

The economic case
for and against prison

acknowledgements

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1.0 introduction

The aim of this research was to collect the evidence needed to outline the economic argument for and against prison sentences and their alternatives, thereby answering the question:

Are prison sentences a cost-beneficial way of reducing offending in those populations who are at risk of further offending?

Prison sentences aim to fulfil several criminal justice outcomes, and courts dealing with offenders must have regard to the following purposes of sentencing:

- punishment of offenders
- reduction of crime (including by deterrence)
- reform and rehabilitation of offenders
- protection of the public
- reparation by offenders to persons affected by their offences. ¹

This research focuses only on how effective a prison sentence is in reducing re-offending, compared with non-prison approaches.

The research was undertaken in 2007 by Matrix Knowledge Group and commissioned by three charitable foundations, the Monument Trust, the LankellyChase Foundation and the Bromley Trust.



1.1 context

The debate about imprisonment is a perennial one, drawing on a wide range of public and political opinions, academic theories and research studies.

Current concerns include prison overcrowding, the level of probation resources, escalating costs and early release controversies. Much of the current debate, whether for or against imprisonment, tends to focus on the moral, political and social arguments. This study considers the economic aspects of this debate.

Historically, most research has provided evidence on the effectiveness of criminal justice interventions at reducing re-offending. Whilst important, this information does not present the whole picture.

This study provides evidence about the value for money of different criminal justice interventions. Value for money includes the effectiveness of the interventions in reducing re-offending, the monetary value of these reductions in re-offending, and the cost of the intervention.

A value for money assessment is not about minimising costs; it is about identifying more-efficient spending decisions to achieve desired outcomes. Research of this nature will help decision makers by providing a more complete picture of how many pounds in value they are getting for each pound they spend.

Based on the most recent data available, this research estimates the average cost of prison at £23,585 per person per year². At the time of publication:

- the prison population consisted of 81,533 inmates³
- the annual running costs of prisons stood at £1,936 million⁴
- a capacity-development programme was in place to allow for a further 10,000 inmates by 2012.⁵

On this basis, significant one-off capital costs and increases in annual running costs are likely to be a feature of the prison system in coming years.

The above context presents a significant dilemma for decision makers charged with finding the most effective ways to use taxpayers' money. This research combines high-quality evidence on effectiveness and value for money to help navigate through this dilemma. It is a robustly laid foundation of evidence on which current and future decision-making on criminal justice interventions can confidently be built.

2.0 method overview

This section outlines the method used to measure the value for money of alternative sentencing options. Further details on the approach can be found in the full technical report, which is available at <http://matrixknowledge.co.uk/prison-economics>

Evidence of the change in re-offending when offenders are given alternative sentences to standard prison was collected using a structured and transparent approach known as a Rapid Evidence Assessment. This is an approach recommended by the UK Government Social Research Unit for reviewing research studies.

The 986 studies identified using this approach were then filtered in two stages using stringent selection criteria.⁶ This ensured that only the most rigorous studies were included. To be included in the analysis each research study needed to:

1. include at least two distinct groups of participants – a prison and a non-prison intervention
2. include at least one outcome measure of recidivism (offending, arrest, conviction, incarceration)
3. present data in enough detail to allow calculation of effect size and variance
4. have been produced since 1996
5. be available in English
6. focus on offenders over the age of criminal responsibility in England and Wales (10 years)
7. have been undertaken in one of the following countries – USA, Europe, Australia, Canada and New Zealand
8. be based on a robust methodology, either a randomised controlled trial or a quasi-experimental design.

The economic model used to calculate value for money was based on the approach recommended by the Campbell & Cochrane Economic Methods Group.⁷

Data from the review were subject to the following phases of modelling:

- A meta-analysis was undertaken to combine the results of research studies reporting on the same alternatives to prison to create an estimate of re-offending levels for alternative sentencing options. This estimated the short-term change in offending that would occur if offenders were given alternative interventions instead of standard custodial sentences.
- Longer-term changes in offending patterns were estimated using age-crime curves. An age-crime curve estimates how offenders' offending changes as they age. These curves predict that as offenders get older they commit less crime. The model estimates offending changes up to the age of 50.
- The economic value of these longer-term changes in offending patterns was estimated in pounds using both the "public sector cost" and the "public sector cost and victim cost".

