Australian Government
Australian Institute of Criminology

AIC reports
Research Report 05

How much does prison really cost? Comparing the costs of imprisonment with community corrections

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ISSN (Online) 2206-7280

Published by the Australian Institute of Criminology
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General editor: Dr Rick Brown, Deputy Director, Australian Institute of Criminology

Edited and typeset by the Australian Institute of Criminology

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Contents

Tables

Figures

Acknowledgements

This research was commissioned by Corrections Victoria. The Australian Institute of Criminology (AIC) is grateful for the ongoing support from Corrections Victoria for this research, which has been undertaken over a number of years and involved the two agencies working closely together.

In particular, the expert assistance of Helen Casey, Manager, Evaluation, in developing the research project, providing access to data and providing regular input and feedback on research outputs is gratefully acknowledged. The AIC would also like to thank Andy Chiang, Senior Research and Evaluation Officer, and Lucy Althorpe, Senior Evaluation Officer, for their input and feedback on earlier drafts.

Acronyms

ABS	Australian Bureau of Statistics
AIC	Australian Institute of Criminology
AIHW	Australian Institute of Health and Welfare
BITRE	Bureau of Infrastructure, Transport and Regional Economics
CBO	community-based order
CCS	Community Correctional Services
DALY	disability adjusted life years
DHS	Department of Human Services
DW	disability weight
ICO	intensive corrections order
MH	mental health
NPV	net present value
OOHC	out-of-home care
PV	present value
SCRGSP	Steering Committee for the Review of Government Service Provision
VISAT	Victorian Intervention Screening Assessment Tool
VSLY	value of a statistical life year
WSIPP	Washington State Institute for Public Policy

Executive summary

The costs associated with managing offenders in prison and in the community can be significant. Estimated costs are usually derived from the *Report on government services*, which reports both the operating expenditure and capital costs for prisons and community corrections. However, research has shown that sentencing a person to a period of incarceration can have much wider implications for the individual, their family, government and the broader community. These implications may be positive or negative, and may therefore generate both costs and savings.

Understanding the wider costs associated with different sentence options can be helpful in informing effective correctional policy and practice. Yet relatively few studies have attempted to estimate the wider costs or savings associated with pathways through imprisonment or community corrections.

The purpose of this research was to calculate the total net cost of pathways through imprisonment and community corrections in Victoria, taking into account a range of direct and indirect costs and savings associated with a matched cohort of prisoners and offenders. This study was undertaken in two stages. The first stage estimated the costs and savings accrued during sentences that began in 2009–10 (the reference episode). The second stage estimated the wider costs and savings for both this reference episode and subsequent pathways through imprisonment and community corrections over a five year period. The methodology used to develop these estimates and the results are presented in this report.

Methodology

To estimate the wider costs of imprisonment and community corrections it was necessary to first identify a matched group of prisoners and offenders for whom the imposition of a custodial or community-based sentence may have been equally likely. Drawn from a cohort of prisoners who received an actual term of imprisonment of up to 12 months in 2009–10, and a cohort of offenders who received an intensive corrections order (ICO) or a community-based order (CBO) of three months or longer in the same year, offenders were matched with prisoners on gender, age, Aboriginal or Torres Strait Islander status, most serious offence, number of prior terms of imprisonment and supervised orders, convictions and Victorian Intervention Screening Assessment Tool (VISAT) risk. This resulted in a matched group comprising 804 prisoners and 804 offenders. This represents 43 percent of prisoners who received a short sentence, and 15 percent of all prisoners who received a prison sentence in 2009–10.

Costs and savings were then estimated for the two cohorts based on published and unpublished studies, drawing primarily from rigorous Australian and international studies into the effects of prison and community corrections, along with data supplied by Corrections Victoria.

Costs and savings for the reference episode

The first stage of the study estimated the immediate costs and savings accrued during the period a prisoner was incarcerated in a custodial institution or an offender was serving a community corrections order. Because it was restricted to the reference episode (the first finalised sentence during the observation period), the estimate was based on the average cost per prisoner or per offender per day. The average length of this reference episode varied between the two groups—prisoners spent an average of 156 days in prison, while offenders spent an average of 356 days on a community order.

A summary of the average costs and savings per prisoner per day for each cost item in the estimate for imprisonment is presented in Table 1. The total net cost of imprisonment was estimated to be $61,179 per prisoner, or $391.18 per prisoner per day. This is around 20 percent higher than the direct sentence costs of prison alone.

Table 1: Average cost of imprisonment (sentenced period; 2014–15 dollars)

Cost item	Average value per day	Average value per prisoner
Costs		
Net operating expenditure	$268.59	$42,006.49
Capital costs	$59.46	$9,299.02
Lost productivity (paid work)	$62.19	$9,725.85
Lost productivity (unpaid work)	$39.66	$6,203.07
Workplace disruption and replacement	$39.51	$6,179.05
Prison assaults	$2.60	$406.73
Savings		
Reduced government payments	$30.17	$4,718.69
Incapacitation effect of imprisonment	$8.99	$1,406.36
Value of work completed in prison	$33.22	$5,196.10
Reduction in illicit drug use by prisoners	$2.62	$409.65
Reduction in alcohol use by prisoners	$5.82	$910.55
Total net cost of imprisonment	$391.18	$61,178.86

A summary of the average costs and savings per offender per day for each cost item for community corrections is presented in Table 2. The total net cost of community corrections was estimated to be $18.30 per offender per day, or $6,516 per offender for their reference episode—16 percent lower than the direct sentence costs. This means that, during the reference episode, the imprisonment cohort incurred costs to the offender, government and wider community that were more than nine times those for the community cohort.

Table 2: Average cost of community orders (sentenced period; 2014–15 dollars)		
Cost item	**Average value per day**	**Average value per offender**
Costs		
Net operating expenditure	$20.64	$7,349.24
Capital costs	$1.12	$398.52
Breach actions (for breach of conditions only)	$0.37	$132.87
Savings		
Impact of supervision on offending	$1.43	$508.96
Value of community work	$2.40	$855.63
Total net cost of community order	$18.30	$6,516.04

Costs and savings over a five-year period

The second component of this study followed both cohorts over a five-year period, including the reference episode, taking into account their respective pathways through imprisonment and community corrections. Both cohorts spent considerable time within the corrections system. Individuals in the prison cohort had, on average, 1.57 episodes of imprisonment and spent an average 277 days in prison, compared to 0.47 episodes of imprisonment and 88 days in prison for those in the community cohort. Individuals in the community cohort had an average 1.33 episodes of contact with community corrections and spent a total of 528 days serving supervised or unsupervised orders, compared with 0.81 episodes and 301 days for the prison cohort. While the community cohort spent nearly twice as long serving supervised or unsupervised orders, the prison cohort spent on average more than three times as many days in prison. Further, three-quarters of all offenders in the original community cohort were not imprisoned within the five-year period.

The average net present value (NPV) per person, as well as the present value (PV) for each cost item, is presented in Table 3. Unlike the reference episode, where cost items were restricted to one group or the other, estimates for each cost item are reported for both the prison and community cohorts, reflecting the fact that individuals moved between the different order types.

The total NPV of the prison cohort was estimated to be $116.2m, an average of $144,480 per person. The NPV for the community cohort was estimated to be $39.9m or $49,633 per person. Over a five-year period, the prison cohort accrued costs of nearly $76.3m more than the costs accrued by the community cohort—equivalent to $94,847 per person. While this cohort represents a small proportion of the entire prison population, this research demonstrates there may be significant savings associated with diverting individuals from short-term prison sentences to community corrections orders, where it is appropriate to do so.

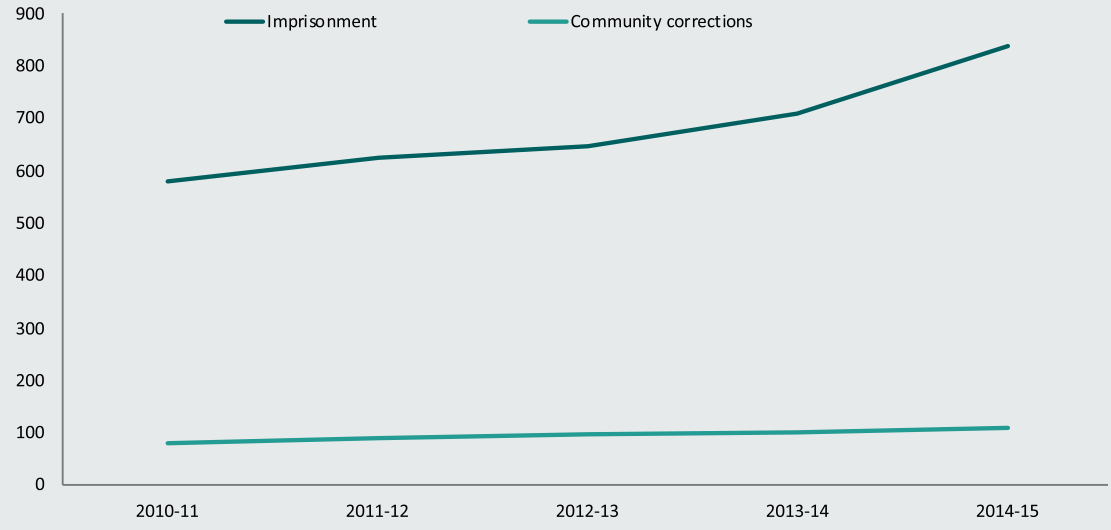
Table 3: Total NPV of imprisonment and community corrections per person, five-year follow-up (2014–15 dollars)

Cost item	Prison cohort	Community cohort
Costs		
Direct sentence costs	$97,010	$39,947
Lost productivity (paid work)	$16,543	$4,984
Lost productivity (unpaid work)	$10,551	$3,179
Lost earnings	$13,421	$1,443
Prison assaults	$841	$318
Breach actions (breach of conditions)	$101	$190
Supported accommodation	$614	$172
Hospital admissions and MH outpatient visits	$1,979	$213
Care and protection of children	$3,161	$188
Disability adjusted life years (prisoners, partners and children)	$19,826	$5,973
Savings		
Reduced government payments	$8,026	$2,418
Value of work completed in prison	$8,838	$2,663
Value of community work	$457	$1,216
Reduction in illicit drug use by prisoners	$697	$210
Reduction in alcohol use by prisoners	$1,549	$467
Total NPV	**$144,480**	**$49,633**

Introduction

The costs associated with managing offenders in prison and in the community can be significant. Estimated costs are usually derived from the Steering Committee for the Review of Government Service Provision's *Report on government services*, which reports both the operating expenditure and capital costs for prisons and community corrections (SCRGSP 2016). According to this report, in 2014–15 the total net operating expenditure and capital costs for imprisonment in Victoria were $837 million, while the total for community corrections was $109 million (Figure 1). This is equivalent to $361 per prisoner per day and $28 per offender per day, respectively.

Figure 1: Total net operating expenditure and capital costs (2014–15 $m)



Source: SCRGSP 2016

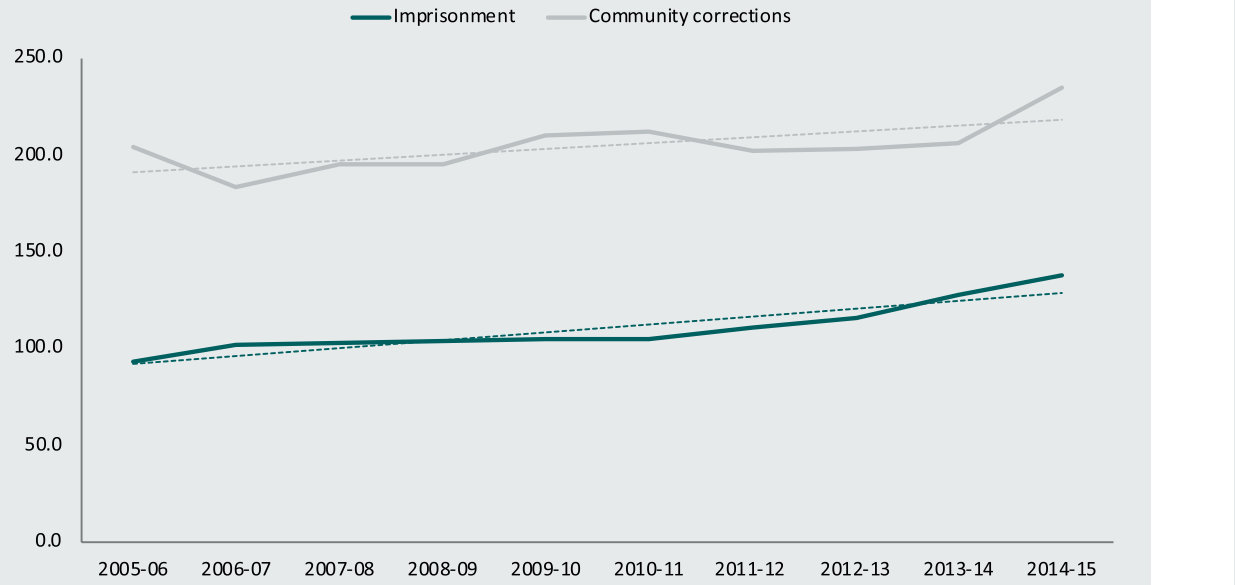
These figures are often cited in discussions about the cost of imprisonment (Gelb 2011; Victorian Ombudsman 2015). Comparisons between the cost of imprisonment and the cost of community corrections are often made by extrapolating the daily cost for prisoners and offenders to annual estimates or estimates for the average prison sentence (Gelb 2011; Smart Justice 2011). However, comparing annual estimates overlooks the fact that the length of sentence may vary significantly depending on whether an offender receives a custodial or non-custodial sentence. Similarly, estimates that rely on average sentence lengths do not

account for the fact that offenders may have their actual sentence length amended due to good or bad behaviour, may receive multiple consecutive sentences, or may move between different types of orders (eg when they are released on parole or resentenced to imprisonment as a result of breaching a community order).

Further, research has shown that sentencing a person to a period of incarceration can have much wider implications for the individual, their family, government and the broader community (deVuono-powell et al. 2015; Gelb 2011; Travis, Western & Redburn 2014). These implications may be positive or negative, and can therefore generate both costs and savings. There is evidence that prison can have an incapacitation effect when prisoners are incarcerated (Weatherburn, Hua & Moffatt 2006), and this reduction in offending means a reduction in the associated costs of crime (Smith et al. 2014). Conversely, research has also suggested that imprisonment may have a criminogenic effect (Travis, Western & Redburn 2014), meaning higher crime costs associated with increased recidivism after a prisoner leaves prison. While there is research that shows that participation in correctional employment and education programs can increase employment for prisoners post-release (compared with those prisoners who do not participate; Davis et al. 2013), research has also shown that, overall, prison may have a negative impact on prisoners' future earnings, if not their actual employment prospects (Holzer 2007; Kleykamp, Rosenfeld & Scotti 2008; Knuutila 2010; Travis, Western & Redburn 2014; Velamuri & Stillman 2007). The impact of imprisonment on housing stability and therefore homelessness can increase the need for housing support services (Baldry et al. 2006), while the impact on families can also have important cost implications—some tangible and others less tangible (deVuono-powell et al. 2015). Upon entering prison, prisoners have been shown to have poorer physical and mental health than the population in general and, while there may be increased access to diagnosis and treatment for existing health conditions, there is some (limited) evidence of health improving during incarceration in some ways and deteriorating in others (Travis, Western & Redburn 2014).

Understanding the true costs associated with different sentence options can help inform effective correctional policy and practice (Travis, Western & Redburn 2014). Changes to sentencing policy can have a significant impact on the number of individuals in prison or under community supervision, which in turn affects the cost of corrections. In Victoria, the rates of imprisonment and community corrections have both gradually increased over the past 10 years (Figure 2). But in recent years there have been significant changes to parole, the abolition of suspended sentences, the introduction of new community orders and changes to the management of offenders in the community, all of which have had important implications for both the number of people in prison or under supervision and the direct cost of providing these services (Department of Justice and Regulation 2015; Tubex et al. 2015). As shown in Figure 1, in the last five years the total net operating expenditure and capital costs for prison and community corrections have increased by 37 percent and 45 percent, respectively.

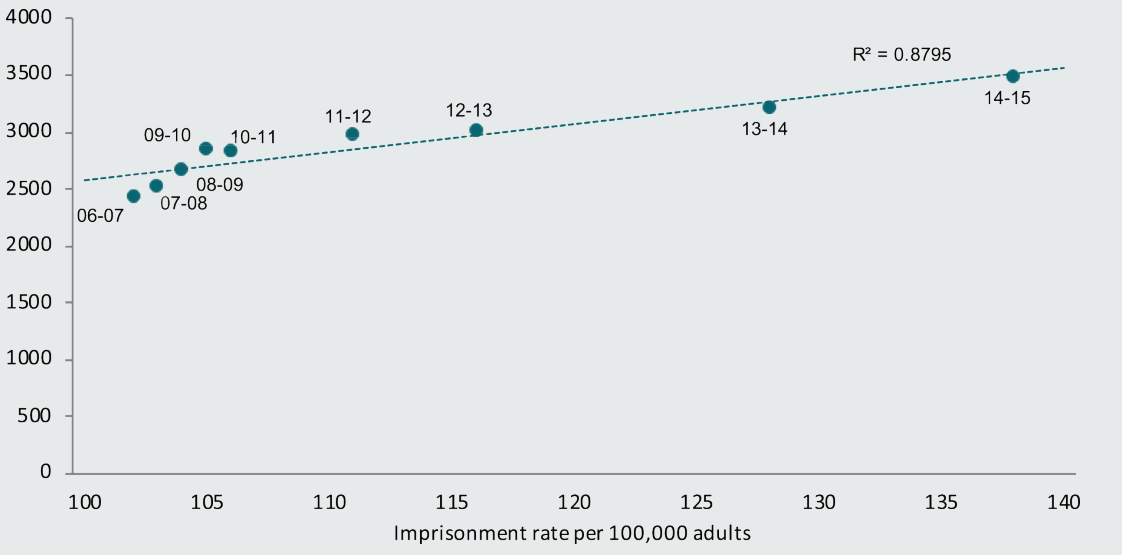
Figure 2: Imprisonment and community corrections, rate per 100,000 adults (with linear trend lines)



Source: Steering Committee for the Review of Government Service Provision 2016

Further, there is a historical relationship between the imprisonment rate and total recurrent criminal justice expenditure in Victoria, a pattern that has also been observed overseas (WSIPP 2003). As the imprisonment rate has increased, so too has the overall expenditure on police, courts and corrections (Figure 3).

