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Evaluation of vocational training in custody

**Relationships between Training, Post-Release
Employment and Recidivism**

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Evaluation of vocational training in custody: Relationships between training, post-release employment and recidivism

Background Offenders often have a relative lack of marketable skills and limited history of work experience. Correctional services across jurisdictions have attempted to remedy this by providing vocational training and work experience in custody through correctional industries. The goal is to provide offenders with a means to develop work ethic while learning valuable vocational skills and gaining practical work experience. These activities aim to assist offenders in obtaining employment after release from prison, with the view that doing so will improve an offender's re-entry into the community and ultimately reduce recidivism.

Aim The primary aim of this study was to examine vocational training program uptake and the relationship between training and post-release employment among offenders who had undertaken vocational training while in custody. The study also examined patterns of employment over the course of reintegration into the community and associations with recidivism over the follow-up period.

Method The study sample consisted of 255 parolees who had completed one of 12 identified vocational training courses in a Corrective Services NSW (CSNSW) correctional centre between March 2010 and November 2013 and who had been released to parole before November 2013. Demographic data, criminal history data, case file notes and recidivism data for this cohort of 255 parolees were extracted from the CSNSW Offender Integrated Management System (OIMS).

Results Offenders in the study sample participated in vocational training programs that were oriented towards heavy machinery operation and building and construction skills. A high proportion of offenders obtained post-release employment in industries that were congruent with the type of training received. Parolees who were employed at three months post-release were significantly more likely to be employed at 12 and 18 months post-release, and were also significantly less likely to be reconvicted. Results also showed that offenders who obtained full-time employment during the follow-up period were significantly less likely to be reconvicted compared to those who found less stable part-time employment. There were indications that the different categories of vocational training program were associated with differences in the likelihood of finding employment and the hazard of reconviction over the follow-up period.

Conclusion Most parolees found post-release employment in an industry that was congruent with their vocational training in custody. In addition, parolees who found employment in the post-release transitional period were more likely to stay employed and less likely to reoffend over time. These findings could indicate that vocational training contributes to the employability of parolees, which may in turn influence recidivism outcomes. Further research comparing outcomes to an equivalent comparison group is needed to better understand causal effects of vocational training in custody.

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Introduction

Successful reintegration into the community following a term of imprisonment is a complex and challenging process, and one that is experienced by a growing number of individuals managed by Corrective Services New South Wales (CSNSW). Between March 2010 and December 2015 the prison population in CSNSW correctional centres grew from 7,242 to 12,210 inmates, representing a 68.6 percent increase (ABS, 2010; 2016). As most of these offenders will eventually return to the community, trends towards growth in the prison population are expected to correspond with an increase in the number of prisoners re-entering society and undergoing social and economic reintegration. Recent data indicate that in NSW, 15,009 offenders returned to the community between July 2014 and June 2015 (Productivity Commission, 2016).

Offenders often face numerous challenges when they leave prison and return to their communities. These can include instrumental needs such as finding accommodation and employment and securing assistance from government or other services. Such challenges can be compounded by other disadvantages that are disproportionately prevalent in offender populations, including mental health and substance abuse issues (Visher & Travis, 2005) and low levels of family and other social support (Uggen, Wakefield, & Western, 2005). It is uncommon for offenders to leave prison and return to the community with existing employment, financial capital and other resources (Travis, 2005). Further, prisoners frequently leave prison with mounting financial pressures from an accumulation of debts and fees (Wakefield & Uggen, 2010). An Australian study found that 80 percent of prisoners had some debt when they went to prison, with the average amount for male prisoners in the sample totalling \$16,060 (Stringer, 2000).

The concern that many prisoners may experience substantial difficulties with transition into the community or failure of reintegration is reflected in the high rate of offenders who return to custody. In 2014–15, 48 percent of offenders released from CSNSW correctional centres returned to prison within two years (Productivity Commission, 2016), a phenomenon recognised internationally as the ‘revolving door’ (Pew Center, 2011). The majority of those offenders who are reconvicted following custody do so shortly after release (Payne, 2007). While the factors associated with reoffending are complex and multisystemic, the literature indicates that effective post-release preparation, skills and resources are critical to addressing risk.

Benefits of employment

Employment has been identified as one of the best predictors of post-release success for former prisoners (Visher, Winterfield & Coggeshall, 2005). While criminal behaviour is just one index of the success of reintegration, being unemployed has been found to be a risk factor for reoffending (Carmichael & Ward, 2001; Fergusson, Lynskey & Horwood, 1997; Lockwood, Nally, & Ho, 2016; Uggen 2000; Verbruggen, Blokland, & van der Geest, 2012). In this regard it is likely that unemployment and reoffending risk have an interacting relationship. As Thornberry and Christenson (1984: 405) observe, ‘unemployment has an immediate effect on criminal involvement, while criminal involvement has a long-term influence on unemployment’.

