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Transforming lives through volunteering

PRO BONO ECONOMICS

CEO Briefing: Economic analysis of Step Together's ex-offender rehabilitation programme

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CEO Briefing

This paper summarises analysis carried out by Pro Bono Economics (PBE) to quantify the potential social value of Step Together's ex-offender rehabilitation programme. This programme provides individual counselling support to ex-offenders aimed at reducing the likelihood of reoffence and helping individuals develop the skills to secure employment.

Our analysis is based on a sample of data for 125 people supported by Step Together in 2014-17 which indicates whether an individual reoffended during the time they were in the programme (10 months on average). The sample represents 26% of the total number (470) of ex-offenders Step Together helped in this period.

We have used this data to:

- Estimate the **potential benefits** of the programme by quantifying its impact on relative reoffending rates and the social value of the implied reduction in the costs associated with crime (based on Ministry of Justice (MoJ) and Home Office data).
- Assess the potential **social value** of the programme by comparing the estimated benefits to programme costs of circa £0.2 million per annum. Our results are expressed in terms of the benefit to cost ratio (BCR). A BCR above one indicates the potential social benefit exceeds the cost of the programme.

We were unable to quantify the value of improved employment outcomes with the available data, and to this extent our estimate of benefits is likely to be conservative.

Key findings

- The average reoffending rate for the 125 ex-offenders in the sample is 7%, substantially lower than the counterfactual, which is the MoJ regional average proven reoffending rate of 29% for the ex-offender population in the regions where Step Together delivers its rehabilitation programme. The implied 22pp reduction in the reoffending rate provides an indication of the programme's impact for the sample.
- Using scenario analysis we estimate that the BCR for the 470 individuals supported in 2014-17 falls in a range of 0.2 to 6.2:
  - The low end of this range relates to a low impact/less serious crime scenario, which assumes the average reoffending rate is 23% (i.e. a 6ppt reduction), and an average cost of society of avoided reoffences of £5,000.
  - The high end relates to a high impact/more serious crime scenario, with a reoffending rate of 7% (i.e. a 22ppt reduction), and an average cost of avoided reoffences of £35,000.[1]
- Data provided by Step Together indicates that many ex-offenders it helps have typically been convicted of a more serious crime[2] and so any re-offending may also involve a serious crime. This suggests that the social cost or reduced reoffending is likely to be closer to £35k

[1] The low impact case conservatively assumes the programme had no effect on the reoffending rates of the 345 individuals not in the sample, and the high impact case assumes that it was equally effective.
[2] We also note that many did not serve a prison sentence for their previous offences – suggesting these crimes may have been less serious.

on average. Based on this, we think it is plausible that the BCR is just over 1.5, with potentially considerable upside if the actual impact of the programme on reoffending frequency is greater than in the base impact case. Also, as noted, our estimate of benefits does not consider potential employment-related benefits.

- There are a range of uncertainties inherent in these estimations, notably the accuracy of matching the characteristics of the Step Together sub-set to MoJ equivalent population data, the assumed reoffending rate of the full set of Ste Together participants for which no data has been captured, and the limitations of the costs of crime figures. The uncertainties could be reduced or controlled with better source data.

Table 1 Estimated BCR

	Less serious crime (£5k average cost)	More serious crime (£35k average cost)
High impact case (22pp reduction)	0.9	6.2
Low impact case (6ppt reduction)	0.2	1.6

The Annexes provides further details of our analysis and the data we use.

Recommendations to strengthen future evaluations

We suggest that Step Together could strengthen its impact evaluations in future by submitting its cohort data for evaluation at the Ministry of Justice Data Lab (see Box 1). This will produce a robust estimate of the reduction in reoffending rate for the type of individuals supported by Step Together. This could also be strengthened by the charity collecting more informed data on the types of previous offences committed (rather than/as well as custodial sentence served). This would help feed into the 'avoided cost of crime' estimates inherent in estimates of societal benefit of reduced reoffending.

Box 1: Accessing the Ministry of Justice Data Lab

The Data Lab has been set up to help understand the impact of interventions on reducing reoffending rates. It accesses proven reoffending data from the Police National Computer, producing data for the charity's own group of participants and a matched group of other offenders with the same characteristics (ie controlling for age, gender, location, nature of offence etc). The minimum data required are: name, date of birth, gender and a date identifier. Results are published on gov.uk.

