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The Economics of Implementing Intensive In-prison Sex-offender Treatment Programs

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Since the mid-1980s economic evaluation has become an essential appraisal tool of health and related social services. In this context, the Criminology Research Council funded a study that investigated the economic costs and benefits of implementing in-prison sex-offender treatment programs (SOTP) for male child sex offenders.

Cost–benefit analysis is always based on many assumptions, and not all benefits are accurately estimated or necessarily realised. However, the authors estimate that, if a 14 percentage point reduction in recidivism is achieved following an in-prison treatment program, this could result in an economic gain of up to $39,870 per prisoner, or $3.98 million for 100 treated prisoners. Assessing the intangible costs of child sex abuse is also fraught with difficulty and the authors estimate intangible costs of child sex abuse to be ten times the dollar value of tangible costs.

This paper provides a summary of key aspects of the larger study and complements ongoing research at the Australian Institute of Criminology on cost–benefit analysis and criminal justice.

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Society must choose how to allocate limited resources most efficiently and in a manner that maximises social welfare. Resources can be said to be used efficiently if it is impossible to reallocate them in any other way that would increase the overall benefits derived. The analysis of economic efficiency involves comparing the costs of using scarce resources against the resulting benefits (Donato et al. 1999, p. 39). The associated benefit of sex-offender treatment programs (SOTP) is the reduction in recidivism rates of treated prisoners, leading to reduced incidence of child sex abuse, which is then compared with the costs of implementing such programs.

Conceptually, the potential benefits of sex-offender treatment programs are all the costs associated with child sex abuse that are avoided as a consequence of reduced recidivism rates. It is not the purpose here to describe the deleterious impact of child sex abuse, but to discuss how such costs are incorporated into an economic analysis. Obvious costs associated with child sex abuse include physical injury and illness, emotional and psychological pain and trauma, fear, anxiety, depression and other psychiatric disorders. There is also the potential for inter-generational costs, which may occur where victims themselves become perpetrators of crime, including sex abuse, thus continuing the cycle. All these costs are described as *intangible costs* because the health consequences of pain

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and suffering (and possible loss of life) are initially qualitative or non-monetary in nature.

In addition to non-monetary costs, child sex abuse may also result in a range of *tangible costs*—where dollar expenditures are incurred (or income forgone)—either to the victim directly or to society at large. Obvious tangible costs include:

- expenditures on police and social welfare services, possibly foster care;
- a broad range of medical costs including specialist care by child protection units, doctors, psychologists, psychiatrists and counsellors; and
- offender-related costs such as incarceration and court costs (Prentky & Burgess 1990).

Accordingly, the potential benefits (i.e. costs avoided) of reduced recidivism can be classified into two main categories:

- *tangible benefits*, which represent explicit resource savings to society from no longer having to outlay such expenditure; and
- *intangible benefits*, which relate to health, social and other related non-monetary consequences.

More briefly, an economic evaluation involves the following calculation:

Net Benefits = Tangible Benefits + Intangible Benefits – Program Costs

If the resources saved (i.e. tangible benefits) are greater than the costs of implementing a program then the economic result is unambiguous; there is a net positive economic benefit from implementing a sex-offender treatment program. This is because any health consequences that occur only reinforce the original net (positive) benefit result. If, however, the costs of implementing a program are greater than the resource costs saved, no conclusion can be reached regarding the economic efficiency of a program unless the intangible benefits of the program are also valued. Where the value of the health consequences is greater than the net program costs (i.e. program costs minus associated resources saved) the program should proceed on efficiency grounds. No assessment of the economic efficiency of a program can be determined until a full assessment of all benefits—both tangible and intangible—is made.

To date, the use of cost–benefit analysis in health and related programs has been limited, in part due to a reluctance to place a monetary valuation on intangible benefits, in particular the cost of pain and suffering and also on life itself. However, as a consequence of conceptual and methodological advancements, there has been renewed enthusiasm for the adoption of this technique, particularly in the areas of health, transport and environmental economics.

The report by Donato, Shanahan and Higgins (1999) attempted to incorporate the *full* benefits associated with reduced recidivism rates: that is, both the tangible and intangible costs of child sex abuse that can potentially be avoided. The following section outlines the components of costs and benefits and associated parameters that were involved in the analysis.