Employment has been associated with benefits that extend beyond the ability to support oneself financially without resorting to offending. Employment may influence the development of pro-social relationships, attachment to a conventional lifestyle, pro-social use of free time, self-worth and plans for the future (McCreary & McCreary, 1975; Visher et al., 2005). Over time, continued employment increases feelings of competence, usefulness and satisfaction, and allows the ex-offender an opportunity to develop and articulate a new identity (McCreary & McCreary, 1975).

Research has indicated that the relationship between employment and reoffending outcomes is moderated by qualitative factors. A study by Uggen (1999) showed that having a good quality job, characterised by adequate wages and positive working conditions, reduced the likelihood of economic and non-economic criminal behaviour among released high-risk offenders. In contrast, low quality, transitional employment with inadequate hours and pay and no viable prospects for career progression appeared to provide offenders with little incentive to desist from criminal activity (Uggen, 1999).

The protective influence of gainful employment has been associated with standard economic theories of crime (Becker, 1968; Cook, 1980), which propose that prospective criminals choose to offend based on the rewards of the activity compared with the potential costs. For someone who has relatively good lawful options of employment, the perceived cost of arrest and punishment is high. However, for someone whose employment prospects are poor due to lack of work experience, education and a serious criminal record, the high recidivism rate is unsurprising given their meagre licit options (Cook et al., 2015). Based on this analysis, it may be expected that interventions that are successful in improving employment outcomes will reduce the appeal of crime for some released prisoners and consequently reduce recidivism (Cook, 1975).

The benefit of employment towards risk of reoffending is also consistent with theories of desistance. Desistance highlights the significance of social bonds – such as entering into marriage, parenthood or obtaining employment – in deterring offending (e.g. Laub & Sampson, 2003). These key life events might be ‘turning points’ in the lives of offenders that potentially increase social control by changing daily routines and encouraging pro-social roles (Laub & Sampson, 1993). Additionally, former prisoners who adopt such changes in their social roles and relationships may potentially take on new identities or self-concepts that continue to support a non-offending identity (Maruna, 2001).

Barriers to entering employment

Offenders have reported that finding a job after release from custody was important to them and most felt that being employed would help them stay out of prison (La Vigne & Lawrence, 2002). However, offenders can experience significant social, economic and personal challenges in gaining and maintaining employment. On average, offenders have lower levels of literacy and numeracy, inadequate work experience or job-related skills, and a higher prevalence of mental health and substance abuse issues than those in the broader community (Baldry, McDonnell, Maplestone, & Peeters, 2003; Visher, Debus-Sherrill & Yahner, 2011).

Offenders also face a number of structural barriers when re-entering the workforce, including employer attitudes to applicants with a criminal record; segregated social networks and limited access to personal contacts who may facilitate entry into employment; financial problems that impact on interview attendance; unstable housing; purchase of appropriate clothing and equipment; and difficulties transitioning from benefits to employment (Webster, Hedderman, Turnbull, & May, 2001). Pager (2003; 2007) proposed that a criminal record functions as a particularly salient negative testimonial on the job market, signifying a general absence of trustworthiness and employability. Employers may also expect offenders to lack ‘soft’ employment skills, have conflict with workers and prove unreliable in the handling of payments and goods (Bushway, Stoll & Weiman, 2007).

Some studies have indicated that there are additional barriers for female offenders obtaining and maintaining gainful employment following release into the community. These can include comparatively lower wages than their male counterparts and a lack of available childcare

(Richmond, 2012). In a study of female offenders, O'Brien and Lee (2006) found that the most frequently reported reintegration need was assistance finding and keeping a job.

Work and vocational training in prison

Recognition of the importance of employment to post-release reintegration outcomes has informed the increasing provision of vocational training and work experience through correctional industries. Prisoners' participation in correctional industries is intended to improve their prospects for employment post-release through the acquisition of marketable skills and qualifications. In addition, active engagement in training or work while imprisoned may serve as a 'signal' of desistance or prosocial functioning to prospective employers during the recruitment process (Bushway & Apel, 2012). In a survey of 209 corporations assessing employers' attitudes to hiring offenders, 81 percent of respondents reported that successful completion of a vocational program by the candidate, either in prison or upon exit, was looked upon positively in hiring decisions (Jensen & Giegold, 1976). More recent research by Graffam & Hardcastle (2007) examined the perceptions of Victorian employers, correctional services staff and employment service providers about the employability of individuals with criminal histories. They concluded that inmates who completed pre-release training were regarded as more employable by various stakeholders than those who had not.