This economic value takes into account not only the actual effect (whether re-offending has been reduced), but also the cost of the intervention and the value of the effect (how much that reduction in re-offending is likely to save the public sector and avoided tangible and intangible costs to victims).

Value for money was calculated using the following formula:

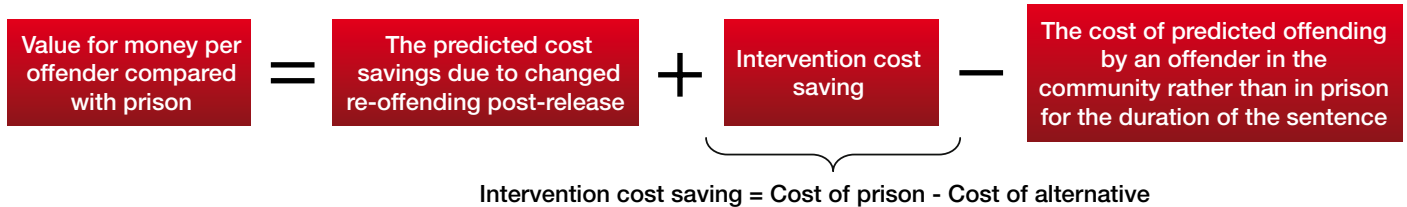


figure 1: value for money calculation

Public sector cost of crime:

These are costs to the taxpayer and include the costs of responding to and investigating crime, of bringing to trial and punishing offenders and of treating injuries.

Public sector and victim cost of crime:

These costs include both the taxpayer costs and the tangible and intangible costs to the victims of crime. For example, they include the cost of property damaged or stolen, and the cost of pain and suffering.

Lifetime costs and offender lifetime:

The model estimates how much a change in offending is worth over an offender's lifetime. Rather than take the costs for the first year or two of re-offending and assume the same pattern over the offender's lifetime, costs have been calculated according to changes in patterns of offending over a lifetime. This is done by estimating the cost of re-offending over the first two years post-release from custody and using age-crime curves to extrapolate offending levels to the age of 50.

The final figure reported for each intervention is the saving in the predicted cost of crimes committed per offender given an alternative sentence rather than a standard prison sentence, minus the intervention cost.

Although the model is designed to include evidence specific to women, the studies which met the selection criteria were for male populations or did not state the gender of individuals. Furthermore, only limited evidence was available for juveniles (10-18 years of age). The results therefore mainly refer to male adult offenders (over 18 years of age).

A panel of experts provided feedback on the methodological approach adopted for this research. The technical appendix, available at <http://matrixknowledge.co.uk/prison-economics>, provides further details of the methodological approach.

This report includes only interventions that were shown to have a statistically significant effect on offending. For adults, seven alternative sentencing options produced re-offending rates that were statistically significantly different at the 95 per cent confidence level than a standard prison sentence. This means that the chance that a difference in re-offending levels was a random occurrence is less than 1 in 20.

It is worth noting that where a sentencing option has been excluded, it is not because it was shown to be less effective at reducing re-offending than a standard prison sentence, but because no effect could be proven. Where a statistical effect could not be proven, this does not necessarily mean that prison is more effective than the alternative.

3.0 overview of interventions

Below is a summary of the interventions included in this report. Studies included in the evidence assessment came from several countries.⁸ This sometimes resulted in similar interventions being called by different names and similarly named interventions actually operating differently from each other.

Similar interventions have been clustered into groups based on the information available in each of the original research studies. The name for each group of interventions was chosen to be a commonly understood generic description, rather than a specific sentence name from one country or another. For example, the term “community supervision” is used in this report, rather than “community order”, or “probation”.

Prison:

For both adults and juveniles, prison sentences were defined as confinement to prison or the juvenile equivalent, such as a Young Offender Institution. Other residential settings, such as boot camps, were not included in the prison definition.

Enhanced prison:

This term is used to describe a prison sentence with an additional intervention.

Drug treatment:

As far as it is possible to determine from the original studies, the interventions included in this report address drug treatment rather than alcohol treatment.