Program Costs

One task in the cost–benefit calculation is to estimate the cost of implementing in-prison sex-offender treatment programs. There is little uniformity, however, in the structure and delivery of treatment. A combination of factors including levels of funding, professional judgment and type of sex-offender risk cohorts all contribute to variations in the delivery of intensive in-prison child sex-offender treatment programs. Consequently, costs vary across programs and between the various States. Furthermore, the information systems that operate in correctional services in different States are generally poor, resulting in comparatively crude cost measures.

To overcome these problems, the costs of a "generic" program were estimated using an average figure derived from a range of programs. Based on programs in Kia Marama, New Zealand; Moreton, Queensland; Casuarina and Bunbury, Western Australia; and Ararat, Victoria, a conservative estimate for running an intensive in-prison sex-offender treatment program in Australia in 1998 was determined to be $10,000 per prisoner. This figure was deliberately set at the high end of the cost data in order to improve the robustness of the results presented in later sensitivity analysis.

Recidivism Rates of Programs

An important variable in the determination of benefits associated with sex-offender treatment programs is the magnitude of the reduction in recidivism rates. The greater the reduction in recidivism rates, the greater the associated benefits.

Many studies have shown that cognitive behavioural therapy treatment programs coupled with relapse prevention can be effective (Marshall & Pithers 1994). There is, however, considerable variation in the reported recidivism rates. For example, Prentky and Burgess (1990) suggest a 40 per cent recidivism rate for non-treated offenders versus a 15 per cent rate for treated offenders, while a meta-analysis conducted by Hall (1995) indicated that untreated sex offenders were re-offending at a rate of 27 per cent, compared with 19 per cent for treated offenders. A comprehensive report evaluating the Kia Marama treatment program in New Zealand over 10 years revealed that the treated group had a recidivism rate of 8 per cent compared with a recidivism rate

Table 1: *Tangible Cost of Child Sexual Abuse, per Re-offence (1998 dollars)*

Expenditure	Amount ($)
Victim-related	
State Government	*16,670
Federal Government	**2,220
Non-government organisations	0
Victim and family out-of-pocket expenditures	1,000
Total Tangible Costs per Victim	**19,890**
Offender-related	
Incarceration costs	137,400
Total Tangible Costs per Re-offence	**157,290**

* Derived from McGurk & Hazel (1998) and authors' calculations.
** This does not include any possible income support payments that may result from the offence.

of 21 per cent for the control group (Bakker et al. 1998). Preliminary results in a study by Marques and Day (unpub.) show that those who complete the treatment program have a lower sexual re-offence rate (11 per cent) than the control group (14 per cent).

A major factor accounting for the variability in the recidivism rates is the different definitions of "re-offence", ranging from the narrow considerations of formal convictions for specific offences through to new charges for other offences; new charges; new convictions; and parole suspensions and revocations. Another important difference is the length of follow-up period (Allam & Browne 1997). Recidivism measurement may, in some cases, be underestimated because a study does not take into account the length of time in which offenders may re-offend. The lack of a randomised control group when evaluating sex-offender treatment programs is also a fundamental problem. Treatment effectiveness can only be determined in a controlled study where treated and untreated offenders are matched for variables such as age, previous criminal history and admitting offence (Motiuk & Brown 1996). To date there has been no formal, external evaluation of existing Australian programs, although several in-house studies have been conducted. Unfortunately, follow-up times for all of these informal departmental studies have been very limited and at present they lack refinement. Not surprisingly, the efficacy of treatment programs remains the subject of debate (Quinsey et al. 1996).

Although sex-offender treatment programs of the cognitive behavioural type may be effective in reducing recidivism rates, the results are equivocal. Consequently, deriving a specific percentage reduction in recidivism rates is problematic and complicates the economic evaluation of treatment programs.

Given this uncertainty it is assumed that current treatment programs produce a 2 to 14 percentage point reduction in recidivism rates. This range, together with the upper and lower bound estimates of intangible benefits, will be used in a sensitivity analysis of results.

Tangible Benefits (Explicit Costs Avoided)

Three major areas of expenditure for victim-related costs were estimated: that by the State Government, by the Federal Government, and the "out-of-pocket" expenditures by victims and their families. Offender-related costs were also included in the analysis, since the benefits of reduced recidivism rates are not only victim-related but also the costs of incarceration that are avoided. A summary of these is presented in Table 1.