A number of studies have examined the relationship between offenders' engagement in custodial work or vocational training and risk of recidivism across various jurisdictions. Results have been somewhat mixed (Richmond, 2014), which may be partly attributable to substantial variation in the design and experimental rigour of outcome evaluations. Studies have frequently been limited by methodological issues including the use of non-equivalent comparison groups, effects of self-selection, short follow-up times and use of broad measures of post-release behaviour that focus primarily on reoffending (Turner & Petersilia, 1996; Uggen, 2000; Wilson, Gallagher, & MacKenzie, 2000). Nonetheless, systematic reviews of the literature have found sufficient evidence to suggest that correctional industries and vocational education in prison are effective in reducing reoffending (Aos, Miller, & Drake, 2006; Wilson et al., 2000). Similarly, a recent meta-analysis of 58 studies evaluating the effectiveness of prison education programs estimated that participation in such programs was associated with an average 13 percent reduction in likelihood of reoffending (Davis, Bozick, Steele, Saunders, & Miles, 2013).

In an example of a more methodologically robust study, Saylor & Gaes (1997) examined the effect of work and training in correctional industries in a sample of over 7,000 inmates, with a longitudinal follow-up period spanning up to 12 years. Outcomes for participants of correctional industries were compared to a control group that was identified on the basis of both observed characteristics and propensity score matching. Results indicated that participation in employment and training in custody had a significant effect on likelihood of institutional misconduct in addition to post-release employment and reoffending rates. In particular, course participants were 14 percent more likely to be employed and 35 percent less likely to reoffend compared to controls at 12 months follow-up. Over a longer-term period of up to 12 years, offenders who had worked in correctional industries were 24 percent less likely to reoffend, and offenders who had engaged in vocational or apprenticeship courses were 33 percent less likely to reoffend, compared to those in the control group.

Recent research has reached similar conclusions in regards to Australian intervention programs and inmate populations. A study by Giles (2016) with inmates from Western Australia found that increasing vocational class attendance was associated with both reduced risk of reoffending and reductions in the likelihood that offending behaviour increased in severity. Across two Australian correctional jurisdictions, increasing participation in Vocational Education and Training (VET) was

also associated with reduced person, drug and property reoffending (Jha & Polidano, 2016). The effects of VET participation on reoffending outcomes were found to be more pronounced for mature offenders (26-44 years), who may have a greater range of resources and incentives for employment or desistance, compared to younger offenders (16-25 years).

Congruence in vocational training and post-release employment

The rationale for providing offenders with work or vocational training in custody is that it will develop their marketable skills and thus prospects for employment. However, relatively few studies have examined how participation in custodial vocational courses corresponds with the nature of employment outcomes following release. One notable exception is a study of 4,460 prisoners released to supervision by the Correctional Service of Canada (Nolan & Power, 2014). The study sought to determine if the type of vocational training offered in custody was linked to the type of employment they obtained in the community following release. Congruence was considered to occur if the community job fell within the same occupational category as the vocational certification obtained whilst incarcerated. Congruence was found to be greatest in 'trades', with 58 percent of prisoners having both a certificate and a job in this area. This was followed by 'sales and services', with 12 percent; while less than 1 percent of prisoners had congruence in other areas.

Richmond (2014) also reported on results of interviews with 70 parolees regarding their perceptions of correctional industries and whether the training and skills they gained were transferable to the workplace. The author concluded that correctional industries may have generalised impacts by improving one's sense of self and providing structure, responsibility and routine. However, parolees noted that training programs had variable relevance to post-release employment depending on the type of industry and applicability of developed skills to viable employment opportunities in the community.

The present study

Within CSNSW correctional centres, Corrective Services Industry (CSI) focuses on commercial and social outcomes in addition to incorporating pathways to post-release employment. Over the 2014–15 financial year, 76 percent of eligible inmates were employed within 33 correctional centres (Productivity Commission, 2016). This, combined with access to Vocational Education and Training (VET), is designed to increase an inmate's capacity to work effectively within CSI and develop greater employment experience to enhance their prospects of successful return to the community. In 2014–15, 22 percent of prisoners were participating in vocational education and training in CSNSW correctional centres (Productivity Commission, 2016). However, despite the large number of prisoners who engage in vocational training and leave custody every year we know surprisingly little about their experiences of finding employment, and the industries in which they are employed, following release.

The current report comprises the second of a series of three studies that aim to evaluate processes and outcomes associated with vocational training and education programs established in CSNSW correctional centres. The first study (Lindeman & Neto, manuscript in preparation) explored offenders' subjective experiences of vocational training in custody and attainment of employment after release. The objective of the present study is to examine the relationship between identified vocational training programs and post-release employment and other outcomes in a sample of offenders who had participated in training while in custody. The third proposed study in this evaluation intends to assess the intervention effect of vocational training completion on reoffending relative to equivalent non-treated prisoner samples.