Figure 3: Correlation between imprisonment rate per 100,000 adults and total criminal justice recurrent expenditure in Victoria (2014–15 $m; with linear trend line)



Note: Criminal justice expenditure includes total recurrent expenditure on police, courts and corrective services
Source: Steering Committee for the Review of Government Service Provision (multiple years)

But still there remains little evidence as to the real economic cost to government and the wider community of managing offenders in prison or in the community, beyond the immediate cost to government. Relatively few studies have attempted to estimate the wider costs or savings associated with imprisonment or community corrections, beyond the direct costs of offender management borne by non-correctional agencies (Henrichson, Rinaldi & Delaney 2015), cost-benefit analyses for alternatives to imprisonment (Deloitte Access Economics 2013; Lengyel & Brown 2009; Marsh & Fox 2008) or in terms of pathways through the criminal justice system (Baldry et al. 2012). For example, Marsh and Fox (2008) compared the economic efficiency of alternative sentencing options, finding that as well as costing less, enhancements to standard prison sentences and certain community-based interventions were more effective in reducing reoffending than prison, producing considerable savings. Their estimates, however, were based on the savings arising from crimes avoided, and relied on short-term effect sizes to derive lifetime estimates of reoffending. US studies have attempted to estimate the wider societal cost of imprisonment, particularly the costs to the offender and their family, and have highlighted the lack of available information needed to develop reliable estimates (deVuono-powell et al. 2015; Lengyel & Brown 2009).

There is, however, a much larger body of evidence that has explored the impact of prison on offenders, their families and the wider community (Travis, Western & Redburn 2014). An unpublished study by Hutchings and Brown (2011) reviewed this evidence and identified a number of domains that could be included in an economic model to estimate the wider costs and savings associated with imprisonment and community corrections. An adapted version of this proposed model is presented in Table 4. For prison, in addition to the direct costs associated with imprisonment, Hutchings and Brown (2011) concluded that there would be employment-related costs such as lost productivity or lost earnings, costs related to the criminogenic effect of imprisonment, health costs associated with changes in illicit drug and alcohol misuse and physical or mental health, costs related to housing insecurity and homelessness, costs associated with providing and supporting alternative care arrangements for children of prisoners, and intangible costs associated with family and relationship breakdown. They also argued that these costs would be, at least in part, offset by savings resulting from the work completed in prison and reduced government payments to prisoners, the incapacitation effect of imprisonment and the reduction in illicit drug and alcohol use.

Conversely, while there is a large body of literature that has examined the impact of prison on an individual's likelihood of reoffending and their general health and wellbeing, Hutchings and Brown (2011) found much less research into the impact of community corrections (beyond reoffending). Nevertheless, they concluded that there may be other costs associated with the management of offenders, besides the direct costs to corrective services, and possible savings related to changes in employment, offending and health.

Table 4: Conceptual model for estimating the wider costs of imprisonment and community corrections[a]

	Imprisonment	Community corrections
Costs		
Direct sentence costs	Net operating expenditure and capital costs	Net operating expenditure and capital costs
Employment	Lost productivity due to impact on employment (paid work) while in prison	Lost productivity due to disruption of employment patterns while under supervision
	Lost earnings due to impact on employment (paid work) post-release	
	Workplace disruption	
	Lost productivity due to reduction in unpaid work while in prison	
	Increase in expenditure on government payments to prisoners post-release	
Offending	Offences committed in prison (eg prison assaults)	Breach actions in response to offenders breaching the conditions of their order
	Increase in offending due to criminogenic effects of imprisonment	
Health	Increase in the misuse of illicit drugs and alcohol post-release	
	Impact of prison on the mental health of prisoners	
	Impact of prison on the physical health of prisoners	
Housing	Impact of prison on access to stable housing and increased need for housing support services post-sentence	
Family	Increased demand for care and protection services	
	Increased demand for support services for carers of children with incarcerated parents	
	Impact of parent's incarceration on the quality of life, relationships with and general wellbeing of prisoners' children and families	
Savings		
Employment	Value of work completed in prison	Value of community work
	Reduction in expenditure on government payments	Increased productivity post-sentence
		Reduction in government payments post-sentence

Table 4: Conceptual model for estimating the wider costs of imprisonment and community corrections[a] (continued)

	Imprisonment	Community corrections
Offending	Reduction in offending due to incapacitation effect of imprisonment	Reduction in offending while under supervision
		Reduction in offending post-sentence
Health	Reduction in the misuse of illicit drugs and alcohol while in prison	Reduction in the misuse of illicit drugs and alcohol while under supervision and post-sentence
	Improved health outcomes resulting from treatment provided while in prison	

a: Sentence and post-sentence refers to whether the cost or saving is incurred during the sentence and/or post-sentence period
Source: Adapted from Hutchings & Brown (2011)

Current study

Drawing on this earlier work, Corrections Victoria commissioned the Australian Institute of Criminology (AIC) to estimate the costs and savings associated with imprisonment and community corrections orders in Victoria. The purpose of this research was to calculate the total net cost of pathways through imprisonment and community corrections in Victoria, taking into account a range of direct and indirect costs and savings associated with a matched cohort of prisoners and offenders. The study was undertaken in two stages. The first stage estimated the costs and savings accrued during the sentenced period for the reference episode (the first finalised sentence during the observation period). The second stage estimated the wider costs and savings for both this reference episode and the post-sentence period. Both studies were based on data readily available from Corrections Victoria and relevant published and unpublished studies.

The first study sought to address the following research questions:

- What are the demographic, offending, familial and employment characteristics of a matched group of prisoners and offenders for whom the decision to impose a term of imprisonment or a community corrections order may be equally viable?
- What short-term impact do imprisonment and community corrections orders have on the circumstances of prisoners and offenders?
- What are the estimated short-term direct and indirect costs and savings associated with imprisonment and community corrections in Victoria?

Then, building on the results from the first stage, the second study addressed two additional research questions:

- What impact do imprisonment and community orders have on the circumstances of prisoners and offenders during the remand, parole and post-sentence periods?
- What are the estimated direct and indirect costs and savings associated with imprisonment and community corrections in Victoria incurred during the remand, parole and post-sentence periods?

The purpose of this report is to describe the methodology used in more detail, the sources of data used to inform the development of the cost estimates produced, the assumptions underpinning the analysis and its limitations.

Methodology

Target population

The purpose of this research was to estimate the costs and savings associated with different sentence options for a group of offenders for whom the imposition of a custodial or community-based sentence may be equally likely. It was therefore necessary to identify a matched group of prisoners and offenders who shared similar characteristics that are likely to influence sentencing decisions (eg the current offence, prior offences and prior imprisonment or community corrections orders) and which are also predictive of other outcomes, such as reoffending.

Further, identifying a matched group of offenders allowed for information that is known about one group to be applied to the other (for which this information is unknown), based on the assumption that they share similar characteristics. This was used in calculating a number of parameter estimates, such as the number of offences prevented through the incapacitation of prisoners while in prison.

In order to identify and describe the target population for inclusion in the study, Corrections Victoria provided the AIC with data for two cohorts:

- prisoners who received an actual term of imprisonment of up to 12 months in 2009–10 (n=1,882); and
- offenders who received an intensive corrections order (ICO) or a community-based order of three months or longer in 2009–10, imposed by a Magistrates or County Court (n=7,384).

Information provided to the AIC included demographic characteristics, recent offending (ie offences that resulted in the current sentence), prior offending (prior imprisonment and supervision orders), family circumstances (relationship status and whether they had any dependent children), employment and education status prior to the sentence being imposed, the type and length of the sentence imposed and breaches (by offending, conditions or both) committed by offenders during the sentenced period.

Offenders in the community corrections cohort were then matched with the prisoners in the prisoner cohort on the following variables:

- gender (exact match);
- age (close match);
- Indigenous status (exact match);
- most serious offence (exact match);
- number of prior terms of imprisonment (exact match);
- number of prior supervised orders (close match);
- convictions for violent, sex and drug offences (exact match); and
- VISAT risk (exact match).

These variables were selected because they have been demonstrated to have an impact on sentence outcomes and the likelihood of having a term of imprisonment imposed (Morgan & Louis 2010; Nagin, Cullen & Jonson 2009), and also on the risk of reoffending (Gelb, Fisher & Hudson 2013; Payne 2007).

Matching observations were selected using a Mahalanobis distance measure (Tabachnick & Fidell 2001). For each observation in the prisoner cohort, the closest matching observation from the community corrections cohort was selected according to the calculated distance measure, subject to the constraints of the variables above. This measure was calculated based on the correlation between two observations (one in each cohort), comparing the two across all variables specified in the selection process. The observation within the community corrections group that returned the shortest distance measure (ie most closely correlated) was then selected as the matched observation. Where two observations in the prisoner cohort returned the same matched observation within the community corrections cohort (which occurs when two observations are similar or exactly the same across the range of specified variables), the next closest match was identified and included in the matched group.

This resulted in a matched group comprising 809 prisoners in the prison cohort and 809 offenders in the community corrections cohort. In other words, from the total population of 1,882 prisoners who received an actual term of imprisonment of less than 12 months in 2009–10, 43 percent shared similar characteristics across a number of variables with an offender in the community corrections cohort and could therefore be reasonably expected to have been considered for a community corrections order at the time of sentencing (acknowledging that a range of factors are considered by a magistrate when sentencing an offender). Further analysis of the data revealed that five prisoners and five offenders had been duplicated in both cohorts, resulting in a final sample of 1,608.

Importantly, the cost estimates described in this report have been developed for this target population—the results cannot be applied to the wider prison and community corrections population. In 2009–10, there were 5,311 individuals received into prison custody (Department of Justice and Regulation 2015). The cohort included in this study—804 prisoners who may have potentially received a community order—represent 15 percent of all prisoners received into custody that year.

Characteristics of the matched group are presented in Table 5, Table 6 and Table 7 and can be summarised as follows:

- Ninety-one percent of prisoners and offenders in the matched group were male and four percent were Indigenous.
- The average age of prisoners in the matched group was 33 years and the average age of offenders was 32 years—there were more young people serving community corrections orders than in prison (40% vs 34%).
- The most common most serious offence (MSO) in the matched group was assault (25%) and driving offences (25%), followed by other property offences (16%), drug offences (10%) and burglary (8%).
- One-third of the matched group received a violence conviction (33%), one-quarter received a drug conviction (24%) and only six percent received a sex conviction in the episode that resulted in either the term of imprisonment or community corrections order.
- Nearly half (45%) of the matched group had been assessed as having a low risk of reoffending (based on the VISAT score), and less than one in the five (17%) were assessed as high risk.
- One-quarter (26%) of the matched group had previously been sentenced to a term of imprisonment, and 53 percent of offenders and 57 percent of prisoners had previously received at least one supervised order.
- The majority of offenders in the community corrections cohort (71%) had received a community-based order, followed by an intensive corrections order (29%) and drug treatment order (n=2).
- Those in the prison cohort spent an average of 156 days in prison, while offenders in the community corrections cohort spent an average of 356 days under supervision.

As well as describing the prisoners and offenders included in the study, these data were also used to identify major differences between the two groups and therefore threats to the assumption of comparability in the cost estimates.

Table 5: Demographic characteristics

	Prison cohort (n=804)		Community orders cohort (n=804)	
	n	%	n	%
Gender				
Male	730	91	730	91
Female	74	9	74	9
Aboriginal or Torres Strait Islander status				
Aboriginal or Torres Strait Islander	31	4	31	4
Age				
17–20[a]	80	10	114	14
21–25	194	24	208	26
26–30	143	18	137	17
31–35	132	16	108	13
36+	255	32	237	29
Mean age[b]	33		32	

a: There were more offenders than prisoners between the ages 17 and 20, $\chi^2(1,n=1,608)=9.63$, $p<0.05$, adjusted residuals exceeded +/–2.0
b: There was a small but statistically significant difference between the age of prisoners and offenders, calculated using a two-sample Wilcoxon rank-sum (Mann-Whitney) test, $z=2.389$, $p<0.05$
Source: Corrections Victoria 2012 [data file]

Table 6: Recent and prior offending				
	Prison cohort (n=804)		Community orders cohort (n=804)	
	n	%	n	%
Most serious offence				
Assault	201	25	202	25
Driving offences	201	25	200	25
Property offences other than burglary	129	16	128	16
Drug offences	82	10	82	10
Burglary	65	8	65	8
Fraud and misappropriation	52	6	52	6
Sex offences	42	5	42	5
Robbery and extortion	18	2	18	2
Good order offences	14	2	15	2
Convictions				
Violence conviction	266	33	267	33
Sex conviction	45	6	45	6
Drug conviction	190	24	189	24
VISAT risk				
Low	360	45	360	45
Moderate	306	38	306	38
High	138	17	138	17
Prior terms of imprisonment				
0	592	74	594	74
1	212	26	210	26
Prior supervised orders				
0	346	43	379	47
1	202	25	187	23
2 or more	256	32	238	30

Source: Corrections Victoria 2012 [data file]

Table 7: Order type and length				
	Prison cohort (n=804)		Community orders cohort (n=804)	
	n	%	n	%
Order type				
Community-based order	–	–	572	71
Drug treatment order	–	–	2	<1
Intensive correction order	–	–	230	29
Time spent in prison or on community order[a]				
Mean days	156	–	356	–
Median days	119	–	371	–
Mean days—community-based order	–	–	401	–
Mean days—intensive corrections and drug treatment orders	–	–	243	–

a: Actual time spent in prison or on community order, reception date to discharge date for imprisonment cohort
Source: Corrections Victoria 2012 [data file]

Methodology for calculating costs and savings

A decision was made early in this study to work towards an estimate of the total net cost per prisoner and the total net cost per offender, independent of one another. For both cohorts this represents the cost relative to not imposing a sentence (ie assuming no change in circumstances)—as opposed to the cost of imprisonment relative to the cost of community corrections (or vice versa). Using this approach means that an estimated net cost can be produced for each cohort, rather than producing a cost-benefit ratio or a relative cost for only one of the cohorts.

Cost items have therefore been calculated on the basis of the changes in prisoners' and offenders' circumstances that occur when the sentence is imposed. It assumes that, had they not been sentenced to either a custodial or non-custodial sentence, their circumstances prior to receiving the sentence would have continued unchanged. Where there is no change in a prisoner or offender's circumstances between the period prior to and after the commencement of the sentence, associated costs or savings are not incurred and the cost item has been excluded from estimate.

In order to calculate the costs and/or savings associated with each cost item, two estimates were required. The first was a parameter estimate for each cost item, which is essentially the intervention effect for imprisonment or community corrections. This was a combination of:

- the number and proportion of prisoners or offenders within the matched group affected by a change in circumstances due to receiving a term of imprisonment or community corrections order; and/or
- the size or quantity of the change in circumstances between the period prior to and the period during the term of imprisonment or community corrections order for each prisoner or offender affected.

The second estimate required was the actual cost estimate—this was the estimated dollar value attributable to a change in circumstances, usually calculated on a per unit (per hour or per event) basis. All costs were adjusted to 2014–15 dollars using the General Government Final Consumption Expenditure chain price deflator, which is the same method used in the *Report on government services* (SCRGSP 2016). For the estimate for the five-year follow-up period, a discount rate of four percent was applied for each subsequent year, consistent with the state Department of Treasury and Finance (2013) guidelines for economic evaluation. Each cost item was assessed to determine whether it represented a cost or a saving based on the estimated value and whether it would increase or decrease the total net cost for that sentence type.

Limitations

There are several important limitations to the current study that should be acknowledged. First, there is the potential for omitted variable bias in the selection of the matched cohort of prisoners and offenders, which becomes a problem when those variables are strongly correlated with the variable that is the focus of analysis (in this case, custodial vs non-custodial sentences; Weatherburn, Hua & Moffatt 2006). Villettaz, Gillieron & Killias (2015) caution that variables such as drug or alcohol abuse, employment history, relationship status, having dependent children and other factors may all affect a magistrate when deciding to impose a custodial or non-custodial sanction. In describing the state of the research attempting to measure the impact of imprisonment on recidivism, Bales & Piquero (2012: 97) suggest:

> “The main problem in this area of research is that individuals sentenced to prison differ in fundamental ways from those individuals who receive a non-custodial sanction.