As can been seen, the State Government bears the most significant single component of tangible expenditures. This is directly related to the quantity of services it supplies in this area. These estimates were based on the work of McGurk and Hazel (1998), who determined the costs of child abuse in general for South Australia. Other information came from government and semi-government agency sources and from professionals involved in the area. Federal government expenditures, while far smaller, are not negligible. Estimates for this category, together with out-of-pocket expenses and those of non-government organisations are, by all measures, conservative.

Offender-related costs amounting to $137,400 refer to the costs of incarceration for re-offending prisoners and this figure dominates the tangible costs. In this context, the cost of pain and suffering to victims of child sex abuse becomes important.

Although the complexity of the task, the limited information available and the poor coordination of records across agencies made precise estimates of tangible costs difficult, the estimates are purposely conservative and the most reasonable currently available.

Intangible Benefits (Implicit Costs Avoided)

Although the intangible costs associated with child sex abuse represent potentially the greatest implicit benefit associated with reduced recidivism due to sex-offender treatment programs, these costs are also the most difficult to calculate. There have, however, been significant advances in the research methodology and applied techniques associated with valuing health consequences of program interventions, and these can be applied to this study.

According to economic theory, a consumer's value of a

good is reflected in what they are willing to give up in order to obtain it (Johannesson 1996). Thus the market price of a purchased commodity reveals the extent to which individuals value the commodity. In the absence of markets, alternative techniques must be used to estimate willingness-to-pay (WTP), such as revealed preference and contingent valuation.

The method of revealed preference involves observing individual behaviour in the market place and using these observations as a "proxy" value for benefits. A classic example is the "danger money" or wage premium provided to workers as compensation for greater risk to health associated with hazardous jobs. While the advantage of the revealed preference approach is that it is derived from actual consumer responses to choices between health risk and money, rather than the use of hypothetical scenarios, the main problem is that it tends to be specific to the types of health consequences or injuries in question (Drummond et al. 1997).

Revealed preference principles have been applied to analyse the compensatory damages awarded by civil courts for injuries relating to particular types of crime, including child sex abuse (Miller et al. 1996; Cohen 1988). The use of the court system to elicit value is not based on individual consumer behaviour but the minimum value a jury places on damages. Of particular importance is that the civil courts have awarded damages not only for loss of income or for health costs but also for the pain and suffering incurred by victims. It is this approach of civil compensation that was adopted in a major US study, conducted by the National Institute of Justice, on the costs of crime. According to the estimates by Miller et al. (1996), the annual intangible costs of child abuse are in the order of 10 times ($US 20.8 billion) the tangible costs ($US 2.3 billion) incurred by the victim of child sex abuse. For a variety of reasons, the Australian legal system does not lend itself to producing similar monetary valuations for child sexual abuse.

The second approach to valuing willingness-to-pay is contingent valuation. This technique is not based on actual decisions, but involves the use of surveys or questionnaires asking individuals to value hypothetical events. The advantage of contingent valuation is that consumer decisions (albeit hypothetically) are used to elicit values for non-marketed socially provided goods. An inherent problem, however, has been the difficulty in obtaining valid and reliable estimates of willingness-to-pay. This is particularly so in the case of child sexual abuse, where the nature of the offence and its "invisibility" make it extremely difficult for individuals to assess such risk to their children subjectively.

While there have been no studies using contingent valuation that have focused on child sex abuse, a South Australian study by McGurk and Hazel (1998) measured the general intangible costs of child abuse. Their study was based on previous New Zealand research work on road accidents in which individuals determined what they were willing to pay (using the contingent valuation method) in order to avoid particular types of road accident injuries. The report attempted to align various categories of child abuse damage to the categories adopted in the road accident studies. As with the Miller study using revealed preference technique, there are some methodological problems associated with the contingent valuation approach adopted by McGurk and Hazel (1998).

Parameter Estimates—Intangible Costs

Given the problematic nature of estimating the intangible costs of child sex abuse, both the contingent valuation and revealed preference approaches were adopted to represent the lower and upper bound estimates for the intangible benefits associated with reduced recidivism rates.