The objective of the present study is to address the following research questions:

- What are the characteristics of offenders who complete the identified vocational education and training programs in custody?
- How many offenders participated in the identified training programs in custody?
- What is the level of congruence between the category of training program and types of employment obtained following release?
- What is the relationship between participation in the various training programs and the likelihood and quality of employment in the community?
- What is the association between employment status and quality and offenders' likelihood of recidivism?

Method

Sample

The identified sample of interest in this study comprised all offenders who were detained in a CSNSW correctional centre between March 2010 and November 2013; had completed one or more of the 12 identified vocational training courses while in custody (see Table 1); and had been released to parole supervision with Community Corrections prior to November 2013. This derived a total sample of 255 offenders (254 males; 1 female). Characteristics of the offender sample are given in Table 2.

Data collection

Individual characteristics and recidivism

Characteristic variables for offenders in the sample were extracted from the CSNSW Offender Integrated Management System (OIMS). OIMS electronically records a range of information about offenders who are subject to management by CSNSW in fields such as demographics, offence and sentence details, results of intake screening and other assessments, program participation, custodial movements, employment and others.

For the purposes of this study the outcome variable of recidivism was also derived from OIMS. Recidivism was defined as return to CSNSW custodial supervision with a reconviction for a new offence following release from the index custodial episode, prior to the data collection census date of March 2016. As offenders in the study were released from custody between 2011 and 2013 the recidivism follow-up period ranged from 28 to 60 months (median = 38 months).

Participation in vocational training

Information about offenders' participation in vocational training programs was obtained from records maintained by the Adult Education and Vocational Training Institute (AEVTI) and Corrective Services Industries (CSI). A total of 12 custodial training programs were identified and coded into three major categories: building and construction, heavy machinery and heavy vehicle drivers programs. A summary of the vocational training programs and major program categories included in the study is provided in Table 1.

For the purposes of assessing congruence between vocational training and post-release employment, each of the available courses was coded according to their correspondence with major occupational categories as defined by the Australian and New Zealand Standard Classification of Occupations (ANZSCO; see Appendix A). The occupational categories listed by ANZSCO include: (1) Managers; (2) Professionals; (3) Technicians and Trade Workers; (4) Community and Personal Service Workers; (5) Clerical and Administrative Workers; (6) Sales Workers; (7) Machinery Operators and Drivers; and (8) Labourers. It was determined that the 12 available vocational training courses fell into three major ANZSCO categories, being the Technicians and Trade Workers, Machinery Operator and Drivers, and Labourers categories.

Table 1 - Course classification by major category and sub-category

Program Category	Vocational Training Program
Heavy Machinery Programs	Backhoe/Front End Loader
	Skidsteer
	Forklift
	Slewing Crane (up to 20 tonne)
	Rigging/Dogman Licence
Building and Construction Programs	Engineering
	Civil Construction
	Asbestos Removal
	Stop-Go-Traffic Control
	Traineeship OP103 TAFE Construction Certificate II
	Traineeship OP103 TAFE Engineering Certificate II
Heavy Vehicle Drivers Program	Heavy Vehicle Licence

Post-release employment

Data on post-release employment outcomes were obtained through examination of case file notes generated as part of parole case management by CSNSW Community Corrections. Information about employment status and position is routinely reported by parolees to their Community Corrections Officer (CCO) at parole supervision sessions and subsequently recorded on OIMS. The primary caveat when using this data is that case file notes do not capture labour that is not reported to their CCO. However, supervising officers typically aim to corroborate employment by requesting to see pay slips or checking directly with the offender's employer. Parolees also have an incentive to report employment as it affects the frequency of their reporting to CCOs and allows flexibility of reporting times around their work schedule.

One limitation of the existing employment data was that it was recorded and dated at the time of the parole supervision session, and information was often not available about the specific date that the offender entered or exited a job. To address this limitation, post-release employment measures included any employment (dichotomised as '1' for employment and '0' for no employment) reported at distinct points in time. Employment was further categorised as either

full-time or part-time. To enable analysis of type of employment into discrete categories (full-time, part-time or unemployed), parolees who had obtained both full-time and part-time employment were coded as having attained full-time employment. For every offender who was employed in the 18 month community follow-up period, his/her employment was further classified according to the ANZSCO major and sub-major group employment categories (see Appendix A). Employment measures such as total number of hours worked, total wages earned, and hourly wage during the period were not recorded in case notes.

Offenders were frequently employed in multiple jobs in the follow-up period and all reported jobs were recorded. Multiple jobs could be categorised within one major and sub-major group; however, when an individual was employed in a job unrelated to the major and sub-major code, this was coded as a second job. This classification provided detailed information regarding the types of industries that offenders were employed in following release and allowed matching of targeted vocational tickets obtained in custody and their subsequent jobs following release.