For further details see: https://www.gov.uk/government/publications/justice-data-lab

Annex 1: Reoffending rates

Step Together supported 470 ex-offenders between 2014-17. Data was available for a sample of 125 participants showing the start and end date of his/her participation in the scheme and whether the individual reoffended in the time they were involved in the programme. It is important to note that reoffending is recorded as a consequence of contact between the Step Together case officers in each region and the ex-offender. To some extent, reoffending is 'self-recorded/declared' by the individuals themselves. This may mean that reoffending is under reported.

Reoffending rates in the sample

We use the sample data to calculate the average reoffending rate for the individuals in the

sample. Since these individuals participate in the programme for an average of 10 months, we apply an adjustment to give the annualised average reoffending rate for the sample[3] (this follows the convention in Ministry of Justice statistics of measuring reoffending within 12 months from release.

Average reoffending rates by location

Ministry of Justice (MoJ) statistics on proven reoffending rates are published at the regional level[4]. For the locations where Step Together delivers its rehabilitation programme, and the period of intervention, these show the following:

Table 2 Proven reoffending rates (all ages) in geographical locations

Region	2013-14 (%)	2014-15 (%)	2015 – 16 (%)	Average
Dorset	29.3	27.0	27.0	27.8
London	30.5	29.6	29.2	29.8
Manchester	33.5	30.7	28.1	30.8
Average[5]				29.4

Estimated reduction in reoffending

We estimate the impact of the Step Together's ex-offender programme on the reoffending rate as the difference between the MoJ regional average proven reoffending rate and the 7% reoffending rate in the Step Together sample.

[3] Recognising that this may be a marginal overestimate given the offending rates tend to reduce over time

[4] https://www.gov.uk/government/collections/proven-reoffending-statistics

[5] This is an arithmetic (non-weighted) average.

Table 3 Impact of Step Together programme

Sample size	Counterfactual		Actual		Difference
	Regional reoffending rate	Number	Sample reoffending rate	Number	Reduction in reoffending individuals
125	29.4%	37	7.2%	9	28

To estimate the impact on the whole Step Together programme, i.e. all 470 participants, we need to extrapolate from the sample. However, Step Together does not have any data on whether or not the sample is representative of the full set of participants. This presents a significant uncertainty in the analysis. As a consequence, we consider two impact scenarios relating to how closely the sample represents the population of 470 individuals supported in 2014-17:

- Low impact case: this assumes the programme had no effect on the reoffending rates of individuals not in the sample, which implies it only resulted in 28 fewer reoffenders captured in the sample (22% of 125) – shown in Table 3A.

Table 4 Impact of Step Together programme - low impact

Number	Counterfactual		Actual		Difference
	Regional reoffending rate	Number	Sample reoffending rate	Number	Reduction in reoffending individuals
125	29.4%	37	7.2%	9	
345	29.4%	101	29.4%	101	
Total = 470		138		110	28

- High impact case: this assumes that the programme was equally effective across all of the 470 ex-offenders as captured in the sample, which implies it resulted in 103 fewer reoffenders (22% of 470).

Table 5 Impact of Step Together programme - high impact

Number	Counterfactual		Actual		Difference
	Regional reoffending rate	Number	Sample reoffending rate	Number	Reduction in reoffending individuals
125	29.4%	37	7.2%	9	28
345	29.4%	101	7.2%	25	
Total = 470		138		34	104[6]

We therefore assume that the overall reduction in re-offending from the full programme lies between 28 and 104 cases. Recognising that this represents a wide range of possible outcomes, rather than try and create a "best estimate" (in the absence of robust supporting data), we use these two bounds in the scenario analysis in Annex 3.

[6] Difference between 103 and 104 due to rounding

Annex 2: Potential benefits from reduced crime

A reduction in reoffending rate implies (but does not guarantee) a reduction in crime levels. We quantify the social values of this by estimating the avoided 'cost of crime', using Home Office statistics on the average cost of crime[7]. The Home Office figures cover all types of costs including victim costs and those of the criminal justice system.

Since the cost of crime differs significantly according to the type of offence that is committed the social benefit of the reduction in reoffending due to Step Together depends on what type of offences are prevented. This is likely to depend on the profile of the ex-offenders who are helped by Step Together (based on an assumption that any avoided reoffences will broadly match the original offences committed by those individuals supported by the charity). Unfortunately, it is not possible to reliably understand the type of avoided crimes associated with reduced reoffending using the available data. For this reason, we have used a scenario-based approach to explore the full range of possibilities rather than a single point estimate.