The contingent valuation method, representing a *lower bound* estimate, drew upon the methodology, data and results derived from McGurk and Hazel (1998), modified to reflect the type and impact of injuries resulting from child sex abuse in particular. Using this approach, a value for the intangible costs per victim from child sex abuse in South Australia was $19,650 (in 1998 dollars). Notwithstanding the limitations of the methodology, the measurement of pain and suffering from proxy measures can be considered a baseline and is likely to be a conservative estimate. Child abuse tends to conjure up strong emotive responses and consequently there is *prima facie* evidence to suggest that individuals in contingent valuation surveys are willing to pay more to avoid a child being at risk than if adults faced the same circumstance (see Donato et al. 1999 for further discussion.)

In the case of the revealed preference approach, given the current lack of Australian information on civil compensation awards, the study used relativities derived from the US study by Miller et al. (1996). A value of 10 times the tangible costs of child sex abuse, equivalent to the US rate, was used as the *upper bound* value for the intangible costs of pain and suffering in South Australia. Thus, based on South Australian data for tangible costs of $19,890, an alternative amount for intangible costs in the sensitivity analysis is $198,900 per victim (in 1998 dollars). The lack of data, this time from the relevant jury awards in South Australia, again prevented a "first-best" approach, and resulted in the adoption of overseas estimates as a proxy for intangible costs. It is difficult to determine the extent to which resorting to such measures produces a reliable indicator for South Australian circumstances.

However, estimating intangible costs at 10 times tangible costs was considered an upper bound value for sensitivity analysis purposes (see Donato et al. 1999 for further discussion.)

A figure of five times the tangible costs of child sex abuse ($99,450 per victim) was also adopted to provide a mid-point to test the sensitivity of results to changes in intangible benefits.

Findings

Results for the expected net economic benefits of treatment programs incorporating these parameters are presented in Table 2. The estimate of net economic benefits includes the cost of implementing a generic in-prison intensive sex-offender treatment program, estimated at $10,000 per prisoner. The results are also based on the assumption that a person who re-offends is caught and re-convicted after attacking only one victim.

Table 2 reveals the economic benefits of a treatment program range from an expected net loss of $6,850 to an expected net benefit of $39,870 per treated prisoner, depending on the monetary valuation placed upon intangible costs of child sex abuse and the efficacy of the treatment program. The figures have been derived by multiplying the dollar value of benefits by the reduction in recidivism rate to determine an expected benefit of implementing intensive sex-offender treatment programs, from which the $10,000 program cost is subtracted to yield a net economic benefit per re-offence.

One way of interpreting Table 2 is to consider the expected net economic benefits that result from the treatment of one hundred offenders. For an 8 percentage point reduction in recidivism rates, the net economic benefits range from $258,000 to $1.85 million. Similarly, if there were a 6 percentage point reduction in recidivism rates, the net economic benefits would range from a net economic loss of $56,000 to a net economic gain of $1.137 million.

Another way of interpreting the table is from a "break-even" perspective. That is, if only tangible costs are valued, then SOTP only become cost-effective if the reduction in recidivism rate is about 6 percentage point. If intangible costs are valued using the willingness-to-pay technique, the break-even efficacy rate is about 5 per cent. Similarly, if the revealed preference approach is adopted to measure intangibles, then the program becomes cost-effective using "five times the tangible cost" valuation if the reduction in recidivism rates is 4 percentage point and using "ten times the tangible cost" at approximately 3 per cent. Obviously if the assumption of one victim per re-offence is relaxed, and instead two victims per re-offence is assumed, the potential economic savings rise to about twice the range of dollars highlighted.

The net economic results are sensitive to the costs of running generic in-prison intensive sex-offender treatment programs, here assumed to be $10,000 (1998 dollars) per prisoner. A reduction in the cost of running an in-prison sex-offender treatment program has a large impact on potential net economic savings and on the break-even level of reduction in recidivism rates.

The results presented in this study do not preclude alternative, cheaper programs, such as community-based and juvenile treatment programs, from being more cost effective. Where any program produces reductions in recidivism equal or similar to those analysed here, and is cheaper, the cost–benefit results are even more favourable.

Conclusion

Initial estimates of a cost–benefit analysis of child sex-offender treatment programs for male offenders in correctional services suggests that, within plausible parameters, the costs of such programs are likely to be more than compensated by the benefits which they produce (in terms of costs forgone).