Employment information was only available for offenders in the sample while they were actively engaged in parole supervision in the community. Once offenders completed parole (or returned to custody) their employment could no longer be determined. As a result the available sample for which post-release employment variables could be reported varied with a trend towards decreases over time. For example, 82.5% of the sample remained in the community and under parole supervision at 12 months post-release, whereas the proportion of parolees still in the community and under supervision at 18 months post-release had declined to approximately half (54.1%).

Statistical analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 21. Similar to many large administrative datasets, missing values were observed for a number of variables obtained from OIMS and individual case files. All analyses were calculated with missing data omitted. Sample size is recorded where appropriate to aid interpretation of results.

Descriptive analyses included frequency and percentage statistics for categorical variables and median statistics for continuous or ordinal data. Differences in the proportion of offenders represented across independent groups of interest were analysed using chi-square tests. When assessing the relationship between groups of interest and recidivism outcomes, survival analyses were conducted using the non-parametric Kaplan-Meier estimation procedure to test for significant differences across groups. These survival analysis methods allow for comparison of the hazard ratio or odds of recidivism while controlling for differences in duration of time at risk in the community. The log-rank test was employed to test for significance between survival curves for different groups of offenders. All analyses were conducted with alpha set at $p = .05$ to determine whether results were statistically significant.

Results

Sample characteristics

Characteristics of the study sample are given in Table 2. The majority of program participants were male (99.6%); of non-Aboriginal or Torres Strait Islander cultural background (85.5%); aged between 25-34 years (59.2%); unmarried (76.1%); educated below Year 10 (64.7%); and had completed a previous custodial sentence (59.2%). The most frequently recorded most serious offence (MSO) was robbery, extortion and other related offences (28.6%), acts intended to cause injury (19.6%), illicit drug offences (14.1%) and unlawful entry with intent / burglary, break and enter offences (13.3%).

Characteristics of the study sample were compared by developing an equivalent cohort consisting of all parolees released from CSNSW correctional centres between March 2010 and November 2013. This cohort comprised a total of 21,211 prisoners who were released to parole over the measurement period. A number of differences in average individual characteristics between the two groups were observed (see Table 2). Compared with the general parolee population on average, offenders in the vocational training sample were younger (71.4% compared with 58.3% under 35 years), less likely to be of Aboriginal or Torres Strait Islander cultural background (14.5% compared with 28.9%), more likely to be male (99.6% compared with 90.8%), and less likely to have been to prison before (59.2% compared with 73.3%).

Offenders in the vocational training sample were also observed to have lower general risk of reoffending as indicated by Level of Service Inventory – Revised (LSI-R) total score category (57.3% medium+ risk), compared to parolees on average over the same time period (71.7% medium+ risk). In particular, offenders who had received vocational training were more likely to be deemed as having protective factors or no immediate need for improvement in the Education and Employment domain of the LSI-R (57.2%), indicating an absence of dynamic risk or case management needs associated with this domain, compared to those in the general parolee population (37.7%).

Participation in vocational training

As previously mentioned, offenders were deemed eligible for inclusion in the study if they had completed one of the 12 identified vocational training courses in custody. Over the period of measurement, a total of 128 offenders (50.2%) participated in a heavy machinery category of program. A similar number of offenders (n = 115; 45.1%) participated in programs in the building and construction category, whereas relatively few offenders (n = 30; 11.8%) participated in the heavy vehicle drivers program¹.

It is noted that the distribution of offenders across program categories may reflect differences in the logistical demands and availability of places in the various programs, in addition to population demand for the programs. Data to indicate program utilisation over the measurement period was not available at the time of writing.

¹ Total number of vocational training programs participated in exceeded sample size in this instance because a number of offenders completed more than one program in their index custodial episode.

Table 2 - Characteristics of the study sample and comparisons to parolee population