The interventions included in the research do not reflect the full range of sentencing options available. Only those interventions where existing research met the selection criteria were included in the analysis. This report includes only the sub-set of interventions for which statistically significant results were obtained from the analysis. These are listed below.

Community-based interventions for adult offenders:

- Residential drug treatment
- Surveillance
- Surveillance with drug treatment.

Enhanced prison interventions for adult offenders:

- Prison with behavioural intervention
- Prison with educational or vocational intervention
- Prison with sex-offender treatment
- Prison with drug treatment.

Community-based interventions for juvenile offenders:

- Community supervision with victim reparation
- A community programme with aftercare and surveillance.

A more detailed description of each intervention can be found in Section 4.

4.0 findings

This study reports on the value for money of prison alternatives for adult and juvenile offenders. Each intervention for which statistically significant conclusions could be drawn is presented in the following format:

- The evidence base used (how many studies and participants)
- The effectiveness of the intervention at reducing re-offending
- The estimated cost of the intervention¹⁰
- The value for money compared to prison.^{11, 12}

The data estimate the chance of an offender re-offending if they receive an alternative sentence, compared with an offender receiving a prison sentence. For example, if the relative risk of offenders re-offending after completing an alternative sentence is 60 per cent, this means that they are 40 per cent less likely to re-offend after release than comparable offenders who had been sentenced to prison.

4.1 adult community interventions

residential drug treatment

Drug Treatment Alternative to Prison Programme (DTAP) to divert non-violent drug-addicted offenders into community-based facilities. The programme includes intensive and individual group counselling using the dynamics of communal living to teach positive, personal and social values and behaviour. Vocational and educational programmes are integrated into the programme. Residents are supervised 24 hours a day and are subject to in-treatment monitoring.

Evidence base

Two studies met the selection criteria. They included 786 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders that receive residential drug treatment are 43 per cent less likely to re-offend after release than comparable offenders receiving prison sentences.

Cost of intervention

£5,299 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|----------|
| Saving to the taxpayer | £88,469 |
| Saving to the taxpayer plus the saving from fewer victim costs | £202,775 |

surveillance

Surveillance-orientated diversion from prison using an Intensive Supervision Programme.

Evidence base

One study met the selection criteria. They included 6, 841 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders that receive surveillance are 31 per cent less likely to re-offend after release than comparable offenders receiving prison sentences.

Cost of intervention

£5,947 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|----------|
| Saving to the taxpayer | £57,364 |
| Saving to the taxpayer plus the saving from fewer victim costs | £130,477 |

4.2 adult enhanced prison

surveillance with drug treatment

Intensive supervision programme with drug treatment, or house arrest with electronic monitoring and recommended treatment.

Evidence base

Two studies met the selection criteria. They included 161 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders receiving surveillance with drug treatment are 14 per cent less likely to re-offend after release than comparable offenders receiving prison sentences.

Cost of intervention

£8,604 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|---------|
| Saving to the taxpayer | £41,342 |
| Saving to the taxpayer plus the saving from fewer victim costs | £61,387 |

prison with sex-offender treatment

Interventions included cognitive behavioural and psychotherapeutic approaches. Individual and group treatment formats were used. Relapse prevention work was explicitly stated as a feature of some treatment.

Evidence base

Fourteen studies met the selection criteria. They included 4,711 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders receiving sex offender treatment whilst in prison are 35 per cent less likely to re-offend after release than comparable offenders receiving only prison sentences.

Cost of intervention

£29,646 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|----------|
| Saving to the taxpayer | £35,213 |
| Saving to the taxpayer plus the saving from fewer victim costs | £130,578 |

prison with drug treatment

The majority were therapeutic community programmes in prison. There were also case management approaches and programmes preparing for parole release.

Evidence base

Thirteen studies met the selection criteria. They included 4,556 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders receiving drug treatment whilst in prison are 30 per cent less likely to re-offend after release than comparable offenders receiving only prison sentences.

Cost of intervention

£28,690 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|----------|
| Saving to the taxpayer | £31,959 |
| Saving to the taxpayer plus the saving from fewer victim costs | £116,554 |

prison with educational or vocational intervention

Programmes included basic education, prison-based vocational training and support with finding employment post-release. Also included were prison industry employment and / or training.