The major difficulties highlighted in the study are in determining appropriate values for the intangible costs of pain and suffering, as these are likely to be substantial; and in determining appropriate figures for the reduction in recidivism rates for offenders undergoing treatment. The exploratory work also suggests that, despite these difficulties, the magnitude of the problem of child sexual abuse generally, and offences by recidivists in particular, is such that its costs are substantial and the associated benefits to be achieved from appropriate treatment programs high. The potentially significant net economic benefits are sufficient to warrant support for

Table 2: *Expected Net Benefits per Treated Prisoner (1998 dollars)**

Total Cost per Offence**	Reduction in Recidivism Rates (%)			
	2	6	8	14
$157,290 excluding intangibles	(6,850)	(560)	**2,580**	**12,020**
$176,940 lower bound estimate	(6,460)	**620**	**4,160**	**14,770**
$256,740 mid-estimate	(4,870)	**5,400**	**10,540**	**25,940**
$356,190 upper bound estimate	(2,880)	**11,370**	**18,500**	**39,870**

* These dollar values are calculated after deducting program costs of $10,000
** These values derived using different estimates of "intangible" costs ranging from $19,650 to $$198,900.

future research to identify the relative incidence of different types of injuries, while undertaking rigorous assessment of recidivism rates of programs, and developing further the methodology in valuing the intangible costs of pain and suffering.

This study provides a general framework of analysis and a platform on which further research in the area of child sex abuse and child sex-offender treatment programs can build.

References

Allam, J. & Browne, K. 1997, "Evaluating community-based treatment programmes for men who sexually abuse children", *Child Abuse Review*, vol. 7, pp. 13-29.

Bakker, L., Hudson, S., Wales, D. & Riley, D. 1998, *And there was light … Evaluating the Kia Marama Programme for New Zealand Sex Offenders Against Children*, Justice Department, Christchurch.

Cohen, M. 1988, "Pain, suffering and jury awards: A study of the cost of crime to victims", *Law and Society Review*, vol. 22, no. 3, pp. 537-55.

Donato, R., Shanahan M. & Higgins, R. 1999, A cost-benefit analysis of child sex-offender treatment programs for male offenders in correctional services, Criminology Research Council Report, Child Protection Research Group, University of South Australia.

Drummond, M., Stoddart G. & Torrance, G. 1997, *Methods for the Economic Evaluation of Health Care Programs*, 2nd edn, Oxford University Press, Oxford.

Hall, G. C. 1995, "Sex offender recidivism revisited: A meta-analysis of recent treatment studies", *Journal of Consulting and Clinical Psychology*, vol. 63, no. 5, pp. 802-9.

Johannesson, M. 1996, *Theory and Methods of Economic Evaluation of Health Care*, Klewer Academic Publishers, Dordrecht.

Marques, J. & Day, D. (unpub.), Sex offender treatment and evaluation project, 1998 Program Report, Program Development and Evaluation, California.

Marshall, W. L. 1996, "Assessment, treatment and theorising about sex offenders: Developments during the past twenty years and future directions", *Criminal Justice and Behaviour*, vol. 23, no. 1, pp. 162-99.

Marshall, W. L. & Pithers, W. 1994, "A reconsideration of treatment outcome with sex offenders", *Criminal Justice and Behaviour*, vol. 21, pp. 10-27.

McGurk, H. & Hazel, V. 1998, *The Economic Cost of Child Abuse and Neglect in South Australia*, Report prepared jointly by the Office for Families and Children and the Australian Institute of Family Studies, Adelaide.

Miller, T., Cohen M. & Wiersma, B. 1996, *Victim Costs and Consequences: A New Look*, National Institute of Justice Research Report, US Department of Justice, Washington DC.

Motiuk, L. L. & Brown, S. L. 1996, "Factors related to recidivism among released federal sex offenders", Paper presented to the XXVI International Congress of Psychology, Montreal, Canada.

Prentky, R. & Burgess, A. 1990, "Rehabilitation of child molesters: "A cost-benefit analysis", *American Journal of Orthopsychiatry*, vol. 60, no. 1, pp. 108-17.

Quinsey, V., Khanna, A. & Malcolm, P. 1998, "A retrospective evaluation of the regional treatment sex offender treatment program", *Journal of Interpersonal Violence*, vol. 13, no. 5, pp. 621-44.

Ryan, M. 1996, "Using willingness to pay to assess the benefits of assisted reproductive technique", *Health Economics*, vol. 5, pp. 543-58.

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