Variable	Vocational training sample		Parolee population	
	n	%	n	%
Number of offenders	255		21211	
Demographic characteristics				
Age				
18-24 years	31	12.2%	4480	21.1%
25-34 years	151	59.2%	7895	37.2%
35-44 years	48	18.8%	5620	26.5%
45+ years	25	9.8%	3159	14.9%
Aboriginal / Torres Strait Islander	37	14.5%	6126	28.9%
Male Gender	254	99.6%	19260	90.8%
Married	61	23.9%	6796	32.0%
Education less than Year 10	165	64.7%	8185	38.6%
Offending / risk characteristics				
Previous prison sentence	151	59.2%	11552	54.5%
Most serious offence				
<i>Homicide and related offences</i>	22	8.6%	315	1.5%
<i>Acts intended to cause injury</i>	50	19.6%	5318	25.1%
<i>Sexual assault and related offences</i>	2	0.8%	905	4.3%
<i>Dangerous or negligent acts endangering persons</i>	8	3.1%	558	2.6%
<i>Abduction, harassment and other offences against the person</i>	3	1.2%	222	1.0%
<i>Robbery, extortion and related offences</i>	73	28.6%	1549	7.3%
<i>Unlawful entry with intent/burglary, break and enter</i>	34	13.3%	2590	12.2%
<i>Theft and related offences</i>	4	1.6%	1387	6.5%
<i>Fraud, deception and related offences</i>	4	1.6%	652	3.1%
<i>Illicit drug offences</i>	36	14.1%	1871	8.8%
<i>Prohibited and regulated weapons and explosives offences</i>	6	2.4%	323	1.5%
<i>Property damage and environmental pollution</i>	2	0.8%	240	1.1%
<i>Public order offences</i>	1	0.4%	423	2.0%
<i>Traffic and vehicle regulatory offences</i>	2	0.8%	1706	8.0%
<i>Offences against justice procedures</i>	8	3.1%	1926	9.1%
<i>Miscellaneous offences</i>	0	0%	68	0.3%
<i>Missing</i>	0	0%	1158	5.5%
LSI-R risk category				
Low	36	14.1%	993	4.7%
Medium-low	70	27.5%	2504	11.8%
Medium	92	36.1%	7215	34.0%
Medium-high	41	16.1%	6061	28.6%
High	13	5.1%	1934	9.1%
Missing	3	1.2%	10	0%
LSI-R Education and Employment domain rating				
<i>Factor seen as strength for community adjustment</i>	48	18.8%	2383	11.2%
<i>No immediate need for improvement</i>	98	38.4%	5614	26.5%
<i>Some need for improvement</i>	51	20.0%	4249	20.0%
<i>Considerable need for improvement</i>	57	22.4%	6633	31.3%

Post-release employment

Employment status

Table 3a shows study retention status and post-release employment (where known) as a proportion of the total sample at various time periods up to 18 months following release into the community. It can be seen that information about employment status became unavailable for an increasingly large proportion of the sample over time due to cessation of measurement as a result of return to custody or completion of parole. To account for these changes in the viable sample over time, employment status will also be discussed in reference to Table 3b, which shows employment status as a proportion of the remaining sample on parole at the time of measurement.

Table 3a - Study retention and employment status by post-release follow-up

	1 month post- release	3 months post- release	6 months post- release	12 months post- release	18 months post- release
Employed	88 (34.5%)	135 (52.9%)	136 (53.3%)	146 (57.3%)	112 (43.9%)
Unemployed	163 (63.9%)	104 (40.8%)	83 (32.5%)	51 (20.0%)	26 (10.2%)
Parole complete	0 (0%)	1 (0.4%)	7 (2.7%)	20 (7.8%)	62 (24.3%)
Returned to custody	4 (1.6%)	15 (5.9%)	29 (11.4%)	38 (14.9%)	55 (21.6%)

Table 3a indicates that by three months post-release around half (52.9%) of the study sample were employed while engaged in active parole supervision. This rate of employment while on parole appears to have remained relatively steady over time, so that 57.3% of offenders in the sample were employed at 12 months post-release and 43.9% were employed at 18 months post-release. The method of calculating employment status as a function of total sample shown in Table 3a may be insensitive to change over time, however, because of the progressive loss of employment information as offenders completed parole or returned to custody.

Table 3b – Employment status for offenders remaining on parole

	3 months post- release	6 months post-release	12 months post- release	18 months post- release
Employed	135 (56.5%)	136 (62.1%)	146 (74.1%)	112 (81.2%)
Unemployed	104 (43.5%)	83 (37.9%)	51 (25.9%)	26 (18.8%)

Table 3b shows that when considering only those offenders for whom employment information is available (i.e. those who remained on active parole supervision at each time point), an increasing proportion of offenders were employed over time. For those remaining in the community and on parole at 18 months post-release (n = 138), 81.2% reported having employment. Conversely, the proportion of offenders on parole without employment declined over time.