Evidence base

Six studies met the selection criteria. They included 7,623 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders receiving educational or vocational interventions whilst in prison are 15 per cent less likely to re-offend after release than comparable offenders receiving only prison sentences.

Cost of intervention

£27,109 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|---------|
| Saving to the taxpayer | £18,858 |
| Saving to the taxpayer plus the saving from fewer victim costs | £67,226 |

4.3 juvenile community interventions

prison with behavioural intervention

Cognitive behavioural programmes designed to change thinking patterns and attitudes associated with offending.

Evidence base

One study met the selection criteria. It included 164 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, offenders receiving a behavioural intervention are 5 per cent less likely to re-offend after release than comparable offenders receiving only prison sentences.

Cost of intervention

£31,124 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|---------|
| Saving to the taxpayer | £425 |
| Saving to the taxpayer plus the saving from fewer victim costs | £17,462 |

community programme with aftercare and surveillance

Nokomis Challenge Programme, an alternative placement to traditional custodial settings for medium and low-risk juveniles. The programme included three months in a wilderness challenge facility followed by nine months of aftercare surveillance and treatment.¹³

Evidence base

One study met the selection criteria. It included 151 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, juvenile offenders receiving the community programme with aftercare and surveillance are 3 per cent less likely to re-offend after release than comparable offenders receiving prison sentences.

Cost of intervention

£45,829 per offender per year.

Value for money compared to prison per offender

The following figures show the estimated value for money from using this intervention instead of prison. They are based on the reduced chance of re-offending (taking into account of the cost of the intervention) over an offender's post-release lifetime.

| | |
|--|---------|
| Saving to the taxpayer | £3,437 |
| Saving to the taxpayer plus the saving from fewer victim costs | £16,260 |

community supervision and victim reparation

Accountability-orientated restitution programmes for juveniles on probation.

Evidence base

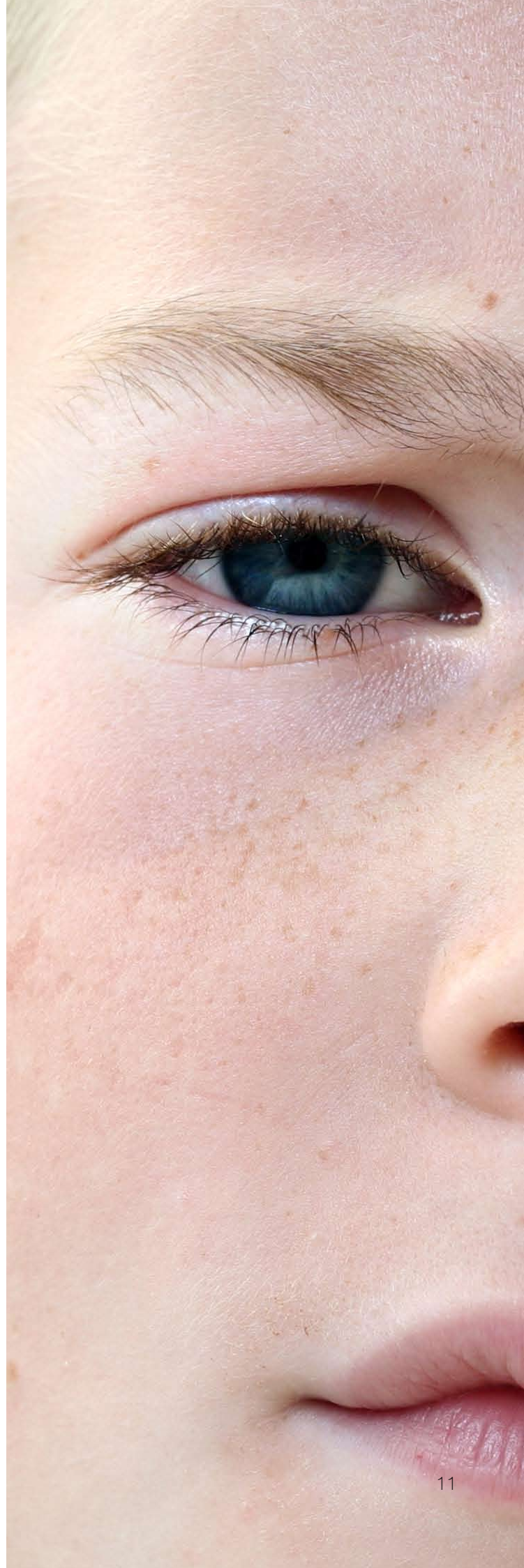
One study met the selection criteria. It included 105 individuals.