However, quasi-experimental designs involving statistical matching are important and necessary, especially given the practical challenges involved in undertaking randomised controlled trials or natural experiments, reflected in the very small number of randomised controlled trials that have been conducted (Villettaz, Gillieron & Killias 2015). Therefore Nagin, Cullen and Jonson (2009) suggest that there is a minimum number of variables that need to be accounted for when identifying matched groups in studies into the effects of imprisonment—specifically, gender, age, race, current offence and prior offending. These variables were included as selection criteria for the matched group in the current study. Further, prisoners and offenders were also matched on the risk of reoffending assessed using the VISAT, a composite measure based on a wide range of criteria, including those identified by Villettaz, Gillieron & Killias (2015).

Nevertheless, there was some evidence that the community cohort were more likely to be employed, more highly educated and more likely to have children in their custody; however, the data recorded by Corrections Victoria for supervised offenders were much less reliable than for prisoners and there were significant gaps in these data, with information missing for a large number of offenders. For example, nearly 400 offenders had neither employment nor education information recorded, while nearly 600 had no information recorded on educational attainment. Further, there were different definitions for the relationship between children and their parents that mean the data may not be directly comparable between the two cohorts.

Given the potential for there to be some systematic bias in the likelihood that this information would be recorded (eg it is possible that correctional officers are more likely to record employment status for employed offenders under their supervision), and the potential limiting effects of reducing the original sample to those with all of the information recorded, these variables could not be included in the matching process.

Related to this is the absence of rigorous studies into the longer-term effects of imprisonment or community corrections, beyond the impact on offending. While several notable Australian studies have followed prisoners post-release (Baldry et al. 2006; Kinner 2006), they have frequently encountered challenges related to attrition (ie maintaining contact with offenders post-release) and have typically not compared the outcomes for prisoners against the outcomes for a similar group of offenders who have not been in prison. Taken together, these two limitations pose issues of internal validity (ie attributing changes in prisoner outcomes to their time in prison, as distinct from contact with the criminal justice system or other confounding factors) and external validity (generalising the results from what is often a small sample of offenders who may not be representative of the wider prison population). There are exceptions to this, such as Giles' (2016) recent study into the effects of prisoner education on reoffending and welfare dependence, and data linkage between criminal justice and non-criminal justice agencies is increasingly providing greater opportunities to better understand criminal justice pathways and outcomes.

In light of these gaps in the available data and knowledge and the reliance on published and unpublished studies, of which there have been relatively few in Australia, there are several assumptions that underpin the estimates that have been produced. Assumptions that specifically relate to individual cost items are described in the relevant section below.

An important assumption underpinning the analysis is that the circumstances of offenders serving community corrections orders remain largely unchanged during the period of their sentence. This assumption was made for two main reasons. First, the decision to impose a community corrections order where imprisonment may be a viable option may be due to the consideration of an offender's circumstances beyond their propensity to reoffend—such as being employed, or having parenting responsibilities or stable housing—which may be negatively impacted in the event that a term of imprisonment were imposed. The fact that the offender is able to remain in the community means that it is reasonable to assume these circumstances can be maintained during the period of the community-based sentence that is imposed.

The second reason for making this assumption was that there is limited research demonstrating otherwise. While there is a relatively large body of literature that has examined the impact of prison on an individual's likelihood of reoffending and their general health and wellbeing, much less research has examined the impact of community corrections (beyond reoffending). While this assumption has had important implications for the estimates (and partly explains the relatively small number of cost items included in the estimate for community corrections), it requires further investigation and empirical testing before it can be applied to a larger cost-benefit study.

Finally, there are several cost items that were identified in the original discussion paper by Hutchings and Brown (2011) that could not be included in either the first or second component of the study. These cost items were excluded from the analysis either because they did not incur a cost or saving within the sentenced period or because appropriate parameter and cost estimates could not be identified. As such, while this study does attempt to estimate the costs and savings associated with imprisonment and community corrections over a five-year period, including a significant number of costs and savings beyond the direct cost of managing prisoners and offenders, it is likely to underestimate the total costs and savings associated with a matched cohort of prisoners and offenders.

Costs and savings for the reference episode

This first stage of the economic analysis estimated the costs and savings accrued during the period prisoners were in prison or offenders were serving a community corrections order (ie between the start date and discharge date). This includes direct and indirect costs incurred by the Victorian Government, the Australian Government and the wider community.

This estimate does not include costs and savings accrued during:

- the remand period (except for prisoners, where the period on remand is included in the time spent in prison);
- the parole period (ie prisoners returning to the community under supervision); or
- the period after the sentence has been completed (ie post-sentence).

It also does not account for movement between sentence types, such as where an offender breaches a community corrections order and is resentenced to imprisonment. Costs and savings incurred during these periods were included in the second stage of the study, which estimated costs over a longer period. However, the short-term estimate does account for additional time spent in prison or under supervision due to subsequent orders, where they were served consecutively, or where the prisoner or offender had their sentence extended.

Table 8: Immediate costs and savings associated with imprisonment and community corrections[a]		
	Imprisonment	**Community corrections**
Costs		
Direct sentence costs	Net operating expenditure and capital costs	Net operating expenditure and capital costs
Employment	Lost productivity due to impact on employment (paid work) while in prison	
	Workplace disruption	
	Lost productivity due to reduction in unpaid work while in prison	
Offending	Offences committed in prison (eg prison assaults)	Breach actions in response to offenders breaching the conditions of their order
Savings		
Employment	Value of work completed in prison	Value of community work
	Reduction in expenditure on government payments	
Offending	Reduction in offending due to incapacitation effect of imprisonment	Impact of supervision on offending
Health	Reduction in the misuse of illicit drugs and alcohol while in prison	

a: Excludes cost items for which there were no reliable data available for parameter estimates or cost estimates

The decision to restrict the estimate to the sentence period has important implications for the cost items that have been, and have not been, included in the estimate. For example, the services provided to prisoners while incarcerated incur an immediate direct cost, but may result in longer-term savings once the prisoner returns to the community (eg education programs that result in meaningful employment post-sentence). The cost items included in this component of the economic analysis are presented in Table 8. Some cost items from the conceptual model were excluded on the basis that the necessary data were not available.

Direct sentence costs

The first cost item included in the estimate for both the imprisonment and community corrections cohorts was the direct cost associated with the management of prisoners in a custodial institution and offenders in the community by corrective services. This was based on the total cost per prisoner and total cost per offender per day for Victoria, reported annually by the Steering Committee for the Review of Government Service Provision (SCRGSP 2011).

The total cost of corrective services reported by the SCRGSP comprises two distinct components:

- Net operating expenditure—expenditure of an ongoing nature incurred by government in the delivery of corrective services, net of operating revenue (eg revenue from prison industries); and
- Capital costs—a user cost of capital (calculated as eight percent of the value of government assets), depreciation and debt service fees (which represent the equivalent capital costs for privately owned prisons), where applicable (SCRGSP 2011).

The decision to include capital costs is consistent with a recent report by Deloitte Access Economics (2013), which compared the costs of imprisonment with the costs of residential drug and alcohol treatment for Indigenous offenders.

The net operating expenditure and capital costs per prisoner/offender per day are presented in Table 9. This shows that the average daily cost of prison is substantially higher than the average daily cost of community corrections. It also demonstrates that, for prison, capital costs comprise a much greater proportion of the overall daily cost to corrective services.

Table 9: Net operating expenditure and capital costs per prisoner/offender per day, by sentence type

	2009–10 $	2014–15 $
Prison		
Net operating expenditure per prisoner per day	$240.66	$268.59
Capital costs per prisoner per day	$53.27	$59.46
Total net operating expenditure and capital costs per prisoner per day	$293.93	$328.05
Community corrections		
Net operating expenditure per offender per day	$18.50	$20.64
Capital costs per offender per day	$1.00	$1.12
Total net operating expenditure and capital costs per offender per day	$19.50	$21.76

Note: Net operating expenditure excludes payroll tax and is net of operating revenues from ordinary activities. Capital costs comprise a user cost of capital (calculated as 8 per cent of the value of government assets), depreciation, and debt service fees, where applicable. Real net operating expenditure and capital costs represent average costs, not marginal costs
Source: SCRGSP 2011

There are limitations associated with using the costs to corrective services reported by the SCRGSP. These costs represent the average cost of prison and community corrections per prisoner/offender per day, rather than marginal cost. The marginal cost refers to the change in the cost of a program that occurs when a unit of output increases (Henrichson & Galgano 2013), which in this case would be the number of prisoners incarcerated in a custodial institution and the number of offenders serving community corrections orders. The use of marginal costs is strongly preferred in economic analyses because it accounts for the fact that the cost of prison and community corrections comprises variable costs (directly related to workload), fixed costs (which remain unchanged when workload increases or decreases) and step-fixed costs (costs incurred when workload reaches a certain threshold), not all of which will be incurred for each additional prisoner/offender (Henrichson & Galgano 2013).
As a result, the use of average costs to estimate the cost associated with each prisoner/offender is likely to significantly overestimate the actual costs incurred by government for each additional person sentenced to prison or community corrections.

The other limitation with this estimate is that it is unable to account for the potential variation in direct sentence costs for different prisoners and offenders, which may be affected by the characteristics of prisoners/offenders or the characteristics of the order imposed. This is especially important given that this estimate has been developed for a subset of the prison and community corrections population. For example, it may be that the cost associated with short-term prisoners is considerably higher or lower than for prisoners who receive much longer sentences.

Reoffending and contact with the criminal justice system

Incapacitation effect of imprisonment and the impact of supervision on offending

An important goal of both prison and community orders is to reduce reoffending, particularly during the term of imprisonment or the period under supervision. Imprisonment has an important incapacitation effect on prisoners, physically reducing their capacity to offend against the public by taking them out of the community (although they may still commit offences against other prisoners, prison staff and visitors; Ritchie 2012). The supervision of offenders in the community, while not limiting their capacity to offend, may exert a deterrent and rehabilitative effect on offenders.

The estimate therefore needed to include the savings associated with the incapacitation effect of imprisonment and the impact of supervision of offending. The benefit of having identified a matched group of prisoners and offenders based on variables known to predict reoffending was that it meant that it was reasonable to assume that there would be a similar rate of offending among those who could continue to offend (community corrections cohort) and those who could not (prison cohort). Information about the offences committed by offenders while under supervision was therefore used to determine the incapacitation effect of imprisonment.

The first step was to determine the number and type of *recorded offences* committed by offenders in the matched group serving community corrections orders while under supervision. This was achieved by identifying those offenders who had breached by offending or breached by offending and conditions on at least one occasion. Information on the offences committed by these offenders was then extracted from the breach reports prepared by Community Correctional Services (CCS) officers. Importantly, while these breach reports were prepared for court, some of the offences recorded in the breach reports may not have been finalised once they proceeded to court (ie the number of offences resulting in a conviction may have been overstated).

Table 10: Cost per offence

Offence type	Outcome	Likelihood per offence	Cost per offence (2014–15 $)	Multiplier
Homicide			$2,287,569.20	
Assault	Injured and hospitalised	0.02	$70,481.03	1.5
	Injured and treated	0.06	$6,467.63	3.3
	Injured	0.13	$1,437.50	3.3
	Not injured	0.79	$478.79	6.7
Sexual assault	Injured	0.2	$13,079.24	2.8
	Not injured	0.8	$775.67	8
Robbery	Injured and treated	0.14	$21,732.14	6.1
	Injured	0.14	$1,437.50	6.1
	Not injured	0.72	$478.79	6.1
Burglary	Residential	0.85	$3,428.57	3.2
	Non-residential	0.15	$4,536.83	1.2
Motor vehicle theft	Insured and claim made	0.45	$12,318.08	1
	Insured but no claim made	0.35	$1,304.69	1
	Uninsured	0.2	$2,608.26	1
Theft from vehicles	Commercial vehicle	0.15	$1,584.82	2.8
	Other vehicle	0.85	$1,258.93	2.8
Shop theft			$150.67	100
Property damage			$1,599.33	4.3
Arson			$25,000.00	3
Deception			$18,750.00	4
Other theft			$505.58	2.7

Note: The methodology used by Smyth is broadly comparable to Mayhew's (2003) estimate of the cost of crime in Australia, but provides updated estimates specific to Victoria. More information is available in these reports
Source: Smyth 2011

However, not all offences that are committed by offenders in the community will have come to the attention of corrective services—a large number will have gone unrecorded. It was therefore necessary to apply multipliers to determine the number of *actual offences*, accounting for those offences that were not recorded. This involved using the multipliers reported by Smyth (2011) in calculating the cost of crime in Victoria, which are based on known reporting rates for different crime types (Table 10). This assumed that the rates of reporting for offences committed by offenders under supervision were the same as for the wider offending population. This also required accounting for the likelihood of different outcomes resulting from certain offence types (Smyth 2011). Multipliers were not applied to those offence types that are usually detected by (rather than reported to) police, such as drug possession and driving offences.

It was then necessary to determine the total number of offences that would have been committed by offenders had they not been under supervision (*estimated offences*). To do this, it was necessary to apply published estimates of the impact of community-based supervision on offending. The model used the percentage reduction in offending resulting from community supervision for different supervision strategies reported by Drake (2011). This was based on a meta-analysis of studies that had examined the impact of supervision on offending. Estimates were available for three supervision strategies—supervision with surveillance (0% reduction), surveillance and treatment (10%) and supervision with risk need responsivity model (16%; Table 11). Based on advice from Corrections Victoria, the estimate assumes that the risk need responsivity model is used in Victoria and has therefore assumed a reduction in offending of 16 percent. A consistent multiplier (1.19) was then applied to all recorded offences, as well as to the number of breach actions (breaches could involve multiple offences). Importantly, recent Australian research into the impact of parole supervision on offending in New South Wales produced a similar estimate, finding that the mean number of offences committed by unsupervised offenders within the first 12 months was 1.29 times higher than that of supervised offenders (ie offenders on parole; Wan et al. 2014). The estimate used in the current study may therefore represent a conservative estimate of the impact of supervision on offending in a Victorian context.

Table 11: Impact of supervision of adult offenders on crime, by supervision strategy

	Number of studies	Adjusted effect size	Standard error	% Reduction in crime	Multiplier
Supervision with risk need responsivity model	6	–0.303	0.03	16	1.19
Supervision involving surveillance and treatment	17	–0.205	0.071	10	1.11
Supervision involving surveillance only	14	0.004	0.065	0	1.00

The percentage change in crime is dependent on a base recidivism rate, which changes at each year of follow-up. Percentage change in crime calculated using a long-term follow-up of 15 years.
Source: Drake 2011

Table 12: Estimated cost of offences committed by offenders serving community-based orders assuming no impact of supervision and including unrecorded offences (2014–15 dollars)

	Recorded offences	Actual offences	Estimated offences	Cost of crime	Police cost	Total cost
Arson	1	3	4	$89,285.71	$96.03	$89,381.75
Assault	45	268	319	$748,332.86	$6,270.35	$754,603.21
Burglary	46	133	159	$570,890.11	$5,456.90	$576,347.00
Deception	1	4	5	$89,285.71	$118.63	$89,404.34
Driving offences	75	75	75	–	$6,405.92	$6,405.92
Drug use, possession and trafficking	43	43	43	–	$3,695.40	$3,695.40
Motor vehicle theft	10	10	12	$77,636.05	$1,186.28	$78,822.34
Other theft	63	170	203	$102,380.02	$7,473.57	$109,853.60
Property damage	15	65	77	$122,805.72	$1,440.48	$124,246.21
Robbery	5	30	36	$129,441.68	$593.14	$130,034.82
Shop theft	14	1,400	1,667	$251,116.07	$1,660.79	$252,776.87
Theft from motor vehicle	2	6	7	$8,718.75	$237.26	$8,956.01
Other offences	64	64	64	–	$5,466.39	$5,466.39
Total	**384**	**2,271**	**2,668**	**$2,189,892.70**	**$40,101.14**	**$2,229,993.84**

Source: Corrections Victoria 2011 [data file]; Donnelly et al. 2007; Drake 2011; Smyth 2011

This produced the total number of offences that would have been committed by offenders in the matched group, had they not been under supervision. The cost of these offences was then calculated using recent estimates of the costs associated with different offence types in Victoria, accounting for likelihood of particular outcomes, including medical costs, costs due to lost output, property loss and intangible costs (Smyth 2011). The method used by Smyth, including the use of multipliers and calculation of costs attributable to different crime types, is consistent with the methodology developed by Mayhew (2003) to estimate the costs of crime to Australia. The estimated cost of offences committed by offenders on community-based orders and those on intensive corrections orders is presented in Table 12 and Table 13.

Table 13: Estimated cost of offences committed by offenders serving intensive corrections orders assuming no impact of supervision and including unrecorded offences (2014–15 dollars)

	Recorded offences	Actual offences	Estimated offences	Cost of crime	Police cost	Total cost
Arson	0	0	0	–	–	–
Assault	12	71	85	$199,555.43	$1,672.09	$201,227.52
Burglary	2	6	7	$24,821.31	$237.26	$25,058.57
Deception	0	0	0	–	–	–
Driving offence	18	75	75	–	$1,708.25	$1,708.25
Drug use, possession and trafficking	11	43	43	–	$1,031.27	$1,031.27
Motor vehicle theft	0	0	0	–	–	–
Other theft	7	19	23	$11,375.56	$830.40	$12,205.96
Property damage	1	4	5	$8,187.05	$96.03	$8,283.08
Robbery	1	6	7	$25,888.34	$118.63	$26,006.96
Shop theft	5	500	595	$89,684.31	$593.14	$90,277.45
Theft from motor vehicle	0	0	0	–	–	–
Offence not elsewhere classified	11	64	64	–	$1,024.95	$1,024.95
Total	68	788	904	$359,511.99	$7,312.01	$366,824.01

Source: Corrections Victoria 2011 [data file]; Donnelly et al. 2007; Drake 2011; Smyth 2011

Criminal justice costs are also included as part of the estimate, although they have not traditionally been attributed to individual offence types (Mayhew 2003; Smyth 2011).