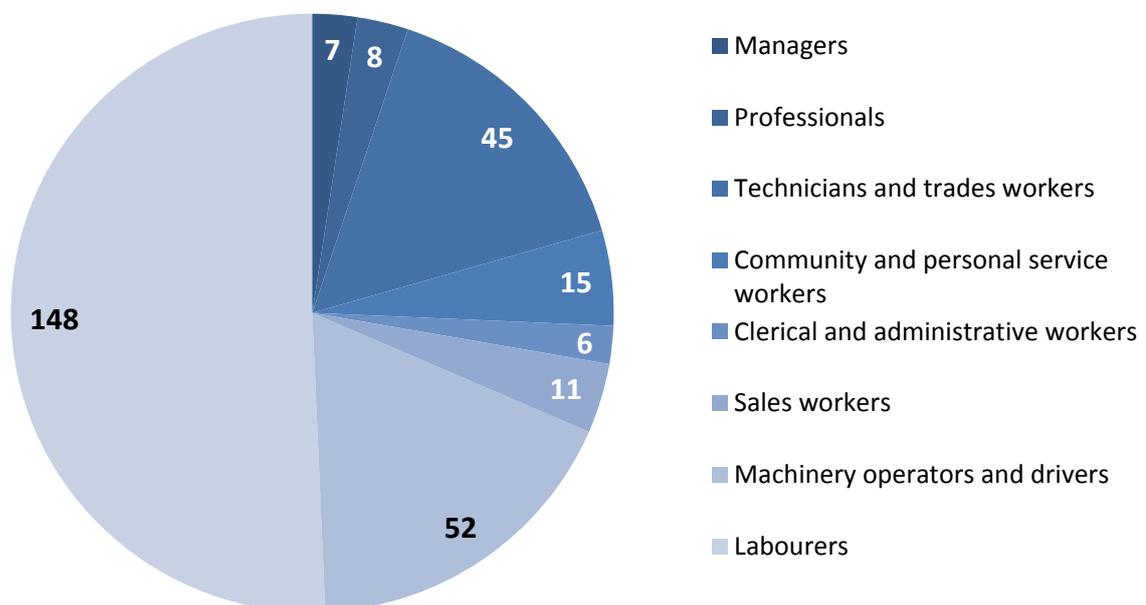
There are two interpretations of this pattern of results. The first is that engagement in parole case management is associated with a progressively increasing likelihood of finding work over time. The second is that offenders with employment were more likely to remain in the community whereas an increasing proportion of unemployed offenders ceased parole case management, potentially due to return to custody.

Additional analyses were conducted to assess the extent to which offenders' employment status was subject to change over time. A series of chi-square analyses indicated that achieving employment in the initial months of reintegration was predictive of stability of employment. Being employed at three months post-release had a highly significant association with the odds of being employed at 12 months post-release ($\chi^2(1) = 63.62$; $p < .0005$) and at 18 months post-release ($\chi^2(1) = 35.17$; $p < .0005$). Nearly three-quarters of offenders who were employed at three months were also employed at 12 months (74.0%) and at 18 months (74.1%) post-release. Similarly, nine in ten parolees who were unemployed at three months remained unemployed at 12 months (90.2%) and 18 months (88.5%) post-release.

Industry of employment

The majority of parolees obtained post-release employment in the construction industry, working in labouring, technician and trade, or machinery operation and driving positions. Of the jobs reported, 83.9% were categorised as one of these three roles, with labouring positions making up 50.6% of jobs reported alone. Other types of employment such as community and personal service workers or sales workers were also stated at times; however, only 5% and 4% were employed in these roles, respectively. Frequencies of offenders employed in each of the occupation categories are shown in Figure 1.

Figure 1 - Frequencies of community employment by ANZSCO category



Vocational training and post-release employment

Vocational training and employment status

To identify whether offenders who attended certain vocational training courses in custody were more likely to be employed following release into the community, employment status (employed; not employed) was aggregated across 3, 6, 12 and 18 months post-release to indicate employment outcome over the observed follow-up period. Chi-square analysis revealed significant variation in employment status outcomes across the vocational training courses ($\chi^2(2) = 14.68$; $p = .001$).

Similar proportions of offenders who completed the heavy vehicle drivers program (88.9%) and the heavy machinery category of programs (88.4%) found any employment over the follow-up period, whereas fewer offenders who participated in the building and construction category of programs found work after release (68.4%). Additional analyses indicated that offenders who completed the heavy vehicle drivers program also had the highest likelihood of being employed on a full-time basis at least once over the course of the follow-up period (77.8%: see Table 4). Offenders who had completed heavy machinery courses also had relatively high rates of full-time employment (70.5%), whereas those who had completed building and construction vocational training courses in custody were least likely to obtain full time employment in the community (54.1%).

Table 4 – Post-release employment status by vocational training category

	Vocational Training Program Category		
	HVDP	Building and Construction	Heavy Machinery
Unemployed	3 (11.1%)	31 (31.6%)	13 (11.6%)
Part-time	3 (11.1%)	14 (14.3%)	20 (17.9%)
Full-time	21 (77.8%)	53 (54.1%)	79 (70.5%)
Total	27 (100.0%)	98 (100.0%)	112 (100.0%)

Congruence between vocational training and employment

A total of 208 offenders who had completed one of the identified vocational training courses in custody had at least one job in the community (81.6% of the total sample). Overall, in the follow-up period 71.4% of offenders obtained a job that was congruent with the course completed; 9.4% of offenders obtained work in an industry that was not congruent with the course completed; and 19.2% did not obtain employment. When examining only those offenders who obtained employment in the follow-up period, a total of 88.3% obtained a job that was congruent with their vocational training course.