Effectiveness at reducing re-offending, compared to prison

Based on this evidence, juvenile offenders receiving community supervision with victim reparation are 3 per cent less likely to re-offend after release than comparable offenders receiving prison sentences.

Value for money compared to prison per offender

Sufficiently robust cost data relating to victim reparation has not been collected, so an estimate on the cost effectiveness of this intervention cannot be made.



4.4 summary of findings

Interpreting the graphs

Using residential drug treatment as an example, the graph on the right shows that offenders receiving drug treatment are 43 per cent less likely to re-offend than comparable offenders who had received prison sentences.

Three adult community interventions were shown to reduce the chance of offenders re-offending compared to offenders who had been sentenced to prison.

The evidence for two additional adult community interventions (community supervision and community service) did not show an effect that was statistically significant.

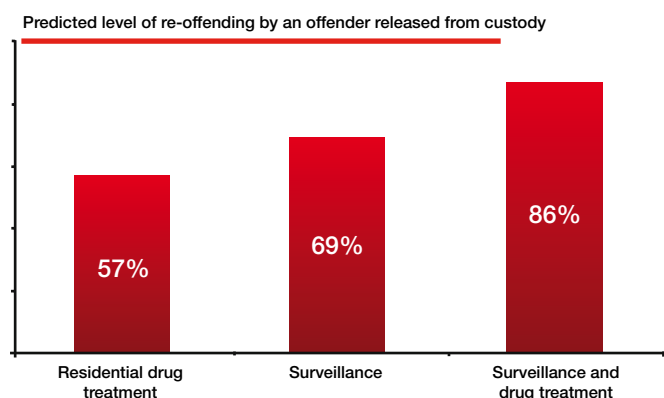


Figure 2: Predicted levels of re-offending for community sentences compared to prison

Four adult enhanced prison interventions were shown to reduce the chance of offenders re-offending compared to offenders who had been sentenced only to prison.

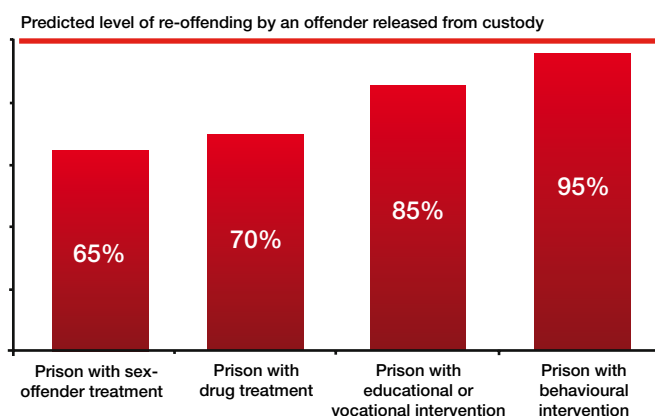


Figure 3: Predicted levels of re-offending for enhanced prison sentences compared to prison

Two juvenile interventions were shown to reduce the chance of juvenile offenders re-offending compared with offenders who had been sentenced to prison.

