differ in their plausibility
  - A randomised experiment, if implemented properly, should be the most convincing
An Important Point

• It is much easier to do good impact evaluations if the evaluation is planned before the programme is implemented.

• A well-designed implementation can ensure that there are convincing ways of estimating counter-factual outcomes (e.g., by ensuring there are useful comparison groups).

• Conversely, if implementation means there are no credible comparison groups, then even clever statistical techniques cannot recover the impact of the programme.
Pro-Bono Economics

Foundation Training Company

Presentation on Charity impact
November 5, 2012

CONFIDENTIAL AND PROPRIETARY
The Foundation Training Company aims to reduce re-offending by improving each reformed offender’s resettlement opportunities

<table>
<thead>
<tr>
<th>Objective</th>
<th>Programmes</th>
<th>Intended outcomes</th>
</tr>
</thead>
</table>
| Reduce reoffending by improving each reformed offender’s resettlement opportunities | **1 Prison-based pre-release programme**  
• Started in 1995 and has covered 14 prisons | Clients who have participated in FTC programmes should display:  
• Reduced reoffending rates |
| | **2 Alternatives to custody programme**  
• The Bridge programme in Essex since Sept 2008 | • A reduction in the degree of seriousness of any reoffending |
| | **3 Community-based training and resource centres**  
• Hackney centre (since Sept 2006)  
• Lambeth centre (since April 2008) | • Improved self-esteem |

- Improve employability through a programme of training and guidance
- Promote the work of specialist agencies which provide support
- Provide opportunities for clients to achieve accredited qualifications
- Provide advice and guidance, or provide referrals on personal issues

SOURCE: FTC brochure; Interviews with FTC staff; Team analysis
The FTC’s two community-based training and resource centres provide clients with case management, training and referral to specialist providers.

### Initial referral

**CRITERIA**
- Referred clients must be ex-offenders or at high risk of offending
- Clients cannot be on the sex-offenders register

**SOURCES**
- FTC custodial programmes (~20%)
- Courts and probation service
- Drug agencies
- Housing service
- Job Centre

### Case management

**FTC admin receives and processes referral form**

**Client referred to relevant support worker and meeting arranged**

**Initial resettlement needs analysis and action plan co-created**

**Identification of skills training, counselling and referrals needed**

**Training and referral process managed and monitored**

### Training & referral

1. **Skills Training**
2. **Counselling**
3. **Referral to specialist providers**

### Exit

**DISCHARGE**
- Aim to discharge once main needs have been met
- Aim to discharge clients within 3 months of referral
- Conduct exit interviews with clients

**FOLLOW-UP**
- Follow up with clients by phone (in some cases)

**SOURCE:** Interviews with FTC staff; Team analysis
We were asked to estimate the economic impact of FTC’s services by addressing three questions:

1. **What are the incremental benefits of FTC services to society?**
   - Compare the FTC re-offending rates with national re-offending rates and calculate implied cost savings associated with reduced re-offending.
   - Exclude additional benefits such as improved life quality as difficult to quantify.

2. **What are the costs of FTC services?**
   - Calculate the costs related specifically to the provision of these services to ex-offenders.

3. **What are the incremental benefits of FTC services to society?**
   - Provide a range of scenarios (based on national comparison group and implied cost savings) to quantify net impact of FTC services.
Savings to society were calculated “top down” and “bottom up”

“Top down”
Deduced systematically from the recorded total cost of crime. The most recent estimate of the total cost to society of re-offending is £13.19 bn per year in 2010 prices. This implies that the cost per re-offender is about £167,642 in 2010 prices.

“Bottom up”
These costs include direct criminal justice costs (criminal justice costs, custodial sentencing costs and prison costs) and non-direct criminal justice cost. It excludes costs to the offender and the offenders family (lost earnings), and costs to the victims and the community due to difficulties in quantifying these costs. This results in an estimated minimum average cost of £83,524 per re-offender per year in 2010 prices.

SOURCE: St Giles Trust; Team analysis
We then tested this impact with a sample of FTC clients versus relevant national cohorts

| Type of benefits considered | Avoiding the costs to society associated with re-offending and narrow assessment of economic benefits (1 year employment rate differentials)  
|                           | No consideration of broader social benefits (e.g., higher self-esteem) |

| Outcome measure | The percentage of offenders in the cohort offending at least once during the year after release, where the offence resulted in a court conviction  
|                 | Comparison to 2 national cohorts – (1) Greater than 1 year in custody; and (2) 1-2 years in custody |

| Sample size | A total of 377 people are in the FTC sample, representing FTC clients from January 2007 to December 2008, who had at least one interaction with FTC Hackney and at least one referral made |

SOURCE: Team analysis
Re-offending rates appear to be significantly lower for FTC than for the national average

One year re-offending rates of ex-prisoners

[Bar chart showing re-offending rates for FTC and national average for 2007 and 2008.]

Differences between FTC and national average re-offending rates are significant at the 5% level (when compared to national offenders who were imprisoned for > 1 year) and at the 1% level (for national offenders who were imprisoned for 1-2 years)

1 Weighted by total number of ex-offenders for FTC and nationally

SOURCE: Ministry of Justice, “Reoffending of adults: results from the 2008 cohort (England and Wales)”, 18 March 2010; Team analysis
Selection biases were also examined to ensure the robustness of the results.