To determine the costs to police associated with responding to these offences, the AIC used the mean number of hours spent by police responding to different alcohol-related offence types (Table 14; Donnelly et al. 2007). The cost associated with police time in responding to each offence type was calculated using the estimated hourly salary for police officers, which was based on the average police staff costs for Victoria Police (SCRGSP 2011). These costs were then mapped to the offence categories reported by Smyth as closely as possible to produce an estimated cost to police for each offence type. The results from this analysis are also presented in Table 12 and Table 13.

Table 14: Cost associated with police response to offending

Crime	Mean police hours per incident	Median police hours per incident	Average hourly police salary (2009–10 $)[a]	Average hourly police salary (2014–15 $)
Assault	2.22	1.08	$47.24	$52.72
Public nuisance	1.62	1	$47.24	$52.72
Malicious damage	1.53	1.13	$47.24	$52.72
Liquor breaches	1.63	0.83	$47.24	$52.72
Theft-related	1.89	1	$47.24	$52.72
Traffic	1.62	1	$47.24	$52.72

a: Based on average police staff costs of $98,259 per year in 2009–10. Includes salary, superannuation and payroll tax. Hourly salary based on 40 hour working week

Source: Donnelly et al. 2007; SCRGSP 2011

The final cost estimate produced was the cost associated with court hearings for breaches by offending and breaches by offending and conditions. This assumes that offences and breaches (by offending and by offending and conditions) were dealt with in the same court hearing, and that all offences recorded in each breach report were dealt with in one Magistrates Court episode. The estimated number of breach actions that would have been required had there been no impact from supervision was also calculated using the same multiplier as before. The cost associated with breach actions was then calculated using the Victorian Magistrates Court's real net recurrent expenditure per criminal case finalisation (SCRGSP 2011). The results are presented in Table 15. These costs do not include the costs incurred by other parties involved in the court process (with the exception of the CCS officer).

Table 15: Cost associated with breach actions for offending among offenders serving community orders (2014–15 dollars)

	Community-based orders	Intensive corrections orders
Number of breach actions (recorded)	92	16
Number of breach actions (estimated)	110	19
Average Magistrates Court cost per breach action (2014–15 $)	$430.75	$430.75
Total Magistrates Court costs	$47,177.04	$8,204.70

Note: Limited to breaches by offending and breaches by offending and conditions only. Assumes that offences and breaches are dealt with through the same Magistrates Court episode
Source: Corrections Victoria 2011 [data file]; SCRGSP 2011

The value of the saving associated with a reduction in offending due to the incapacitation effect of imprisonment was then calculated. This was the difference between the total cost of all offences committed by offenders in the community corrections cohort (including all unrecorded offences and assuming no impact from supervision) and zero. Given the average length of community orders was longer than the average length of imprisonment (and therefore the incapacitation effect applies to a portion of the actual time offenders in the community cohort had available to offend while under supervision), the average saving per day was calculated using the average length of community orders. This assumes that the rate of offending for the community cohort was consistent across the period of the order. The total saving from the incapacitation effect was estimated to be $8.99 per prisoner per day.

The value of the saving associated with a reduction in offending due to the impact of supervision was also calculated. This was the difference between the total cost of all offences committed by the community corrections cohort (including all unrecorded offences and assuming no impact from supervision) and the cost of recorded and unrecorded offences (ie the difference between the two columns in Table 16). The total saving from the impact of supervision on offending was estimated to be $1.43 per offender per day—the sum of the difference between the two estimates for CBOs (=B–A) and ICOs (=D–C).

Table 16: Total cost associated with offending (2014–15 dollars)		
	Estimated cost (for recorded and unrecorded offences)	Estimated cost (for recorded and unrecorded offences, assuming order has no impact on offending)
Community-based orders		
Total cost	$1,915,314.37	$2,277,170.87
Average cost per offender	$2,382.23	$2,832.30
Average cost per offender per day	$5.95 (A)	$7.07 (B)
Intensive corrections orders		
Total cost	$315,284.25	$375,028.71
Average cost per offender	$392.14	$466.45
Average cost per offender per day	$1.62 (C)	$1.92 (D)

Assaults committed in prison

While imprisonment has an incapacitation effect and prevents those offences that would have otherwise been committed by prisoners had they remained in the community, it does not prevent all offences. Some offences may still be committed by prisoners in prison. For example, previous research has found the rate of assault in prison to be much higher than in the general population (Ritchie 2012).

The cost associated with assaults committed in prison has therefore been included in the estimate. The number of assaults was based on the rate of serious assault and the rate of assault against prisoners and prison officers reported by SCRGSP (2011; Table 17). 'Serious assault' refers to acts of physical violence resulting in injuries requiring medical treatment involving overnight hospitalisation in a medical facility or ongoing medical treatment, as well as all sexual assaults. Following advice from Corrections Victoria, serious assaults were assumed to comprise 98 percent assaults (involving injury and hospitalisation) and two percent sexual assaults (involving injury and no injury). 'Assault' refers to acts of physical violence resulting in a physical injury that may or may not require short-term medical intervention but do not involve hospitalisation or ongoing medical treatment. This includes assaults involving injury and treatment and assaults involving injury but no treatment. The cost of each type of assault was calculated using the estimates produced by Smyth for assaults in Victoria, accounting for the likelihood of particular outcomes (Smyth 2011). The estimated cost per offence is presented in Table 17.

Table 17: Rate of assaults in prison, by assault seriousness and victim		
	Rate per 100 prisoners (2009–10)	Cost per offence (2014–15 $)
Serious assault on prisoner	0.98	$69,136.13
Assault on prisoner	7.64	$3,025.96
Serious assault on prison officer	0.02	$69,136.13
Assault on prison officer	0.85	$3,025.96

Source: Smyth R 2011; SCRGSP 2011

To determine the number of assaults committed by the prisoners in the prison cohort per day, the rate per 100 prisoners was divided by 100 and then by 365. This was then multiplied by the cost of the offence to calculate the average cost of prison assaults per prisoner per day. The results are presented in Table 18 and show that the total cost was $2.60 per prisoner per day.

Table 18: Cost associated with assaults in prison, by assault seriousness and victim (2014–15 dollars)		
	Number of offences per prisoner per day	Average cost per prisoner per day
Serious assault on prisoner	0.000027	$1.86
Assault on prisoner	0.000209	$0.63
Serious assault on prison officer	0.000001	$0.04
Assault on prison officer	0.000023	$0.07
Total	**0.000260**	**$2.60**

Note: Assumes there are no unrecorded assaults in prison
Source: Smyth 2011; SCRGSP 2011

There are two important assumptions underpinning this estimate that need to be considered when interpreting the result. First, the estimate assumes that prisoners in the target population (ie those with relatively short sentences) are as likely as the general prison population to perpetrate or be a victim of assault while in prison. Second, the estimate is based on the assumption that the costs associated with assaults occurring in prison are equivalent to costs associated with assaults occurring in the community.

Breach actions taken in response to offenders who breached the conditions of their order

Offenders supervised in the community are required to adhere to certain conditions, such as meeting regular reporting requirements, participating in treatment and rehabilitation and not using illicit drugs. Failing to abide by these conditions can result in formal breach action being taken by a CCS officer. The estimate therefore also included the costs associated with responding to offenders who breached the conditions of their community order (for reasons other than further offending). These are additional costs incurred as a result of the imposition of a community order.

To estimate these costs, it was necessary to first identify the number of breach actions taken in response to breaches by conditions by offenders in the community corrections cohort. This was identified from the extract provided by Corrections Victoria. There were a total of 248 breach actions taken against the 804 offenders in the matched group.

The next step involved estimating the costs associated with responding to each breach. It was assumed that the time CCS officers took to process breaches was already accounted for within the operating expenditure for corrective services. Similarly, where a new order was imposed in response to the breach (and the period of supervision extended), the cost associated with the new order (ie the cost of supervision by the CCS officer) was assumed to be captured within the direct sentence costs described earlier. Therefore the estimated cost associated with breach actions was limited to the cost of court hearings (assuming that all breach actions involved returning to court). This was based on the Victorian Magistrates Court's real net recurrent expenditure per criminal case finalisation (SCRGSP 2011). As with court costs associated with further offending, these costs do not include the costs incurred by other parties involved in the court process (with the exception of the CCS officer).

The results are presented in Table 19. This shows that the average cost of breach actions for breaches by conditions was $0.37 per offender per day.

Table 19: Costs associated with breach actions for breaches by conditions (2014–15 dollars)

Number of breach actions (breach of conditions only)	248
Average Magistrates Court cost per breach action (2014–15 $)	$430.75
Total Magistrates Court costs	$106,824.36
Average cost per offender	$132.87
Average cost per offender per day	$0.37

Source: Corrections Victoria 2011 [data file]; SCRGSP 2011

Employment, productivity and government payments

Reduction in government payments

A significant proportion of prisoners in the matched group reported not being in paid employment at the commencement of their sentence. Many of these prisoners would therefore have been eligible for and were likely to have been receiving some form of government payment prior to entering prison. When a prisoner enters prison they are no longer entitled to the government payments they received while they were in the community. Therefore there is a saving to the Australian government associated with not having to continue to pay individuals who received some form of government payment prior to entering prison for the duration of their sentence.

Using the employment status of prisoners and maximum entitlement for relevant payments reported by the Department of Human Services (DHS 2010), these savings have been included in the estimate. The first step was to determine the proportion of prisoners in the matched group who were unemployed, pensioners, students or engaged in unpaid work (home duties) prior to entering prison, based on the extract provided by Corrections Victoria. This information is presented in Table 20. It was necessary to categorise prisoners according to their relationship status and whether they had dependent children, as these factors influence the amount of government payments received. It was also necessary to determine the proportion of unemployed prisoners receiving a disability pension (as opposed to Newstart) using a recent housing census of Victorian prisoners (HomeGround Services 2010).

Table 20: Employment status of Victorian prisoners prior to entering prison, by relationship status and dependent children (n=732)

	Single		In a relationship	
	n	%	n	%
Prisoners with no dependent children				
Employed	104	14	35	5
Home duties	0	0	2	0
Pensioners	15	2	7	1
Students	6	1	1	0
Unemployed	351	48	65	9
Prisoners with dependent children				
Employed	18	2	21	3
Home duties	4	1	4	1
Pensioners	4	1	1	0
Students	0	0	0	0
Unemployed	66	9	28	4

Note: Total includes prisoners with known employment status. Employed includes those prisoners who reported being employees, employers and self-employed. Excludes 53 prisoners with unknown employment status, 4 prisoners with 'other' employment status, and a further 15 prisoners with unknown relationship status
Source: Corrections Victoria 2012 [data file]

The value of the payments provided to these prisoners prior to entering prison was then determined by using the maximum payment amounts for relevant payments, by relationship status and whether the person had dependent children (DHS 2010). Equivalent daily amounts are presented in Table 21. As shown in this table, it was necessary to map payment types to the different categories of employment status reported by Corrections Victoria.

It was then possible to estimate the average government payment per prisoner per day prior to entering prison by multiplying the percentage of the entire prison cohort in each category by the relevant payment amount (Table 22). This shows that the average total government payment for each prisoner in the prison cohort was $30.17 per day. In other words, sentencing these prisoners to a term of imprisonment in a custodial institution saved the Australian government an average of $30.17 per prisoner per day.

Table 21: Government payments per day, by employment status (as at June 2010; 2014–15 dollars)

	Single		In a relationship	
	No dependent children	Dependent children	No dependent children	Dependent children
Home duties (based on parenting payments)	–	$47.94	–	$33.30
Pensioner (based on age pension)	$51.36	$51.36	$38.71	$38.71
Students (based on youth allowance)	$30.05	$39.37	$30.05	$33.00
Unemployed (based on Newstart and disability pension)	$40.51	$42.78	$34.65	$34.65

Note: Payments based on fortnightly allowances (per day rate based on 14 day fortnight). Maximum entitlement used for all payments. Excludes bonuses, supplements, rent assistance and family tax benefits. Unemployed entitlement assumes 25% unemployed prisoners on disability pension, 75% receiving Newstart allowance. Based on Prisoner Housing Census
Source: DHS 2010; HomeGround Services 2010

Table 22: Government payments to prisoners prior to entering prison, by relationship status and dependent children (2014–15 dollars)			
	%	Government payment, per person per day	Average government payment, per prisoner per day
Single prisoners			
Prisoners with no dependent children			
Employed	14	–	–
Home duties	0	–	–
Pensioners	2	$51.36	$1.05
Students	1	$30.05	$0.25
Unemployed	48	$40.51	$19.42
Prisoners with dependent children			
Employed	2	–	–
Home duties	1	$47.94	$0.26
Pensioners	1	$51.36	$0.28
Students	0	$39.37	–
Unemployed	9	$42.78	$3.86
Prisoners in a relationship			
Prisoners with no dependent children			
Employed	5	–	–
Home duties	0	–	–
Pensioners	1	$38.71	$0.37
Students	<1	$30.05	$0.04
Unemployed	9	$34.65	$3.08
Prisoners with dependent children			
Employed	3	–	–
Home duties	1	$33.30	$0.18
Pensioners	<1	$38.71	$0.05
Students	0	$33.00	–
Unemployed	4	$34.65	$1.33
All prisoners			**$30.17**

Source: Corrections Victoria 2012 [data file]; DHS 2010

There are some important assumptions and exclusions from this estimate. First, the estimate has been calculated on the basis that prisoners were receiving the maximum amount payable prior to entering prison. Because government payment amounts are influenced by factors such as the income and assets of recipients, these maximum amounts are likely to overestimate the average payment to prisoners in each category.

Because the various criteria used to determine whether a person is eligible for additional payments were largely unknown for the matched group, these additional government payments—including bonuses, supplements, rent assistance and family tax benefits—were excluded from the estimate. Similarly, the estimate was unable to account for changes in family member payments that might be incurred when their partner/parent/carer is imprisoned which, had they been included (along with the additional payments to the prisoner themselves), would have offset some of the savings associated with not having to provide government payments to prisoners.

Lost productivity (paid work)

When prisoners are sentenced to a term of imprisonment, any employment they may have had prior to sentencing ceases, at least for the duration of their sentence. There are different methods for calculating the costs associated with the loss of employment due to incarceration. This can include the lost taxation revenue (a cost to the Australian Government), lost wages (a cost to the individual and their family) and lost productivity (a cost to the community).

For the current study, the lost productivity approach was chosen. This method has been used in a range of studies estimating the costs associated with road crashes (BITRE 2009), workplace injuries (Watson & Ozanne-Smith 1997) and imprisonment (Mayhew 2003). This method estimates the costs associated with lost productive effort from paid work by prisoners with employment prior to entering prison, measured by the expected loss in gross income from employment. This is calculated based on workforce participation rates and average earnings for employees.

Table 23: Employment status of prisoners prior to entering prison, by gender

	Male		Female	
	n	%	n	%
Employed	167	25	13	19
Home duties	0	0	10	14
Pensioners	17	3	10	14
Students	6	1	1	1
Unemployed	488	72	35	51
Total offenders with known employment status	**678**	**100**	**69**	**100**

Note: 'Employed' includes those prisoners who reported being employees, employers or self-employed. Excludes 53 prisoners with unknown employment status, 5 prisoners with 'other' employment status
Source: Corrections Victoria 2012 [data file]

This required determining the proportion of prisoners in the matched group who were employed prior to entering prison (Table 23). In order to calculate the average earnings of these employees based on the industry in which they worked, the occupation type recorded for prisoners by Corrections Victoria at the time of entering prison was also determined.

Table 24: Salary rates (weekly; 2014–15 dollars)

	Salary	Total salary (including 25% salary on-costs)	Equivalent daily rate
Full-time minimum wage (as at March 2010)	$636.05	$795.06	$159.01
Average weekly total cash earnings—male employees[a]	$1,461.50	$1,826.87	$365.37
Average weekly total cash earnings—female employees[a]	$1,197.88	$1,497.35	$299.47
Average weekly total cash earnings—all employees[a]	$1,367.08	$1,708.84	$341.77
Average weekly total cash earnings—male offenders in cohort[b]	$1,445.11	$1,806.39	$361.28
Average weekly total cash earnings—female offenders in cohort[b]	$1,171.23	$1,464.03	$292.81

a: Average weekly earnings (ordinary time), permanent full-time employees only (Victoria, May 2010)
b: Average weekly earnings (ordinary time) for prison cohort (Australia, May 2010)
Source: ABS 2010; Corrections Victoria 2012 [data file]; Fair Work Ombudsman 2010

The income of those prisoners who were employed was estimated using three different salary rates—full-time minimum wage (Fair Work Ombudsman 2010), average weekly earnings for full-time employees in Victoria (ABS 2010) and average weekly earnings for full-time employees by industry (ABS 2010)—plus salary on-costs. The latter rate was calculated based on the occupation type recorded for prisoners by Corrections Victoria at the time of entering prison. The different rates (including the rates for male and female prisoners) are presented in Table 24. It was assumed that all prisoners who were employed prior to entering prison were employed on a full-time basis, which likely overestimates both the hours worked and income earned by prisoners.