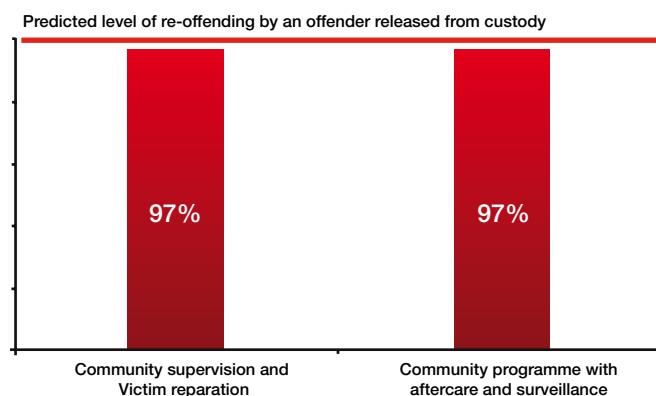


Figure 4: Predicted levels of re-offending for community sentences compared to prison

5.0 conclusions and discussion

5.1 policy implications

There are more than 81,000 offenders currently serving prison sentences in England and Wales. This research has provided evidence to suggest that for some types of offender alternative interventions can be more effective at reducing re-offending, and better value for money, than basic prison sentences.

Using evidence from the selected studies the following adult community-based interventions have been shown to be more effective at reducing re-offending than prison:

- Residential drug treatment
- Surveillance
- Surveillance with drug treatment.

The following juvenile alternative interventions were shown to reduce the chances of re-offending compared with prison:

- A community programme with aftercare and surveillance
- Community supervision and victim reparation.

When a prison sentence is considered unavoidable, such as for reasons of public protection or punishment for serious or violent crimes, the following adult enhanced prison sentences have been shown to be more effective than a prison sentence alone:

- Prison with behavioural intervention
- Prison with educational or vocational intervention
- Prison with sex-offender treatment
- Prison with drug treatment.

The graph below provides an overview of the cost savings across all the interventions included in the report, except for “juvenile community supervision with victim reparation” where no cost data was available.

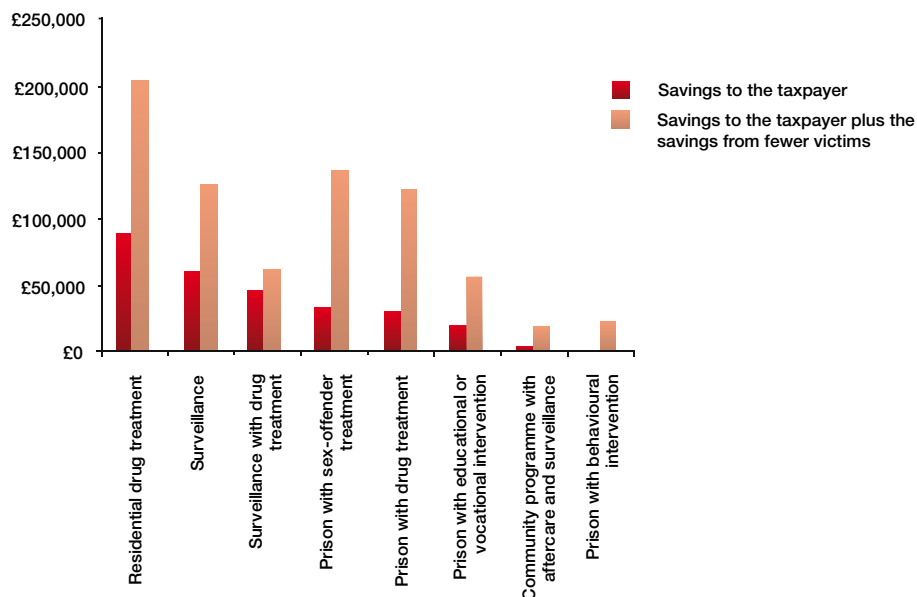


figure 5: Total savings per offender as a result of re-offending and intervention costs

Using these alternative interventions could more effectively meet one of the statutory purposes of prison – to reduce re-offending – while also reducing taxpayer costs and, in the case of community-based interventions, alleviating strain on prison capacity.

The interventions examined in this report predict that the cost savings per adult or juvenile offender receiving a community intervention rather than prison range from:

- £3,437 to £88,469 for savings to the taxpayer only
- £16,260 to £202,775 for savings to the taxpayer and the savings from fewer victim costs.

Given the nature of offending and offenders, alternatives to prison are not always a viable option. In cases where prison sentences are required, this research shows that enhanced prison sentences (incorporating some form of training or treatment) are more effective in reducing re-offending than prison without additional interventions.