Profile of Step Together participants

Step Together does not hold data on the original offences committed by participants, nor on the types of reoffences committed in the sample. However, the charity does hold data on length of prison sentence previously served, as follows:

Table 6 Length of sentence previously served by Step Together ex-offender clients

Length of sentence served	% of cases
No jail term	31.9
Less than one year	24.4
1-3 years	18.8
3-10 years	10.5
More than 10 years	3.6
Not known	10.8

Note: While c.30% of participants have served a sentence greater than one year, indicating a relatively serious offence, a similar proportion had no jail term at all.

Further qualitative detail provided by Step Together has highlighted:

- a relatively high proportion of convictions from serious offences such as armed/aggravated robbery, or grievous bodily harm
- many are repeat offenders

However, overall, it is difficult to determine what an "average" reoffence committed (or avoided) might have been.

[7] 'The economic and social costs of crime – second edition' – Home Office, July 2018

Estimating the cost of crime

Home Office data for the average unit cost of crime[8] by type of offence has a very wide distribution, from £3.2mn for homicide to £550 per cybercrime (2015/16 prices). These figures can be combined with Home Office data on number of crimes by type to produce the following "averages" (see appendix for table of data from Home Office research report).

Table 7 Average cost of crime

	£
Overall average including all crimes	4,219
Overall average excluding cybercrime	4,971

At 2015/16 prices.

We therefore use a figure of £5,000 as a lower case in the scenario analysis.

Determining an "average" cost of crime for the "serious crimes" typical of custodial sentences (and more typical of the Step Together participants) requires assumptions around what to include or not include. Here, we use two sources[9]:

Table 8 Estimates for costs of serious crimes

Source	£	
Pro Bono Economics work for Prisoners Education Trust (2016)	35,540	2014 prices
New Economy Manchester, unit cost database	34,480	2015/16 prices

Figures from the latest Home Office cost of crime figures (published in 2018) lead to similar estimates as the unit costs of different components have not changed materially since the 2013 report.

We therefore use a figure of £35,000 as the higher case in the scenario analysis.

Number of reoffenders vs number of reoffences

We assume the number of reoffences is the same as the number of reoffenders, i.e. one per reoffender. Step Together do not have any data on whether or not the reoffenders among their participants are committing one or more crimes.

However, we note that MoJ Data Lab reports exhibit a wide range in this ratio. Reports published in 2018 range from typical number of offences of 1.7 to 4.6, with an overall average of 3.1. However, we do not know the mix of types of crimes nor the demographic match to Step Together's participants. Hence, for the purpose of the benefit-to-cost ratio analysis in

[8] These costs include (i) anticipation costs (e.g. burglar alarms, insurance); (ii) consequence costs (e.g. personal injury, value of stolen goods); and (iii) response costs (police and criminal justice systems).
[9] Note: these two sources include slightly different things. The previous Pro Bono Economics analysis included all the different aspects of the cost of crime, whereas the New Economy Manchester estimate only estimates the fiscal cost saving (i.e. excludes the costs to the victims themselves).

Annex 4, we have used an assumption of 1 reoffence per reoffender (committed or avoided). This is likely to mean there is considerable upside in the illustrated benefit-to-cost ratios if the 'avoided' number of offences is typically greater than 1.

Annex 3: BCR calculation and sensitivity analysis

The overall benefit-to-cost ratio for Step Together's programme is determined as follows:

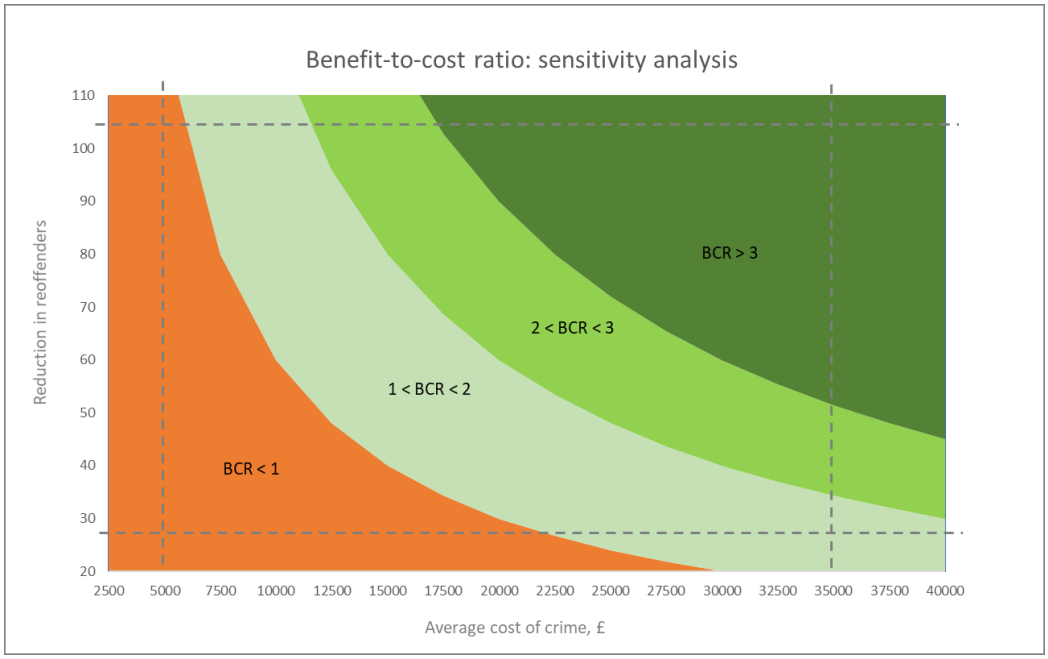
Number of reoffenders prevented	x	Average cost of crime	=	Total benefits	/	Costs	=	Benefit-to-cost ratio

- The number of reoffenders prevented comes from section 1, ranging from the base case of 28 reoffenders prevented to best case of 104.
- The average cost of crime comes from section 2, ranging from base case of £35,000 per crime to low case of £5,000 per crime.
- Step Together's costs have been provided at circa £200,000 pa.

Table 9 Estimated BCR

	Less serious crime (£5k average cost)	More serious crime (£35k average cost)
High impact case (22pp reduction)	0.9	6.2
Low impact case (6ppt reduction)	0.2	1.6

A more granular sensitivity analysis has also been calculated, showing the following isobars for different benefit-to-cost ratios:



Annex 4: Costs of crime data

Extract from: Home Office (2018) "The economic and social costs of crime - second edition". Research Report 99, June 2018.

Table 2: Total costs of crime in England and Wales in 2015/16[16]

Crimes	Unit costs	Number of crimes (1)	Total costs
Individual			
Homicide	£3,217,740	572	£1.8bn
Violence with Injury	£14,050	1,104,929	£15.5bn
Violence without Injury	£5,930	852,898	£5.1bn
Rape	£39,360	121,746	£4.8bn
Other sexual offences	£6,520	1,137,315	£7.4bn
Robbery	£11,320	193,469	£2.2bn
Domestic burglary	£5,930	695,000	£4.1bn
Theft of Vehicle	£10,290	68,000	£0.7bn
Theft from Vehicle	£870	574,106	£0.5bn
Theft from Person	£1,380	459,241	£0.6bn
Criminal damage – arson	£8,420	22,620	£0.2bn
Criminal damage – other	£1,350	1,007,158	£1.4bn
Fraud (2)	£1,290	3,616,460	£4.7bn
Cyber crime (2)	£550	2,021,334	£1.1bn
Total costs of crimes against individuals			**£50.1bn**
Commercial (7 sectors only)			
Commercial robbery	£15,000	136,145	£2.0bn
Commercial burglary	£15,460	102,569	£1.6bn
Commercial theft	£970	4,312,973	£4.2bn
Theft of Commercial Vehicle	£35,180	8,397	£0.3bn
Theft from Commercial Vehicle	£1,870	59,894	£0.1bn
Commercial criminal damage – arson	£10,930	6,909	£0.1bn
Commercial criminal damage – other	£1,420	303,788	£0.4bn
Total costs of commercial crimes			**£8.7bn**

(1) Estimated using the CSEW (individual) and CVS (commercial – 7 sectors only) with the exception of homicide which used PRC data. The CSEW figures are based on the main survey, 10-15 year old survey and estimates for the number of crimes for individuals aged under 10. The rape and other sexual offences figures uses data from the Interpersonal Violence self-completion module. See Section 3 of this report for more detail.

(2) The unit cost estimates for fraud and cybercrime are based upon experimental statistics. The cyber estimate should be considered as partial estimates as they do not include some costs associated with each crime.