Estimates of the average income of prisoners prior to entering prison, per prisoner per day, were then calculated for all three salary rates (Table 25) by multiplying workforce participation rates by the daily salary rates. The default estimate that was used was the average weekly earnings for the prison cohort, based on their occupation type. While Victorian-specific data was not available, it was agreed this would more reliably estimate the income of those prisoners who were employed because it took the type of employment into account. Using this estimate, the average income of prisoners prior to entering prison, and therefore the cost associated with lost productivity from paid employment, was $62.19 per prisoner per day. This represents the average income for both employed and unemployed prisoners.

Table 25: Average income of prisoners prior to entering prison, per prisoner per day (2014–15 dollars)			
	Male prisoners	Female prisoners	All prisoners
Salary rate			
Full-time minimum wage (as at March 2013)	$27.98	$21.40	$27.37
Average weekly earnings[a]	$64.28	$40.30	$62.08
Average weekly earnings[b]	$63.56	$48.62	$62.19

a: Average weekly earnings (ordinary time), permanent full-time employees only (Victoria, May 2010)
b: Average weekly earnings (ordinary time) for prison cohort (Australia, May 2010)
Note: Average income calculated for the entire cohort, including employed and unemployed prisoners
Source: ABS 2010; Corrections Victoria 2012 [data file]; Fair Work Ombudsman 2010

Workplace disruption and replacement

Besides the costs associated with lost productivity resulting from the imprisonment of previously employed prisoners, there are additional costs incurred by employers resulting from workplace disruption and replacement. This includes the costs incurred by employers during the period of time before an employee can be replaced—measured by gross income of the employee—and the estimated cost associated with recruitment/retraining. This method has been used in estimating the costs associated with fatalities and serious injuries from road crashes (BITRE 2009).

The estimated average length of time before an employee can be replaced reported in the BITRE (2009) study was used to calculate the number of days (on average) it would take to replace a prisoner who was employed prior to entering prison (Table 26). BITRE also estimated the average cost of recruitment and retraining for each employee, which was adjusted for inflation.

Table 26: Estimated workplace disruption	
Time required to replace employee (weeks)	9.6
Time required to replace employee (days)	67.2
Average cost of recruitment and retraining (2006 $)	$6,422.00
Average cost of recruitment and retraining (2014–15 $)	$8,254.50

Source: BITRE 2009

The gross income of prisoners who were employed prior to entering prison was calculated using the same three salary rates as for lost productivity— full-time minimum wage (Fair Work Ombudsman 2010), average weekly earnings for full-time employees in Victoria (ABS 2010) and average weekly earnings for full-time employees by industry (ABS 2010)—plus salary on-costs. The average weekly earnings for the prison cohort, based on their occupation type, was also used to estimate workplace disruption costs. The average cost of workplace disruption per prisoner per day was then calculated based on the proportion of prisoners who reported having been employed prior to entering prison. The results are presented in Table 27—the estimated cost per prisoner of workplace disruption was $39.01 per day.

This estimate assumes that all prisoners who lose their job when they enter prison do not return to their place of work when they exit prison or that, if they do return to the same position upon leaving prison, the position had been filled by someone else in the interim (ie an additional employee, as opposed to the role being absorbed by other staff within the organisation). Related to this point, this estimate has also been calculated on the basis that all positions that are vacated as a result of a former employee entering prison are filled by another employee (ie it is assumed the position itself is ongoing). Further, the estimate has also been calculated on the assumption that all vacated positions were full-time positions. Finally, the estimated cost of recruitment and retraining and the time taken to recruit employees are likely to vary significantly by industry type—the current study assumes the BITRE (2009) estimate is relevant to the target population of prisoners in the matched group.

Table 27: Estimated costs associated with workplace disruption and replacement (2014–15 dollars)	
Gross earnings of employees during replacement period, per prisoner[a]	$1,839.32
Gross earnings of employees during replacement period, per prisoner[b]	$4,171.49
Gross earnings of employees during replacement period, per prisoner[c]	$4,178.97
Average cost of recruitment and retraining, per prisoner	$2,000.09
Average cost of workplace disruption, per prisoner per day[a]	$24.24
Average cost of workplace disruption, per prisoner per day[b]	$38.96
Average cost of workplace disruption, per prisoner per day[c]	$39.01

a: Calculated using full-time minimum wage (as at March 2010)
b: Calculated using average weekly earnings (ordinary time), permanent full-time employees only (Victoria, May 2010)
c: Calculated using average weekly earnings (ordinary time) for prison cohort (Australia, May 2010)
Source: ABS 2010; BITRE 2009; Corrections Victoria 2012 [data file]; Fair Work Ombudsman 2010.

Lost productivity (unpaid work)

In addition to the lost productivity associated with paid work, prisoners are also no longer able to perform unpaid work that they would have done had they remained in the community, which can also be assigned a monetary value. Therefore the estimate also includes the costs associated with lost productive effort from unpaid work done by prisoners prior to entering prison—measured by the assumed economic value of household and voluntary work. As with the lost productivity associated with paid work, this method has previously been used in estimating costs associated with imprisonment (Mayhew 2003), road crashes (BITRE 2009) and injuries (Watson & Ozanne-Smith 1997).

The first step was to determine the proportion of prisoners in the matched group who were employed, unemployed and not in the labour force prior to entering prison, using the data supplied by Corrections Victoria. The time spent on productive non-work activities including domestic activities, child care and voluntary work and care was then assigned to each group, based on previously published estimates from a survey conducted by the ABS in 2006 (ABS 2008; see Table 28). This survey showed that the time spent on unpaid work varied depending on the employment status of a person, as well as varying between male and female offenders.

Table 28: Time spent on unpaid work, per person per day, by labour force status (hours)		
	Males	Females
Employed full-time	1.95	2.95
Unemployed	2.60	4.25
Not in the labour force	2.95	5.12

Note: Unpaid work includes domestic activities, child care and voluntary work and care
Source: ABS 2008

The average number of hours for each group was then multiplied by the potential value of that work (ie the hourly rate), assuming someone was employed to perform the duties.
Two different cost estimates were produced—the first used the full-time minimum wage (Fair Work Ombudsman 2010) in calculating the value associated with unpaid work. The second estimate used the average weekly earnings of full-time employees in Victoria (ABS 2010). Both included salary on-costs. Minimum wage was preferred because of the nature of unpaid work, but also because it represents a more conservative estimate. The results are presented in Table 29. The final estimate was a cost of $39.66 per prisoner per day.

Table 29: Average value of unpaid work by prisoners prior to entering prison, per prisoner per day			
	Male prisoners	Female prisoners	All prisoners
Prisoners employed full-time prior to entering prison			
Full-time minimum wage (as at March 2010)	$7.27	$8.42	$7.38
Average weekly earnings[a]	$16.71	$15.85	$16.63
Prisoners unemployed prior to entering prison			
Full-time minimum wage (as at March 2010)	$28.34	$32.65	$28.74
Average weekly earnings[a]	$65.12	$61.49	$64.79
Prisoners not in labour force prior to entering prison			
Full-time minimum wage (as at March 2010)	$1.52	$23.58	$3.55
Average weekly earnings[a]	$3.48	$44.41	$7.25
All prisoners			
Full-time minimum wage (as at March 2010)	$37.13	$64.65	$39.66
Average weekly earnings[a]	$85.32	$121.75	$88.67

a: Average weekly earnings (ordinary time), permanent full-time employees only (Victoria, May 2010)
Source: ABS 2008; 2010; Corrections Victoria 2012 [data file]; Fair Work Ombudsman 2010

Value of work completed in prison

There are opportunities for prisoners to engage in paid employment while they are in prison, either in service industries (no fee for service) or in commercial industries (fee for service). A qualitative study of the impact of Corrections Victoria's commercial prison industries concluded that prison employment helped to develop the skills of prisoners, particularly in the areas of time management and work discipline (Buchanan & Considine 2007).

In the short-term, prison employment represents an opportunity to provide useful services and generate revenue for a relatively small cost. The value of productive work completed by prisoners during their sentence represents a saving associated with imprisonment. This was measured by the assumed economic value of the paid work, based on likely gross income had the offender been participating in equivalent paid employment in the community.

Factors that influence whether a prisoner will be employed include age, health, whether they are engaged in full-time education and the length of imprisonment (SCRGSP 2011). Data supplied by Corrections Victoria for prisoners in the matched group showed that 64 percent of prisoners (for whom data was available) were employed during their sentence. Data reported by the SCRGSP showed that, in Victoria, 57 percent of employed prisoners were engaged in service industries (Table 30). The value of work completed by prisoners employed in commercial industries was excluded from the estimate because the revenue generated from prison industries is included in the net operating expenditure (which has already been counted).

Table 30: Work completed in prison (inputs)	
Proportion of eligible prisoners employed	64%
Proportion of employed prisoners engaged in service (no fee for service) industries	57%
Hours worked per fortnight	60
Daily rate paid to prisoners	$9.49

Source: Corrections Victoria 2012 [data file]; SCRGSP 2011

It was assumed that prisoners employed in service industries within prison worked 60 hours per fortnight for the duration of their sentence. This is likely to overestimate the amount of work actually undertaken by prisoners because part of a prisoner's sentence may include the time on remand and because, once sentenced, a prisoner may not be immediately engaged in work. The value of this work was then calculated using the full-time minimum wage (Fair Work Ombudsman 2010) plus salary on-costs, because most of the work completed by prisoners is unskilled labour. It was assumed the daily rate paid to prisoners is included in the net operating expenditure for prisons. The results are presented in Table 31. The average saving associated with paid work completed by prisoners was estimated to be $33.22 per prisoner per day.

Table 31: Value of paid work undertaken by prisoners while in prison (2014–15 dollars)	
Proportion of all prisoners employed in service industries	37%
Equivalent daily value of work completed by prisoners, per prisoner per day	$90.86
Savings associated with paid work completed by prisoners, per prisoner per day	$33.22

Note: Value of work completed calculated using full-time minimum wage (as at March 2010)
Source: Corrections Victoria 2012 [data file]; Fair Work Ombudsman 2010; SCRGSP 2011

Value of community work

Performing unpaid work as a condition of a community order provides an important way to repair the relationship between an offender and their community. Work completed by offenders in the community in Victoria includes graffiti removal, recycling and clean-up work (Department of Justice 2011). There are potential long-term benefits for the offenders, such as enhancing their skills or improving their future prospects for employment (Department of Justice 2011). In the short-term, unpaid work represents a saving to the community by providing a service that would otherwise have been delivered at a cost to community organisations or government.

Therefore the estimate includes the value of the productive (but unpaid) work completed by offenders as part of a community order. This was measured by the assumed economic value of the unpaid work, based on the likely gross income had the offender been paid to undertake the same work.

Table 32: Value of community work completed by offenders in community corrections cohort (2014–15 dollars)

Total hours ordered	103,301
Average hours ordered	128.48
Total hours worked	32,446.84
Average hours worked	40.36
Total value of work completed	$687,926.21
Average value of work completed, per offender	$855.63
Average value of work completed, per offender per day	$2.40

Note: Value of work completed calculated using full-time minimum wage (as at March 2010)
Source: Corrections Victoria 2012 [data file]; Fair Work Ombudsman 2010; SCRGSP 2011

The average number of hours worked by each offender in the community in Victoria, as reported by the SCRGSP (2013), was used to estimate the amount of work completed by each offender in the community corrections cohort. The value of this work was calculated using the full-time minimum wage (Fair Work Ombudsman 2010), plus salary on-costs. The average value of work completed by each offender in the community corrections cohort was estimated at $2.40 per day (Table 32). Minimum wage was used because of the nature of the unpaid work completed by offenders, but may underestimate the salary that would have otherwise been paid to individuals employed to undertake this work.

Substance use

Reduction in illicit drug and alcohol use

Imposing a sentence of imprisonment limits the capacity of prisoners to access alcohol or drugs while they are in prison. This results in reductions in substance misuse while a prisoner is in custody (Knuutila 2010). The subsequent reduction in illicit drug and alcohol use, even if it is not sustained beyond the period of imprisonment, can help to avoid a number of significant financial costs associated with alcohol- and drug-related crime, healthcare and productivity losses, along with other less tangible costs (Collins & Lapsley 2008).

These savings have been accounted for within the estimate for the reference episode. The current study employed a similar methodology to that used by Deloitte Access Economics (2013) in estimating the costs and benefits associated with imprisonment compared with drug and alcohol treatment for Indigenous offenders. This method is based on the average cost for individuals who consume illicit drugs and/or alcohol, derived from population-level estimates of the costs to Australian society attributable to illicit drug and alcohol misuse. This was determined by dividing the total cost of alcohol and illicit drug abuse to Australian society in 2004–05 (Collins & Lapsley 2008) by the number of people 14 years and over who self-report consuming alcohol and illicit drugs (AIHW 2005) (Table 33). Costs associated with drug- and alcohol-related crime were excluded from this estimate because they have been counted elsewhere.

The cost associated with illicit drug and alcohol use by prisoners was then determined by multiplying the estimated daily cost per user (adjusted for inflation) by the proportion of Victorian prisoners who reported using illicit drugs or alcohol (at high-risk levels) in the 12 months prior to entering prison and while in prison (AIHW 2011; Deloitte Consulting 2003). The results are presented in Table 34. The difference between the average cost per prisoner per day in the periods prior to and while in prison was then calculated. The reduction in illicit drug use was associated with a saving of $2.62 per prisoner per day, while the reduction in alcohol use was associated with a saving of $5.82 per prisoner per day.

There are some important assumptions that underpin this estimate. First, the estimate assumes that the costs incurred through drug and alcohol use in prison are similar to those incurred in the community. This may not be the case. Second, the estimate also assumes that costs are incurred for each additional person consuming illicit drugs/alcohol, but not necessarily directly by that individual. Third, it assumes that rates of substance use among short-term prisoners in the matched group are similar to those reported by prisoners in health surveys—however, only one quarter of prisoners had a drug conviction and additional data from Corrections Victoria suggested that fewer than one in 10 were identified as an illicit drug user.

An important limitation of this methodology is that it does not account for the fact that prisoners may have more severe substance misuse problems than the general community and therefore incur a greater cost to society—which may mean the estimated saving significantly underestimates the actual saving associated with limiting access to alcohol and drugs while in prison.

Table 33: Cost associated with illicit drug and alcohol use in Australia	
Illicit drug use	
Cost associated with illicit drug use, 2004–05	$4.3b
Proportion of population age 14 years and over who consumed illicit drugs in the previous 12 months	15%
Population aged 14 years and over	16,407,627
Total population who consumed illicit drugs in the previous 12 months	2,510,367
Estimated cost per illicit drug user, 2004–05	$1,732.54
Estimated cost per illicit drug user, 2014–15	$2,331.81
Estimated cost per illicit drug user per day, 2014–15	$6.39
Alcohol use	
Cost associated with alcohol misuse, 2004–05	$13.7b
Proportion of population age 14 years and over who consumed alcohol at risky levels in the previous 12 months	29%
Population aged 14 years and over	16,407,627
Total population who consumed alcohol at risky levels in the previous 12 months	4,774,619
Estimated cost per alcohol user, 2004–05	$2,870.74
Estimated cost per alcohol user, 2014–15	$3,863.72
Estimated cost per alcohol user per day, 2014–15	$10.59

Note: Cost estimates exclude costs associated with crime, as these costs have been allocated elsewhere
Source: AIHW 2005; Collins & Lapsley 2008

Table 34: Savings associated with reduced drug and alcohol use	
Illicit drug use	
Prisoners who consumed illicit drugs prior to entering prison (discharges)	54%
Prisoners who consumed illicit drugs in 12 months prior to prison (prison entrants)	69%
Prisoners who consumed illicit drugs while in prison (discharges)	13%
Cost per prisoner per day (prior to entering prison)	$3.45
Cost per prisoner per day (while in prison)	$0.83
Saving per prisoner per day	$2.62
Alcohol use	
Prisoners who consumed alcohol at risky levels in 12 months prior to prison	55%
Prisoners who consumed alcohol at risky levels while in prison	0%
Cost per prisoner per day (prior to entering prison)	$5.82
Cost per prisoner per day (while in prison)	–
Saving per prisoner per day	$5.82

Note: Cost estimates include tangible and intangible costs. Exclude costs associated with crime, as these costs have been allocated elsewhere. Costs are attributed on a per alcohol/drug user basis. Assumes that the cost of illicit drug and alcohol use increases for each additional person consuming illicit drugs and/or alcohol
Source: AIHW 2011; Deloitte Consulting 2003

Summary

The first component of this study estimated the costs and savings accrued during the period a prisoner is incarcerated in a custodial institution or an offender is serving a community corrections order—their reference episode. It has been developed for a matched group of prisoners and offenders for whom the imposition of a custodial or community-based sentence was equally likely.

A summary of the average costs and savings per prisoner per day for each cost item in the estimate for imprisonment is presented in Table 35. The total net cost of imprisonment was estimated to be $61,179 per prisoner, or $391 per prisoner per day. This is around 20 percent higher than the direct sentence costs alone, taking into account both the additional costs and also offsets.