Even though enhanced prison interventions cost more than prison alone to deliver, they are better value for money. It is predicted that the cost savings per adult offender receiving an enhanced prison sentence are:

- £425 to £35,213 for savings to the taxpayer only.
- £17,462 to £130,578 for savings to the taxpayer and the savings from fewer victim costs.

This finding for enhanced prison suggests the need to maintain prison populations at a level where participation in prison-based interventions can be initiated and sustained.



5.2 research implications

In addition to providing evidence on what interventions provide value for money, this research highlights significant gaps in current evidence. These gaps limit decision makers' ability to plan for criminal justice interventions in a way that:

- Instils confidence that reductions in re-offending can be achieved.
- Uses resources in the most effective way.

There are many other alternatives to prison than those reported on here. For example, this research could not report on the effectiveness of two of the most commonly used interventions in the UK – community supervision (Community Orders) and community service (Compulsory Unpaid Work) – nor the wide range of specific requirements that can be attached to Community Orders. This was because the data available did not provide enough evidence to determine any kind of overall impact compared to prison.

Because of the systematic nature of the review, this research can be updated on a regular basis to include new evidence as it becomes available.

A particular data gap identified in this research were the lack of effectiveness and value for money data on interventions specific to women. There were also only limited effectiveness and value for money data available for interventions directed at juveniles. It would also be useful to consider how to develop a model of assessing the value for money of alternatives to prison that takes into account preventive and early years interventions.

The Technical Appendix (<http://matrixknowledge.co.uk/prison-economics>) refers to data already collected on additional adult and juvenile interventions from which further analysis could be undertaken. The reason these interventions have not been included in this report is because the evidence available has not been sufficient to determine intervention effect (that is, it cannot be determined from the data whether the intervention is likely to reduce re-offending, or is likely to increase re-offending, when applying a 95 per cent statistical significance test).

This report could be updated through the following analyses:

- Comparing different community-based interventions with each other
- Modelling the impact of different sentencing portfolios on the prison population and on future prison populations to show potential cost savings
- Including more-accurate costs of interventions as they become available
- Including additional costs, such as those associated with a parent being in prison. For example, there could be public sector costs, such as the child being looked after by the state, and social costs, such as changes in school performance.

The intervention definitions in this report are based on what was reported in the research studies themselves and upon limited internet searching. It was not within the remit of this research to explore how different interventions operated in practice, but operational information will be important for decision makers as they compare different intervention types.

6.0 endnotes

- ¹ Criminal Justice Act 2003 section 142 (1)
- ² Further details on the approach for calculating this figure can be found in the full technical report, which is available at <http://matrixknowledge.co.uk/prison-economics>
- ³ HM Prison Service Population Bulletin – Weekly 19th October 2007
- ⁴ HM Prison Service (2007) Annual Report and Accounts April 2006 - March 2007 (this figure does not include the costs for running the private estate)
- ⁵ HM Prison Service Business (2007 – 2008) & Corporate Plan (2007 – 2008 to 2011 – 2012)
- ⁶ See the technical appendix for more details <http://matrixknowledge.co.uk/prison-economics>
- ⁷ http://www.med.uea.ac.uk/research/research_econ/cochrane/cochrane_home.htm
- ⁸ The countries of origin are reported in the Technical Appendix at <http://matrixknowledge.co.uk/prison-economics>
- ⁹ For more details see the Technical Appendix at <http://matrixknowledge.co.uk/prison-economics>
- ¹⁰ Full details of how interventions were costed can be found in the Technical Appendix at <http://matrixknowledge.co.uk/prison-economics>
- ¹¹ The effect data available only applied to a certain period of follow-up, usually up to two years. Assumptions have been made about how long this effect is maintained and the sensitivity of these assumptions have been tested. Full details of this approach can be found in the Technical Appendix at <http://matrixknowledge.co.uk/prison-economics>
- ¹² Value for money savings are reported as a mean value. Ninety-five per cent confidence interval values are reported in the Technical Appendix available at <http://matrixknowledge.co.uk/prison-economics>
- ¹³ National Criminal Justice Reference Service Juvenile Justice Bulletin (July 1999) Recent Juvenile Aftercare Initiatives: The Michigan Nokomis Challenge Programme http://ojjdp.ncjrs.org/jjbulletin/9907_3/mich.html

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