Potential sources of selection bias

<table>
<thead>
<tr>
<th>Potential source of bias</th>
<th>Specific indicator</th>
<th>Correlation to re-offending</th>
<th>FTC</th>
<th>St. Giles</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>% Male</td>
<td>Highly correlated</td>
<td>96.3%</td>
<td>N/A</td>
<td>87.1%</td>
</tr>
<tr>
<td>Demographics</td>
<td>% aged 18 - 20</td>
<td>Not correlated</td>
<td>9.3%</td>
<td>N/A</td>
<td>16.5%</td>
</tr>
<tr>
<td>Referral source</td>
<td>% self-referred</td>
<td></td>
<td>0.3%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Likelihood of re-offending</td>
<td>‘High’ or ‘Medium’ (OAsys)</td>
<td>Highly correlated</td>
<td>26.8%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Risk to others</td>
<td>‘High’ or ‘Medium’ (OAsys)</td>
<td>Not correlated</td>
<td>22.6%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Police classification</td>
<td>% subject to MAPPA arrangements</td>
<td>Not correlated</td>
<td>0.8%</td>
<td>14%</td>
<td>N/A</td>
</tr>
<tr>
<td>Police classification</td>
<td>% listed as Prolific and other priority offenders</td>
<td>Highly correlated</td>
<td>6.6%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

SOURCE: FTC; St. Giles Trust; Ministry of Justice, “Reoffending of adults: results from the 2008 cohort (England and Wales)”, 18 March 2010; Team analysis
This quantitative evidence was supported by qualitative evidence from FTC clients based on a series of interviews

““I now get a buzz when I get up in the morning””

“Everyone that comes in here, after a week and a half, you see a change in them”

“They break the cycle you’re stuck in. Finally, after 15 years, I’m rebuilding my life.”

“I used to go to all sorts of agencies and nothing ever came of it. The only time I’ve achieved anything is here.””

“They gave me really practical help in finding a job – they helped me create a cv, put me in contact with potential employers who would hire ex-offenders and gave me advice on how to disclose my past conviction.”

“Most of us here come with a range of issues, it’s not just a single thing. That is the difference with FTC – they look at all things – getting a job, dealing with marriage issues, getting off drugs.”

1 Based on interviews with 10 current and former FTC clients
SOURCE: Team interviews
Uncertainty about the outcomes leads to a range of valuations

Annual net benefit of FTC services to society; Total benefits relative to cost of services

- Benefit of FTC services to society estimated under different scenarios, according to variations in:
  - Comparison group for re-offending: FTC’s reduction in re-offending versus national comparison groups, ranges from 3.9% to 10.9% depending on the cohort used (based on time in custody)
  - Cost savings from reduced re-offending: estimates range from £83,524 to £167,642
- The net benefits are then calculated by comparing these benefits to the costs per FTC client (calculated to be £384 per year)
- Based on this methodology, every pound spent on FTC services, delivers anywhere between 8-48 pounds in benefit to society

SOURCE: Ministry of Justice, “Reoffending of adults: results from the 2008 cohort (England and Wales)”, 18 March 2010; Team analysis
EVALUATION OF THE MEAM PILOTS
A before and after study
5 November 2012
Content

- What is a 'before and after' study?
- An introduction to MEAM and the pilots
- Our analysis
- General comments on the 'before and after' approach
What is a 'before and after' study?

- An introduction to MEAM and the pilots
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Before and after studies

Impact

Before  Intervention  After
Content

- What is a 'before and after' study?
- An introduction to MEAM and the pilots
- Our analysis
- General comments on the 'before and after' approach
What is MEAM?
What is multiple needs and exclusions?

60,000 people

- Experience several problems at the same time
- Ineffective contact with services
- Live chaotic lives
What are the MEAM pilots?

- Somerset
- Cambridgeshire
- Derby
- Somerset
MEAM’s expectations

- Wellbeing improvements
- Service use changes (cost savings?)
Who were the clients?

Clients currently using a service:
- Homeless: 97%
- Drug and alcohol: 78%
- Mental health: 57%
- In prison: 81%

Clients who previously used a service:
- Homeless: 78%
- Drug and alcohol: 56%
- Mental health: 44%
- In prison: 6%
What is a 'before and after' study?

An introduction to MEAM and the pilots

Our analysis

General comments on the 'before and after' approach
What we measured

Service use

Join pilot

Without the pilots

Impact

With the pilots

Time
What we measured

Monthly questionnaires
(average of nine after enrolment)
Data collected

Criminal justice system
- Arrests
- Other police contact
- Magistrates court attendance
- Crown court attendance
- Nights in prison
- Nights in police custody

Health and mental health
- Visits to GP
- Visits to A&E
- Nights in hospital
- Nights in mental health hospital
- Outpatient appointment
- CMHT appointment

Drugs and alcohol
- One-to-one contact with drug and alcohol team
- Group contact with drug and alcohol team
- Weeks on substitute prescriptions
- Nights in inpatient rehab and detox

Housing
- Rough sleeping
- Direct access hostel
- Room in shared private rented sector property
- Own private rented sector tenancy
- Second stage supported accommodation
- Own social tenancy
Findings

Cambridgeshire (15 clients)

Increases in housing, health, and drug and alcohol costs to help clients address their multiple needs

Large savings in crime costs resulted in an overall cost saving
Content

- What is a 'before and after' study?
- An introduction to MEAM and the pilots
- Our analysis
- General comments on the 'before and after' approach
The ‘before and after’ assumption

Assumption
We can estimate the counterfactual by looking at the period before the intervention

Why might this not be the case?
The ‘before and after’ assumption

Assumption

We can estimate the counterfactual by looking at the period before the intervention

- Complication #1: Some problems go away on their own
  - One example is a cold

- Complication #2: There might be another factor that caused the change
  - The intervention might not be the only thing that changed between the before and after measurements
  - The longer between your two measurements, the more likely this is to happen
Key points

- Before and after studies are one of the simplest evaluation approaches
- They have some weaknesses but they can be the best option available
- Remember to check the core assumption: is there anything else, other than the intervention, that might have affected your results?
Any questions?

- About the pilots
- About the evaluation approach
- About our findings
Thank you for your time