Table 35: Average cost of imprisonment (sentenced period; 2014–15 dollars)

Cost item	Average value per day	Average value per prisoner
Costs		
Net operating expenditure	$268.59	$42,006.49
Capital costs	$59.46	$9,299.02
Lost productivity (paid work)	$62.19	$9,725.85
Lost productivity (unpaid work)	$39.66	$6,203.07
Workplace disruption and replacement	$39.51	$6,179.05
Prison assaults	$2.60	$406.73
Savings		
Reduced government payments	$30.17	$4,718.69
Incapacitation effect of imprisonment	$8.99	$1,406.36
Value of work completed in prison	$33.22	$5,196.10
Reduction in illicit drug use by prisoners	$2.62	$409.65
Reduction in alcohol use by prisoners	$5.82	$910.55
Total net cost of imprisonment	$391.18	$61,178.86

A summary of the average costs and savings per offender per day for each cost item in the estimate for the reference episode for community corrections is presented in Table 36. The total net cost of community corrections was estimated to be $18 per offender per day, or $6,516 per offender for their reference episode—16 percent lower than the direct sentence costs.

Table 36: Average cost of community orders (sentenced period; 2014–15 dollars)		
Cost item	**Average value per day**	**Average value per offender**
Costs		
Net operating expenditure	$20.64	$7,349.24
Capital costs	$1.12	$398.52
Breach actions (for breach of conditions only)	$0.37	$132.87
Savings		
Impact of supervision on offending	$1.43	$508.96
Value of community work	$2.40	$855.63
Total net cost of community order	**$18.30**	**$6,516.04**

Overall, the average cost of imprisonment for each prisoner in the matched group was more than nine times the average cost of a community order.

Costs and savings over a five-year period

The second component of this study involved extending on the direct, short-term costs associated with imprisonment and offending and estimating the wider costs and savings for the remand, parole and post-sentence periods. In addition to the majority of the cost items included in the original estimate, this second component also included estimates of the costs accrued by prisoners and offenders over a five-year period. This five-year period commenced upon the date of sentence for the reference episode.

Table 37: Costs and savings associated with imprisonment and community corrections over a five-year period

	Imprisonment	Community corrections
Costs		
Direct sentence costs	Net operating expenditure and capital costs	Net operating expenditure and capital costs
Employment	Lost productivity due to impact on employment (paid work) while in prison	
	Lost earnings due to impact on employment (paid work) post-release	
	Workplace disruption	
	Lost productivity due to reduction in unpaid work while in prison	
Offending	Offences committed in prison (eg prison assaults)	Breach actions in response to offenders breaching the conditions of their order
Health	Impact on of prison on the mental health of prisoners	
	Impact of prison on the physical health of prisoners	
Housing	Impact of prison on access to stable housing and increased need for housing support services post-sentence	
Family	Increased demand for care and protection services	
	Increased demand for support services for carers of children with incarcerated parents	
	Impact of parent's incarceration on the quality of life, relationships with and general wellbeing of prisoners' children and families	
Savings		
Employment	Value of work completed in prison	Value of community work
	Reduction in expenditure on government payments	
Health	Reduction in the misuse of illicit drugs and alcohol while in prison	

One important and notable omission from this component of the study is an estimate of the financial savings (or costs) associated with the incapacitation/supervision and specific deterrent or criminogenic effects of imprisonment and community corrections. The original estimate relied on data on the recorded offences committed by offenders supervised in the community to estimate the incapacitation and supervision effect of imprisonment and community corrections. Data on offences committed by prisoners and offenders during the five-year period of observation were not available for the second component of the current study. Extrapolating the original estimates to subsequent orders would have ignored the overwhelming body of evidence that shows that offending patterns change over time, particularly as offenders age. Further, there were no relevant published estimates of changes in offending (increases or decreases) on which to draw and no baseline against which to compare.

There is, however, a large body of research that has examined the impact of prison and community-based sentences on offending and compared the relative effectiveness of different sentence options. In their updated review of the relative effects of custodial and non-custodial sentence options, Villettaz, Gillieron and Killias (2015) concluded that there was no difference when only the highest quality studies were considered (ie randomised controlled trials and natural experiments). However, they also concluded that imprisonment had a criminogenic effect when a lower threshold was applied (ie studies using propensity score matching) and a larger number of studies were included. (This meta-analysis did not measure the incapacitation effect of imprisonment separately.) Similarly, Nagin, Cullen and Jonson (2009) reviewed 47 studies into the effectiveness of prison as a measure to reduce reoffending, organised into four different categories of research design, and concluded that the evidence pointed to a null or small criminogenic effect.

Recent Victorian research found that, consistent with research in other jurisdictions (Weatherburn 2010), offenders who received a term of imprisonment were slightly more likely to reoffend than those who received a non-custodial sentence, namely a fine or wholly suspended sentence (Gelb, Fisher & Hudson 2013). It is important to note that Gelb, Fisher and Hudson (2013) compared imprisonment with fines, intensive corrections orders (which were not significantly different) and wholly suspended sentences, whereas Weatherburn (2010) compared individuals who received a full-time custodial sentence with those who received non-custodial sentences.

Incapacitation studies, not as common as studies exploring the specific deterrent effect of prison (or not distinguishing incapacitation from the effect of deterrence), have generally concluded that prison suppresses crime, but vary in their estimates of the size of the effect (Weatherburn, Hua & Moffatt 2006). Australian research suggests that the relationship between imprisonment rates and the incapacitation effect is not a linear one, and that prison numbers would need to increase by a third to reduce the burglary rate by 10 percent (Weatherburn, Hua & Moffatt 2006).

There are also a growing number of studies that have examined the effectiveness of community-based sentences and, in particular, the impact of supervision on reoffending. A 2003 review of these studies by the Washington State Institute for Public Policy (WSIPP) found that the effect of supervision varies. Delivered in isolation, supervision has no effect on reoffending, but when combined with treatment or delivered using the risk need responsivity model supervision can exert a significant positive effect (reducing reoffending by 10% and 16%, respectively; Drake 2011).

In light of this evidence, there is clearly scope to expand the current estimates to measure and attribute value to the incapacitation and specific deterrent effect of imprisonment and community corrections in Victoria. This would require data linkage between Corrections Victoria and either Victoria Police, the Victorian Crime Statistics Agency or the Sentencing Advisory Council. Addressing this gap would represent a significant advancement on current efforts to estimate the wider costs and savings of imprisonment and community corrections.

Pathways through prison and community corrections

The first step in estimating costs and savings that took account of periods of contact with Corrections Victoria beyond the reference sentence was to determine the type, duration and frequency of contact with corrections among the prisoners and offenders included in the matched group. Understanding these pathways was important, because the total length of time spent in prison or on a community order, the number of episodes of contact and the length of time that followed the completion of the reference sentence provided the basis for each estimate that follows.

This involved securing a second extract of data comprising all community orders (supervised and unsupervised, including parole orders) and imprisonment orders (including remand periods, irrespective of whether the individual was subsequently sentenced to imprisonment) received by the 1,608 individuals in the matched group after the reference sentence (in 2009–10). Subsequent orders for each individual were identified using the unique identifier maintained by Corrections Victoria. Prisoners and offenders from the original matched group were observed for a period of five years from the commencement of their reference sentence (imprisonment or community order). Individuals were therefore observed for the same period of time, making direct comparisons possible. However, it is important to recognise that individuals in the community cohort were not followed for as long after the completion of their reference sentence, because the average length of community orders was more than twice that of imprisonment orders for the prison cohort.

Prisoners and offenders follow a range of pathways through imprisonment, supervised and unsupervised orders. Orders may be varied, served consecutively and, in many cases, overlap. It was therefore necessary to identify separate episodes of contact with corrections. Imprisonment episodes commenced on the date of reception to prison and ended on the date of discharge (and therefore included time spent on remand). Where an offender commenced a community order immediately upon leaving prison (eg a parole order), or was resentenced from a community order to imprisonment, this was treated as separate episode of contact with community corrections. Multiple consecutive or overlapping community orders were combined into a single episode of contact. Periods of time spent in prison (eg on remand) between the start and discharge dates of community orders were subtracted from the length of community corrections episodes.

Table 38: Average number of correctional episodes and episode length, five-year follow-up

	Prison cohort	Community cohort
Supervised and unsupervised orders (including parole)		
Average number of episodes	0.81	1.33
Average days (reference)	–	356
Average days (five-year follow-up, including reference episode)	301	528
Imprisonment		
Average number of episodes	1.57	0.47
Average days (reference)	156	–
Average days (five-year follow-up, including reference episode)	277	88

Note: Five-year follow-up includes reference episode. Average number of episodes and days calculated for entire cohort, not only those who were imprisoned or received a supervised or unsupervised order
Source: Corrections Victoria 2015 [data file]

Individuals in the prison cohort had, on average, 1.57 episodes of imprisonment (including the reference sentence) and spent an average of 277 days in prison, compared to 0.47 episodes of imprisonment and 88 days in prison for those in the community cohort (Table 39). Individuals in the community cohort had an average of 1.33 episodes of contact with community corrections and spent a total of 528 days serving supervised or unsupervised orders, compared with 0.81 episodes and 301 days for the prison cohort.

Table 39 describes the different pathways followed by the two cohorts. Four broad categories of pathways were identified. Thirty-three percent of individuals in the prison cohort and 63 percent of individuals in the community cohort did not receive a subsequent sentence order during the observation period—which increases to 49 percent of prisoners if parole orders are excluded (ie treated as part of the original reference sentence). Offenders in the community cohort were more likely to experience multiple episodes of the same type as the reference episode (12% vs 6%), while prisoners were significantly more likely to move between the different sentence types (35% vs 12%; including parole orders) and to experience multiple episodes of both prison and community orders (27% vs 14%).

Table 39: Sentence episodes recorded by imprisonment and community corrections cohorts, five-year follow-up				
	Prison cohort		Community cohort	
	n	%	n	%
Excluding parole orders				
Reference episode only	394	49	508	63
Multiple episodes, reference episode sentence type	135	17	93	12
Multiple episodes, transition to another sentence type	147	18	135	17
Multiple episodes of imprisonment and community corrections	128	16	68	8
Including parole orders				
Reference episode only	262	33	508	63
Multiple episodes, reference episode sentence type	48	6	93	12
Multiple episodes, transition to another sentence type	279	35	93	12
Multiple episodes of imprisonment and community corrections	215	27	110	14
Total	804		804	

Source: Corrections Victoria 2015 [data file]

Direct sentence costs

Direct sentence costs for the full five-year observation period were calculated for both groups using the same method and data source as the original short-term estimate. These costs were calculated using the total cost per prisoner and total cost per offender per day for Victoria—comprising both net operating expenditure and capital costs—reported annually by the SCRGSP 2016. These daily costs were multiplied by the average number of days in prison and serving supervised and unsupervised orders for both groups, with a four percent discount rate applied for each subsequent year.

The limitations associated with using average costs were discussed in the previous section. Of particular relevance to the analysis of wider costs is that the total net operating expenditure and capital costs per prisoner or offender per day are influenced by the number of individuals who are imprisoned or subject to a community corrections order. An increase or decrease in the cost each year does not necessarily reflect a meaningful change in expenditure per person; it may instead reflect a growth or decline in the number of people between whom this expenditure is distributed. To minimise the impact of this, the direct sentence costs for each year post-reference episode were based on the average cost from the entire observation period (with discounting).

A further limitation that is relevant to the estimate for the five-year follow-up period is that it does not distinguish between supervised and unsupervised orders (or parole orders)—the average cost (as reported by the SCRGSP 2016) has been calculated for the total number of offenders, irrespective of whether their community order was subject to supervision. There are likely to be significant differences between the costs associated with supervised and unsupervised orders, while parole orders may be even more costly due to the additional level of supervision. It is also important to note that there were significant changes to community corrections and parole introduced in 2012, midway through the observation period, and that these included changes to the types of orders that could be imposed and also the total budget for community corrections.

These issues aside, the direct costs (PV) associated with imprisonment and community corrections for the prison and community cohort over the five-year observation period are presented in Table 40. The direct sentence costs for the prison cohort were $78m over the entire observation period—equivalent to $97,010 per person and almost double the direct sentence costs for the reference episode. The direct sentence costs for the community cohort were $32m, or $39,947 per person, five times the direct sentence cost for the reference episode alone.

Table 40: Direct costs associated with imprisonment and community corrections, five-year follow-up (2014–15 dollars; PV)

	Prison cohort	Community cohort
Supervised and unsupervised orders		
Total days	241,862	424,227
Average days (reference)	–	356
Average days (five-year follow-up)	301	528
Total cost	$6,090,518	$9,704,538
Average cost per person (entire cohort)	$7,575	$12,070
Prison		
Total days	222,871	71,011
Average days (reference)	156	–
Average days (five-year follow-up)	277	88
Total cost	$71,905,888	$22,413,026
Average cost per person (entire cohort)	$89,435	$27,877
Combined		
Total cost	$77,996,406	$32,117,564
Average cost per person (entire cohort)	$97,010	$39,947

Source: Corrections Victoria 2015 [data file]; SCRGSP 2016

Assaults committed in prison

While it was not possible to account for the incapacitation or specific deterrent effect of prison or community corrections, it was possible to estimate the costs associated with assaults committed in prison. Comprising intangible costs, lost output and medical costs, this estimate was calculated using the same approach as for the short-term estimate, described in the previous section. Assault costs varied according to the seriousness of recorded assault reported by the SCRGSP (2016) and were based on the per incident costs reported by Smyth (2011). The average assault rate across the observation period was used to determine the number and cost of assaults experienced by individuals in the matched group during their time in prison. The same assumptions about the applicability of the assault rate to the matched group and the relevance of the cost of crime estimates to offences committed within prison still apply.

The results are presented in Table 41. The total PV of assault in prison was $676,464 for the prisoner cohort and $255,487 for the community cohort, equivalent to $841 and $318 per person, respectively.

Table 41: Cost associated with assaults in prison, five-year follow-up (2014–15 dollars; PV)

	Prisoner cohort	Community cohort
Time in prison		
Average days (reference episode)	156	–
Average days (five-year follow-up incl. reference)	277	88
Medical costs, intangible costs and lost output associated with prison assaults		
Total cost	$676,464.43	$255,487.40
Average cost per person (entire cohort)	$841.37	$317.77

Source: Corrections Victoria 2015 [data file]; SCRGSP 2016; Smyth 2011

Breach actions (breach of conditions)

The cost of court hearings for breach actions where an offender breached the conditions of their community order (for reasons other than further offending) was also included as part of the estimate. Whereas the short-term estimate only accounted for breaches that occurred during the reference sentence, the extended model accounted for breaches of all community orders among both the prison and community cohorts.

Unfortunately, while the original extract included information on the number of breaches during the reference sentence, this information was not included in the second extract. Therefore it was necessary to estimate the number of breaches by conditions among both cohorts based on the average number of breaches per day for the reference episode for the community cohort. This was then multiplied by the average number of days on supervised or unsupervised orders to determine the total number of breaches by conditions for the prison cohort (210 breaches by conditions) and community cohort (368 breaches by conditions). This assumes that the breach rate remained constant across the observation period and, given the changes to community corrections that were introduced in 2012, more than likely underestimates the actual number of breaches.

As with the short-term estimate, the estimated cost associated with breach actions was limited to the cost of court hearings, which assumed that all breach actions involved returning to Magistrates Court, and was based on the Victorian Magistrates Court's real net recurrent expenditure per criminal case finalisation (SCRGSP 2011; 2016). Given these costs change from year to year, Magistrates Court costs for each year post-reference episode were based on the average cost from the entire observation period (with discounting). Importantly, these costs do not include the costs incurred by other parties involved in the court process.

Table 42: Costs associated with breach actions for breaches by conditions, five-year follow-up (2014–15 dollars; PV)

	Prison cohort	Community cohort
Breaches by conditions (n)		
Reference episode	–	248
Five-year follow-up	210	368
Cost of court hearings		
Total cost	$80,966.48	$153,006.77
Average cost per person (entire cohort)	$100.70	$190.31

Source: Corrections Victoria 2015 [data file]; SCRGSP 2016

Multiplying the number of breaches for each group by the average cost per finalisation resulted in a PV of $153,007 for the community cohort and $80,966 for the prison cohort—equivalent to $190 and $101 per person, respectively (Table 42).

Employment, productivity and government payments

The estimate of immediate costs and savings accounted for several employment-related cost items, including:

- the reduction in government payments to prisoners who were unemployed at the time of entering prison and who, prior to entering prison, would have been receiving some form of government assistance;
- lost productivity from paid work by prisoners who were employed prior to entering prison, based on the expected loss in gross income from employment;
- workplace disruption and replacement, based on the costs incurred by employers in the period of time before an employee can be replaced and the estimated cost of recruitment and training;
- lost productivity from unpaid work performed by prisoners prior to entering prison, measured by the assumed economic value of household and voluntary work;
- the value of the productive work completed by prisoners during their sentence, based on the assumed economic value of the work completed by prisoners employed in service industries; and
- the value of the productive work completed by offenders as part of a community order, measured by the assumed economic value of the work.

The estimate for each cost item was based on the average length of the reference sentence for both the prison and community cohort. The same method is used to calculate each of these costs, but accounts for the additional time spent in prison and serving a supervised or unsupervised order. The only exclusion is workplace disruption and recruitment, which could not be accurately estimated for subsequent episodes of imprisonment due to repeated, short-term periods of remand.

The results from the analysis of data on subsequent orders, and the costs and savings associated with correctional work (prison and community), lost productivity and government payments are presented in Table 43. For each cost item, the average daily cost or saving from the reference episode was used to estimate longer-term costs. This assumes that the rate of employment remained consistent over the entire period (which, as explained in the next section, is supported by research), that individuals in the community cohort had the same rate of employment and in the same occupations as those in the prison cohort, and that, in the case of government payments, the relationship and parental status remained consistent over the observation period. All of these assumptions, in addition to those identified in the previous section, pose potential threats to the validity of the final estimate. Lost productivity from paid work was based on the average salaries for the industries in which prisoners were employed prior to entering prison, government payments were based on payment rates published by Centrelink, and lost productivity from unpaid work and the value of prison and community work were each calculated using minimum wage.

The daily rate for each cost item was multiplied by the average number of days individuals in the prison and community cohorts spent in prison over the entire five-year observation period. Annual costs were calculated to allow for discounting (with the balance of days in prison divided evenly across the four subsequent years). In the case of community work, the estimated hourly value of work completed (based on minimum wage) was multiplied by the number of work hours completed, which was derived by multiplying the total number of work hours ordered across all supervised and supervised orders for each person by the proportion of work hours completed reported by the SCRGSP (2016).

Table 43: Costs and savings related to government payments, lost productivity and work completed in prison and the community, five-year follow-up (2014–15 dollars; PV)		
	Prison cohort	Community cohort
Imprisonment orders		
Any prison (n)	804	203
Average days (five-year follow-up incl. reference)	277	88
Costs		
Lost productivity (paid work)		
Average cost per person (entire cohort)	$16,543.30	$4,984.29
Total cost	$13,300,813.67	$4,007,369.59
Lost productivity (unpaid work)		
Average cost per person (entire cohort)	$10,551.19	$3,178.94
Total cost	$8,483,157.00	$2,555,869.61
Savings		
Reduction in government payments		
Average saving per person	$8,026.32	$2,418.23
Total saving	$6,453,157.77	$1,944,256.11
Value of prison work		
Average saving per person (entire cohort)	$8,838.37	$2,662.89
Total saving	$7,106,053.43	$2,140,965.44
Value of community work		
Average hours worked (ordered)	24 (76)	59 (188)
Average saving per person (entire cohort)	$456.73	$1,215.80
Total saving	$367,211.69	$977,503.17

Source: ABS 2008, 2010; Corrections Victoria 2011, 2012, 2015 [data files]; DHS 2010; Fair Work Ombudsman 2010

Results from this analysis were as follows:

- The PV of lost productivity due to the inability to perform paid work while in prison was $13.3m for the prison cohort and $4.0m for the community cohort, an average cost of $16,543 and $4,984 per person, respectively.
- The PV of lost productivity due to the inability to perform unpaid work while in prison, including household duties, child care and voluntary work was $8.5m for the prison cohort and $2.6m for the community cohort, an average cost of $10,551 and $3,179 per person, respectively.
- The PV of reduced government payments not paid to prisoners while in prison was $6.4m for the prison cohort and $1.9m for the community cohort, an average saving of $8,026 and $2,418 per person, respectively.
- The PV of prison work completed by prisoners in both cohorts while in prison was $7.1m for the prison cohort and $2.1m for the community cohort, an average saving of $8,838 and $2,663 per person, respectively.

- The PV of community work completed by offenders while serving a supervised or unsupervised order was $367,212 for the prison cohort and $977,503 for the community cohort, an average saving of $457 and $1,216 per person, respectively. Individuals in the prison cohort were estimated to have completed an average of 24 hours of community work (across the entire cohort, irrespective of whether they received a community order), while individuals in the community cohort were estimated to have completed an average of 59 hours of community work.

Lost earnings post-release

Prior research

In the section above, all of the employment-related costs and savings relate to the period that an individual spends under sentence. Research shows, however, that being imprisoned can have a significant impact on employment outcomes post-release, but that this relationship is not straightforward. Travis, Western & Redburn (2014) describe three potential mechanisms through which incarceration may affect employment and earnings—selection effects related to low employability, the impact of incarceration on job readiness, and the stigma that comes from having a criminal record.

Research has produced different findings with respect to precisely how being incarcerated affects employment. There is evidence that incarceration exerts a negative effect on ex-prisoners' earnings (Holzer 2007; Western, Kling & Weiman 2001) and employment rates (Velamuri & Stillman 2007), that employers are reluctant to hire applicants with criminal records (Pager & Western 2009), and that access to employment post-release reduces reoffending (Visher, Debus & Yahner 2008)—while other studies have found that prison does not harm employment prospects (Cho & LaLonde 2005) and that contact with employers before prison and strong family relationships can help mitigate the negative effects (Brunton-Smith & Hopkins 2014; Visher, Debus-Sherrill & Yahner 2011).

Conversely, Recent Australian research has shown that the education opportunities provided in prison can have significant positive effects on prisoner employment outcomes (Giles 2016). Similarly, several large reviews have concluded that education and training programs (particularly adult based education and vocational training) are effective in reducing recidivism among participating prisoner populations (Aos, Miller & Drake 2006; Callan & Gardner 2005; Davis et al. 2013; Lee et al. 2012; Phipps et al. 1999). According to Travis, Western and Redburn (2014), the overall conclusion appears to be that incarceration reduces employment outcomes by between 10 and 30 percent.

Current study

Lost earnings were calculated using the average daily salary for prisoners, based on the average salaries reported by the ABS (2010) for the industries in which prisoners were employed prior to the reference episode and the proportion of all prisoners employed (based on the reference episode). This was multiplied by the total number of free days on which an individual may have been able to work after they were released from the first episode of imprisonment during the

observation period. For individuals in the prison cohort, this was measured from the first day after the discharge date for the reference episode. Annualised estimates were calculated to allow for the applicable discount rate (4%) to be applied. The sum across all years was the PV of projected earnings for both cohorts across the five-year observation period, assuming the rate of employment remained stable.

Projected earnings were then multiplied by the estimated percentage reduction in earnings, based on the figures reported by Travis, Western and Redburn (2014), to determine the PV of lost earnings for both cohorts. Estimates were calculated for projected lost earnings of 10 percent (lower estimate), 20 percent and 30 percent (upper estimate; Table 44). This assumes that any losses took effect immediately upon release from prison. Importantly, the PV of lost earnings was only calculated for those individuals who were imprisoned for the first time during the observation period. This assumes that the impact of imprisonment on an individual's earning potential was not cumulative and that prison exerted a consistent effect, on average, across all prisoners (ie a person who had been to prison twice was impacted just as much as someone who had been to prison on one occasion). Twenty-six percent of prisoners and offenders in the matched group had a prior episode of imprisonment. Lost earnings were calculated for 592 individuals in the prison cohort and 120 individuals in the community cohort.

The estimated PV of lost earnings ranged from $5.4m to $20.1m for the prison cohort and $580,048 to $1.7m for the community cohort. For the current study, individuals in the matched group are assumed to have had their earnings potential reduced by 20 percent, resulting in an estimated PV of lost earnings of $10.8m for the prison cohort and $1.2m for the community cohort, an average loss of $13,421 and $1,443 per person (for the entire cohort), respectively.

Table 44: Costs associated with lost earnings among employed prisoners, five-year follow-up (2014–15 dollars; PV)

	Prison cohort	Community cohort
Any prison, no prior imprisonment orders	592	120
Average free days post first prison episode	1,563	882
10 percent reduction in earnings		
Total per person (no prior imprisonment)	$9,113.72	$4,833.73
Total cost	$5,395,321.61	$580,047.67
Average cost per person (entire cohort)	$6,710.60	$721.45
20 percent reduction in earnings		
Total per person (no prior imprisonment)	$18,227.44	$9,667.46
Total cost	$10,790,643.21	$1,160,095.33
Average cost per person (entire cohort))	$13,421.20	$1,442.90
30 percent reduction in earnings		
Total per person (no prior imprisonment)	$27,341.16	$14,501.19
Total cost	$16,185,964.82	$1,740,143.00
Average cost per person (entire cohort)	$20,131.80	$2,164.36

Source: ABS 2010; Corrections Victoria 2011, 2015 [data files]; Travis, Western & Redburn 2014

Housing stability and homelessness

There is a strong relationship between homelessness, offending and contact with the criminal justice system. Recent Australian research found high levels of housing stress among detainee populations, and that homeless detainees were more likely to report recent contact with police and the criminal justice system (Payne, Macgregor & McDonald 2015). Ex-prisoners are particularly vulnerable to homelessness because their circumstances prior to imprisonment, coupled with the impact of having been incarcerated, can significantly reduce their accommodation options and their ability to find and maintain stable housing (Willis 2004). Importantly, not having stable accommodation upon returning to the community is a significant risk factor for reoffending post-release. Baldry et al. (2006) found that prisoners who were homeless upon leaving prison were significantly more likely to return to prison within 12 months.

Not surprisingly then, previous research has concluded that there are significant social and economic benefits to be derived from efforts to reduce homelessness and reoffending among ex-prisoners (Willis 2004). It is for this reason that a major focus of throughcare programs for prisoners leaving prison, including those targeting Victorian prisoners, is providing support to access stable housing. Research has shown that transition programs that link prisoners to housing are effective in reducing housing disadvantage and reoffending post-release (Baldry et al. 2003; Ross et al. 2013).

The current study estimates the costs of providing supported accommodation services to prisoners whose housing situation worsens as a result of spending time in prison. Estimates of changes to prisoners' housing status are derived from two sources–a study by Baldry et al. (2006) and a more recent study by HomeGround (2010). Baldry et al. followed 339 prisoners released from a NSW or Victorian prison, with 70 percent of prisoners participating in an interview nine months after release, and sought information regarding their housing status and other social matters. They found that homelessness increased from 18 percent prior to entering prison to 21 percent at the time of being interviewed post-release. While this difference was not statistically significant, they found that the proportion of prisoners who had been homeless at any point in time post-release was much higher than 21 percent. Based on these figures, it was estimated that 29 percent of prisoners had been homeless at some time post-release.

The study by HomeGround (2010) involved interviewing 90 prisoners prior to their release from a Victorian prison, and found that 29 percent of prisoners were homeless prior to entering prison, while 36 percent expected to be homeless upon release (Table 45). While the HomeGround (2010) research was only able to collect information about expected rates of homelessness, not actual rates, it relied on a much broader and more widely accepted definition of homelessness, which accounts for different forms of unstable housing. Both studies included participants who had been sentenced (or remanded) to a relatively short period of imprisonment.

Table 45: Percentage of prisoners homeless before and after prison			
	Baldry et al. (2006)	Baldry et al. (2006), adjusted	HomeGround (2010)
Before prison	18%	18%	29%
After prison	21%	29%	36%

Source: Baldry et al. 2006; HomeGround 2010

The findings from the studies by Baldry et al. (2006) and HomeGround (2010) were used to estimate the number of episodes of imprisonment that resulted in an individual experiencing a period of homelessness (Table 46). Unlike lost earnings, these estimates were not restricted to individuals within the cohort who entered prison for the first time. Instead, it was assumed that each episode of incarceration could have a negative effect on housing, regardless of prior contact with the criminal justice system.

The number of episodes of homelessness was then multiplied by the estimated cost of providing specialised homelessness services to ex-prisoners—specifically, supported accommodation services delivered to men and women. This was based on a study by Zaretzky & Flatau (2013), which estimated the total cost to government of supported accommodation in 2010–11 as being $6,467 per client for single men and $4,880 per client for single women. Given these are average costs and not marginal costs, they will overestimate the actual cost of providing support to each additional client. Nevertheless, given they were based on an activity survey by service providers, they represent a more comprehensive estimate of costs than those published by the SCRGSP (2016). It was assumed, based on findings from Baldry et al., that only 90 percent of prisoners sought or received accommodation support.

Table 46: Costs associated with supported accommodation for prisoners during episodes of homelessness, five-year follow-up (2014–15 dollars; PV)						
	Baldry et al. (2006)		Baldry et al. (2006), adjusted		HomeGround (2010)	
	Prison cohort	Community cohort	Prison cohort	Community cohort	Prison cohort	Community cohort
Episodes of homelessness						
Reference episode	24	–	84	–	54	–
All episodes	38	11	132	40	84	25
Costs associated with supported accommodation						
Total	$220,912	$62,014	$773,191	$217,050	$493,369	$138,499
Average cost per person (entire cohort)	$274.77	$77.13	$961.68	$269.96	$613.64	$172.26

The results are presented in Table 46. Annualised estimates were calculated to enable the applicable discount rate to be applied. The PV of supported accommodation services for prisoners during episodes of homelessness was estimated to be between $220,912 and $773,191 for the prison cohort and between $62,014 and $217,050 for the community cohort. Given the HomeGround research was Victorian specific and the Baldry et al. estimates are more than a decade old, the HomeGround research was used in the current study. The PV of supported accommodation services for prisoners during episodes of homelessness was therefore estimated to be $493,369 for the prison cohort and $138,499 for the community cohort, an average of $614 and $172 per person, respectively.

It is worth noting that there are other societal costs associated with homelessness (Baldry et al. 2012). However, given the high correlation between the negative outcomes experienced by people who have contact with the criminal justice system and homelessness, many of whose costs are also estimated as part of the current study, and the significant overlap between the two populations, these additional costs are not included.

Substance use

The same method for estimating the savings associated with a reduction in drug and alcohol use among prisoners during the reference episode was used to estimate the longer-term savings across the five-year observation period. The reduction in illicit drug use was estimated to be associated with a saving of $2.62 per prisoner per day, while the reduction in alcohol use was associated with a saving of $5.82 per prisoner per day, based on estimates of the societal costs attributable to alcohol and illicit drug use (excluding crime) reported by Collins and Lapsley (2008) and population prevalence estimates. This was multiplied by the average number of days spent in prison by individuals in both cohorts, which assumes the reduction in illicit drug and alcohol use was consistent across the observation period—in other words, prisoners used drugs at the same rate at the commencement of each subsequent episode of imprisonment, and the proportional decrease in illicit drug use and risky alcohol consumption was the same each time. Annualised estimates were once again calculated to enable the applicable discount rate to be applied.

Table 47: Savings associated with reduced drug and alcohol use, five-year follow-up (2014–15 dollars; PV)

	Illicit drugs		Alcohol	
	Prison cohort	Community cohort	Prison cohort	Community cohort
Average saving per person (entire cohort)	$696.80	$209.94	$1,548.81	$466.64
Total saving	$560,225.50	$168,788.97	$1,245,241.81	$375,175.86

Source: AIHW 2005, 2011; Collins & Lapsley 2008; Corrections Victoria 2011, 2015 [data files]

The results are presented in Table 47. The PV of savings associated with a reduction in illicit drug use was estimated to be $560,225 for the prison cohort and $168,789 for the community cohort, equivalent to an average of $697 and $210 per person, respectively. The PV of savings associated with a decrease in risky alcohol consumption while in prison was estimated to be $1.2m for the prison cohort (an average of $1,549 per person) and $375,176 for the community cohort ($467 per person).

Reliable Australian estimates of the use of illicit drugs and risky alcohol use by prisoners pre- and post-release were not available for the current study, so it was not possible to accurately estimate the costs or savings associated with changes to illicit drug and alcohol consumption among prisoners returning to the community. It is noteworthy, however, that the estimated proportion of ex-prisoners who use illicit drugs post-release reported by Kinner in 2006 (55 percent of prisoners at one month and 56 percent at four months post-release) are comparable with the rates of illicit drug use reported by the AIHW (2011) among prisoners prior to entering prison (54 percent, although the time period is unspecified).

Physical and mental health

Prisoners have been shown to have poorer health than the wider community, and are more likely to experience problems related to substance misuse and addiction (and associated health problems), mental illness and other chronic health conditions (Travis, Western & Redburn 2014). While the evidence regarding changes in health status among former prisoners remains relatively limited, international studies have shown heightened risk of stress-related diseases post-release, as well as higher mortality rates from suicide and overdose relative to the general population (Travis, Western & Redburn 2014). Importantly, prison also provides an opportunity for prisoners to access screening and health care that they might otherwise not receive in the community, including for alcohol and drug problems, blood-borne diseases, mental illness and tobacco-related illnesses. Surveys indicate a high level of contact and satisfaction among prisoners with prison health services (AIHW 2015).

An increase in the level of services provided to prisoners post-release may not necessarily be negative. While it may represent a decline in the physical or mental health of prisoners, it may also reflect improved access to services resulting from the supports established during a prisoner's time in prison. Nevertheless, irrespective of the motivation, there are cost implications to government associated with providing services to meet the increased demand.

Hobbs et al. (2006) conducted a study exploring the mortality and morbidity of nearly 14,000 prisoners in Western Australia and, as part of this research, measured the frequency of contact with health services in an equivalent period before and after prisoners' first release from prison. They found that the mean number of hospital admissions increased from 2.00 to 2.70 per prisoner in the five years pre- and post-release. They also observed an increase in the mean number of mental health (MH) outpatient visits from before (1.49) to after (3.00) the date of first release. The mean number of admissions to mental hospitals at either time period was too small to permit meaningful analysis.

Table 48: Hospital admissions and mental health outpatient visits before and after date of first release		
	Hospital admissions	MH outpatient visits
Average per prisoner before first release (five years)	2.00	1.49
Average per prisoner after first release (five years)	2.70	3.00
Average cost per admitted or non-admitted patient	$4,220	$260

Source: Hobbs et al. 2006; SCRGSP 2016

The findings from the Hobbs et al. study were then converted to an estimate of the average increase in the number of hospital admissions and MH outpatient visits per prisoner per free day. This was then multiplied by the number of free days per year during the observation period for both the prison and community cohort and, in turn, by the average cost per separation (discharge from hospital) and cost per non-admitted patient per occasion of service in public hospitals (for MH outpatient visits). The results are presented in Table 49.

Table 49: Costs associated with hospital admissions and mental health outpatient visits, five-year follow-up (2014–15 dollars; PV)				
	Hospital admissions		MH outpatient visits	
	Prisoner cohort	Community cohort	Prisoner cohort	Community cohort
Average cost per person with no prior imprisonment	$2,372.40	$1,258.27	$315.65	$167.42
Total cost	$1,404,463.53	$150,993.00	$186,867.37	$20,089.99
Average cost per person (entire cohort)	$1,746.85	$187.80	$232.42	$24.99

Source: Corrections Victoria 2011; 2015; Hobbs et al. 2006; SCRGSP 2016

Similar to the estimate for lost earnings, changes in health service usage were only assumed to affect those individuals who entered prison for the first time during the five-year observation period. The PV of costs associated with increased hospital admissions was estimated to be $1.4m for the prison cohort and $150,993 for the community cohort, an average cost per person of $1,747 and $188, respectively. The PV of costs associated with an increase in MH outpatient visits was $186,867 for the prison cohort ($232 per person) and $20,090 for the community cohort ($25 per person), reflecting the much lower cost associated with outpatient visits. The potential benefits of increased contact with health services, such as improved health outcomes, or the potential negative consequences from a decline in health, such as lost output, are not accounted for within the current study due to the necessary data not being available.

Care and protection

Parental incarceration can have a significant impact on the children of prisoners, both in the short- and long-term. In the short-term, it may impact the social and emotional development of the child; result in negative behavioural changes (such as irritability, becoming withdrawn etc); cause significant instability with changes in schools, new residences and reduced access to friends; result in the child performing more poorly at school; lead to strained relationships between the adult and the child; and, in some cases, result in the child becoming the subject of child protection proceedings (Sheehan & Levine 2007; Tomaino et al. 2005).

In the longer-term, parental incarceration is associated with a range of negative life outcomes for children. Recent research found that, controlling for other potential drivers, parental incarceration increases the risk of poor mental health (esp. depression), serious injury, reduced educational attainment and the receipt of government assistance (Miller & Barnes 2015). These negative consequences extend into adulthood, with research finding that young adults whose mothers had served time in prison were more likely to have been arrested, convicted and incarcerated as an adult (Muftic, Bouffard & Armstrong 2016).

One of the immediate consequences of parental incarceration is the impact on child care arrangements, particularly where an incarcerated parent is the primary carer. While children of prisoners may be cared for by the remaining parent or by close family, in other situations it may be necessary for children under the age of 18 to be placed with alternative caregivers. Tomaino, Ryan, Markotic and Gladwell (2005) surveyed more than 100 parents in prison, finding that seven percent (n=18) of the children impacted by their parent's incarceration were in state care and that, of these, 13 (5% of all children) had been placed in care at the time of their parent's incarceration. More recent data based on interviews with female prisoners in Victoria produced a similar estimate, with three percent of women reporting their child entered the care of the Department of Human Services while they were in prison (Sheehan et al. 2013).

While data on the number of children per prisoner was not available from Corrections Victoria, these data were available for offenders in the community cohort (offenders with children had, on average, 2.2 children). This information, along with information on how many prisoners and offenders were the primary carer (124 and 69, respectively), was used to determine the number of children whose primary carer went to prison for the first time during the observation period. Results of the study by Tomaino et al. (2005) were then used to determine the number of children with parents in the prison cohort and community cohort who were in out-of-home care (OOHC) and the number who entered OOHC as a result of their parent's incarceration.

These were then multiplied by the average number of days from the reception date to the end of the observation period for both cohorts, and again by the real expenditure per placement night for OOHC in Victoria (based on a six-year average). This assumed that the children entered OOHC and were not returned to their parents within the five-year observation period. Discount rates were applied to each year of the observation period after the reference episode.

The results presented in Table 50 show that the estimated PV of OOHC for children of prisoners during the five-year observation period was $2.5m for the prison cohort and $150,778 for the community cohort. Some care needs to be taken with these estimates due to the relatively small number of children to whom the estimate applies (10 and 1, respectively) and the potential for the cost to vary significantly in accordance with the actual numbers of children of incarcerated parents.

Table 50: Costs associated with out-of-home care for children of prisoners, five-year follow-up (2014–15 dollars; PV)		
	Prison cohort	Community cohort
Number of children affected		
Primary carer received a term of imprisonment or community order (n)	272	151
Primary carer went to prison for the first time (n)	194	23
Children in OOHC during time parent was in prison (n)	14	2
Entered OOHC as a direct result of their parent being imprisoned (n)	10	1
Total cost		
Real expenditure per placement night OOHC (6 year average)	$153.56	$153.56
Total (children entering OOHC)	$2,541,104.96	$150,778.07
Average cost per person (entire cohort)	$3,160.58	$187.53

Source: Corrections Victoria 2011, 2015 [data files]; SCRGSP 2016; Tomaino et al. 2005

Disability adjusted life years

The final component of the study involved estimating the loss of quality of life to the prisoner, their partner and their children when an individual is incarcerated. This drew heavily upon a study into the costs and benefits of imprisonment in Hawaii conducted by Lengyel and Brown (2009), who argued that the impact of incarceration could be measured by calculating pain and suffering or lost quality of life using methods developed in health research and adapted to measure the consequences of illicit drug use. Specifically, Lengyel and Brown (2009) applied the concept of disability adjusted life years (DALY) to measure the impact of incarceration on the quality of life of prisoners and their families. Determining DALY as part of a cost-benefit analysis involves calculating the number of years lost to premature mortality and the number of years lived with disability (Devleesschauwer et al. 2014). Determining the number of years lived with disability involves the use of disability weights (DW), which are scaled from zero (perfect health) to one (death) and describe the proportional reduction in good health resulting from disease or injury. They are used extensively in reporting the burden of disease, including by the World Health Organisation.

Lengyel and Brown (2009) argued that the impact of imprisonment incurred a disability weight of between 0.25 and 0.40, citing estimates produced by the Cost Effectiveness Analysis Registry (CEA Registry), and adopted 0.30 as the basis for their analysis. This is equivalent to a year living with depression. For each prisoner, their partner and children, they multiplied this by the value of a statistical life year (VSLY) to determine the cost attributable to the decline in quality of life while a prisoner was incarcerated.

The VSLY represents the marginal financial value of a year of healthy human life, and was originally developed to be used to estimate the financial burden of illness and injury on premature death or disability. There are different approaches that have been taken to valuing human life, each with its own strengths and weaknesses. There have been various reviews of these approaches (Abelson 2007; Access Economics 2008; Krupnik 2004), and the findings of those reviews are not repeated here. The Department of the Prime Minister and Cabinet Office of Best Practice Regulation suggest a credible estimate of the VSLY is $182,000 (which has been adopted in the current study), while Access Economics (2008) argued in favour of a value of $192,576 (in 2014–15 dollars).

Table 51: Disability adjusted life years and lost quality of life (2014–15 dollars; PV)

	Lower estimate (DW=0.1)		Upper estimate (DW=0.3)	
	Prison cohort	Community cohort	Prison cohort	Community cohort
Prisoners				
Total cost	$10,664,906.72	$3,213,203.64	$31,994,720.17	$9,639,610.92
Total per person (entire cohort)	$13,264.81	$3,996.52	$39,794.43	$11,989.57
Partners				
Total cost	$2,430,868.07	$732,390.29	$7,292,604.20	$2,197,170.87
Total per person (entire cohort)	$3,023.47	$910.93	$9,070.40	$2,732.80
Children				
Total cost	$2,844,144.81	$856,905.43	$8,532,434.44	$2,570,716.29
Total per person (entire cohort)	$3,537.49	$1,065.80	$10,612.48	$3,197.41
Total				
Total cost	$15,939,919.61	$4,802,499.36	$47,819,758.82	$14,407,498.07
Average cost per person (entire cohort)	$19,825.77	$5,973.26	$59,477.31	$17,919.77

Source: Corrections Victoria 2011, 2015 [data files]; Lengyel & Brown 2009

There are critics of the use of disability weights, DALY and VSLY, particularly in terms of the accuracy of attempts to monetise aspects of people's lives that are both highly subjective and variable. For example, Krupnik (2004) suggests that the use of DALY is appropriate for predicting the value of health outcomes, becomes they can account for the very specific nature of injuries or illness. However, he suggests they may be less appropriate for non-health outcomes and for social welfare analysis. Conversely, and more recently, Dolan (2010) argues in support of this approach and describes how it has been used successfully to measure the impact of victimisation.

Importantly, the nature of VSLY means that there may be some overlap with other costs, such as lost productivity or lost earnings (Access Economics 2008), thereby resulting in double counting. This depends precisely on what is being valued, which is not always immediately apparent. However, the VSLY estimated through willingness to pay methods is not limited to earnings potential. Nevertheless, given the potential overlap with other costs, and questions regarding the validity of the approach, this report adopts a more conservative approach to assigning a value to lost quality of life. Given the high proportion of offenders who are also illicit drug users, a disability weight of 0.10—equivalent to a substance user being in maintenance treatment (Lengyel & Brown 2009)—was assumed to be the more applicable estimate and therefore was used for the final estimate.

To determine the value of DALY among individuals in the prison and community cohort, the disability weight was multiplied by the VSLY (revised to a daily rate) and multiplied by the average number of days in prison. Discount rates were applied to each year of the observation period after the reference episode. The estimate for partners was based on data from Corrections Victoria that showed 23 percent of prisoners and offenders were in a relationship, while the estimate for children affected by imprisonment assumed that there were 0.27 children per prisoner/offender, based on the number of children and proportion in legal custody. The results presented in Table 51 show that the estimated PV of the lost quality of life for the prisoner cohort—comprising the prisoners, their partners and children—was almost $16m, while for individuals in the community cohort it was nearly $5m.

Summary of costs and savings over five years

The total NPV and average NPV per person, as well as the PV for each cost item over five years, is presented in Table 52. Unlike the reference episode, where cost items were restricted to one group or the other, estimates for each cost item are reported for both the prison and community cohorts, reflecting the fact that individuals frequently moved between the different order types.

The total NPV of the prison cohort (n=804) was estimated to be $116.2m, an average of $144,480 per person. This was around three times higher than the NPV for the community cohort, which was estimated to be $39.9m, or $49,633 per person. Direct sentence costs remained by far the largest single cost item for either cohort. This was followed by the lost quality of life for prisoners, their partners and families, and lost productivity due to loss of paid work and lost earnings. The largest savings came from the work completed in prison and the reduction in government payments.

Table 52: Total NPV of imprisonment and community corrections, five-year follow-up (2014–15 dollars)

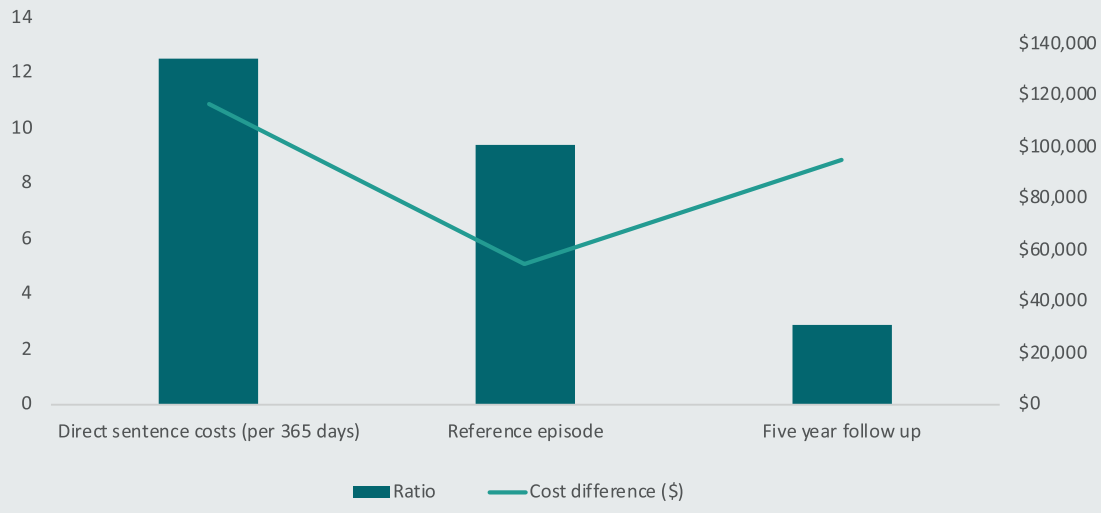
	Total value		Average value per person	
Cost item	Prison cohort	Community cohort	Prison cohort	Community cohort
Costs				
Direct sentence costs	$77,996,406	$32,117,564	$97,010	$39,947
Lost productivity (paid work)	$13,300,814	$4,007,370	$16,543	$4,984
Lost productivity (unpaid work)	$8,483,157	$2,555,870	$10,551	$3,179
Lost earnings	$10,790,643	$1,160,095	$13,421	$1,443
Prison assaults	$676,464	$255,487	$841	$318
Breach actions (breach of conditions)	$80,966	$153,007	$101	$190
Supported accommodation	$493,369	$138,499	$614	$172
Hospital admissions and MH outpatient visits	$1,591,331	$171,083	$1,979	$213
Care and protection of children	$2,541,105	$150,778	$3,161	$188
Disability adjusted life years (prisoners, partners and children)	$15,939,920	$4,802,499	$19,826	$5,973
Savings				
Reduced government payments	$6,453,158	$1,944,256	$8,026	$2,418
Value of work completed in prison	$7,106,053	$2,140,965	$8,838	$2,663
Value of community work	$367,212	$977,503	$457	$1,216
Reduction in illicit drug use by prisoners	$560,226	$168,789	$697	$210
Reduction in alcohol use by prisoners	$1,245,242	$375,176	$1,549	$467
Total NPV	$116,162,285	$39,905,563	$144,480	$49,633

Conclusion

The purpose of this economic analysis was to determine the total net cost of pathways through imprisonment and community corrections in Victoria, taking into account a range of direct and indirect costs and savings accrued by a matched cohort of prisoners and offenders. The methodology used to undertake this analysis and the results are presented in this technical report.

This study has shown that it is possible to identify a marginal group of prisoners and offenders—a group of offenders who share similar characteristics and for whom the imposition of an imprisonment or community-based order may be equally viable. From the original cohort of prisoners who received a short sentence (defined as less than 12 months), it was possible to identify an offender who received a community corrections order and who shared similar characteristics in 43 percent of all cases (n=804). This was equivalent to 15 percent of all prisoners who were received into custody in 2009–10.

Figure 4: Ratio and cost difference between prison cohort and community cohort, per person (2014–15 dollars; NPV)



Comparing the costs and savings for these two cohorts showed that, in the short-term, the imprisonment cohort incurred costs to the offender, government and wider community that were more than nine times those for the community cohort (Figure 4).

The second component of this study followed both cohorts over a five-year period, taking into account their respective pathways through imprisonment and community corrections, demonstrating that both cohorts spend considerable time within the corrections system. In the longer-term (over a five-year period), the difference between the two cohorts contracted significantly (in relative terms, not in terms of the actual cost difference), with the NPV for the prison cohort around three times that for the community cohort.

What this suggests is that, for some offenders, imposing a community order does not necessarily mean that they will avoid the significant imprisonment and related costs altogether—one quarter of the offenders in the community cohort received at least one imprisonment order during the observation period, and those who were imprisoned received sentences that were on par with the imprisonment cohort. It also highlights the significant economic cost of pathways through the criminal justice system for individuals in both cohorts.

Nevertheless, over a five-year period, imposing a term of imprisonment still represents a significantly more costly sentencing option. Three-quarters of the community cohort did not end up in prison within five years. Over a five-year period, the prison cohort accrued costs of $116.2m. This is $76.3m, or $94,847 per person, more than the costs accrued by the community cohort. While this cohort represents a small proportion of the entire prison population, this research demonstrates there may be significant savings associated with diverting individuals from short prison sentences to community corrections orders, where it is appropriate to do so.

There are some important limitations to this work, and these have been described in detail. Briefly, there is the potential of omitted variable bias in the selection of the matched group and limitations related to the reliance on published and unpublished estimates of the effects of imprisonment and community corrections. There are other costs and savings that were not included in one or both estimates. One notable omission from the estimate for the five-year follow-up period was the specific deterrent effect of supervision and the incapacitation effects of imprisonment. Given the evidence appears to suggest that prison has a criminogenic effect, while effective community supervision can reduce reoffending, including these costs would likely widen the gap in the longer-term costs between the two cohorts.

Evidence about the impact of prison on the physical health of prisoners is also lacking. There is evidence that the health of prisoners upon entering prison is significantly worse than the health of the general population, and prison provides opportunities for diagnosis, treatment and referral post-release for preventable illnesses. However, evidence about the impact that prison has on the health of prisoners is limited and, where it exists, the findings are mixed (Travis, Western & Redburn 2014).

Besides reoffending and the immediate health impacts of imprisonment, there are longer-term effects associated with imprisonment that are likely to continue to accrue costs in the future. This includes the impact on earnings and mental health (both measured to some extent in the current study), the impact on the quality of life of prisoners and their families and the intergenerational effects of imprisonment (which were not measured post-release).

Nevertheless, this research represents one of the first attempts to estimate the wider costs and savings of imprisonment *and* community corrections in Australia and enable the direct comparison of two sentence options. While the precise estimates may not be directly applicable to the current environment in Victoria, given significant changes to sentencing, community corrections and parole, the overall findings are nevertheless relevant and important.

This research is instructive in highlighting what is and is not known about the experiences of prisoners and offenders before, during and after they have spent time in prison or on a community order. It further emphasises the need for rigorous studies of the effects of prison and, perhaps even more importantly, community-based sentences on a wide range of outcomes.

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