Recidivism outcomes

Over the period of follow-up in the community 28.2% ($n = 72$) of offenders returned to custody following reconviction for new offences. Using a commonly applied timeframe of recidivism, more than half of these offenders (51.4%; $n = 37$) returned to custody within 12 months of release. The initial months of reintegration were a particular period of risk, with one-quarter being reconvicted

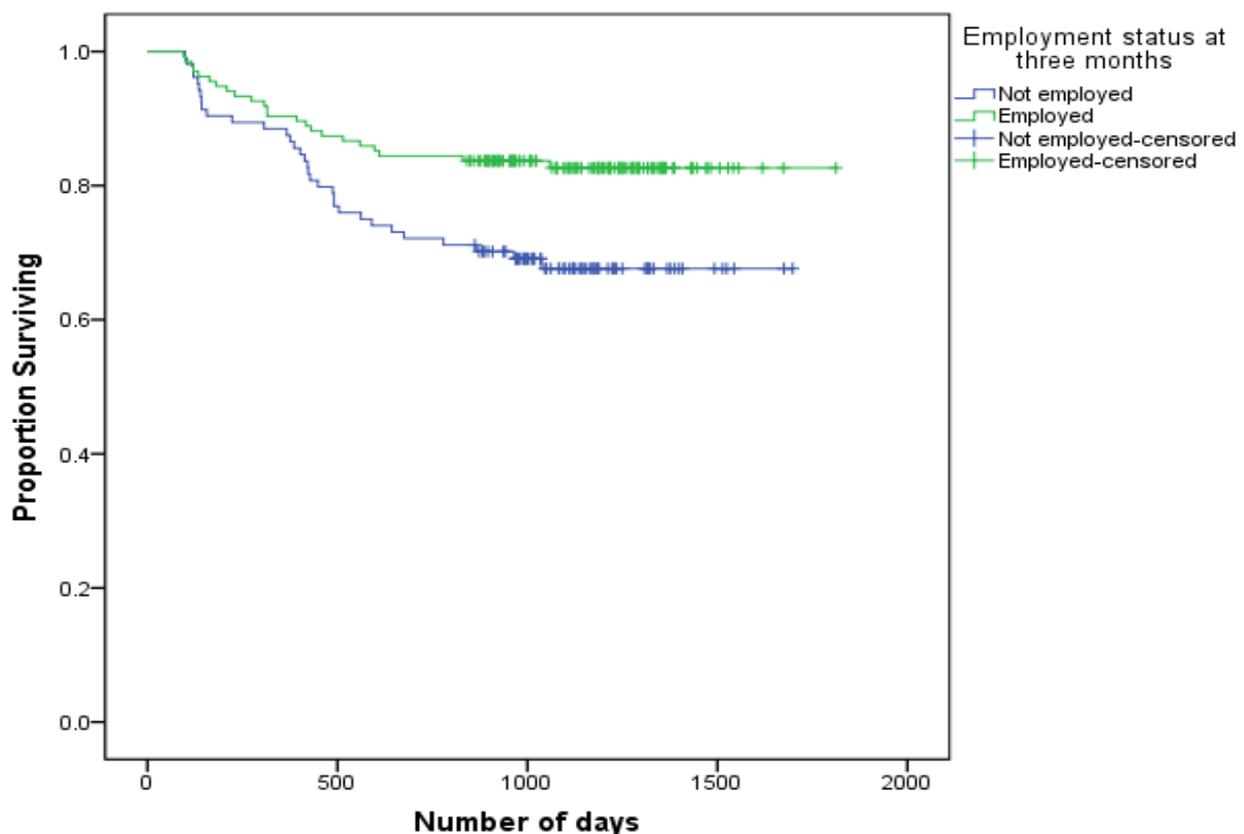
in the first three months (25.0%; $n = 18$) and more than one-third being reconvicted in the first six months (34.7%; $n = 27$). Another 27.7% of recidivist offenders ($n = 20$) returned to custody more than 18 months following release for the index custodial episode.

The following sections explored the relationships between employment status, both in terms of any employment at three months post-release and quality of employment at any time post-release, and recidivism outcomes. Associations between type of vocational training program completed and survival in the community were also examined.

Employment status and recidivism

Figure 2 displays the survival distribution function of time to reconviction by employment status at three months post-release. Employment at three months was significantly, positively associated with the length of time a prisoner remained free of reconviction in the community (log rank $\chi^2(1) = 6.81$; $p = .009$). Those who were unemployed at three months were twice as likely to be reconvicted in the follow-up period after adjusting for variation in survival time (Cox hazard ratio = 2.0). Only 17.0% of those employed at three months returned to custody in the follow-up period, whereas 31.7% of those unemployed at three months were subsequently reconvicted.

Figure 2 – Survival plot of time to reconviction by employment status at three months post-release follow-up



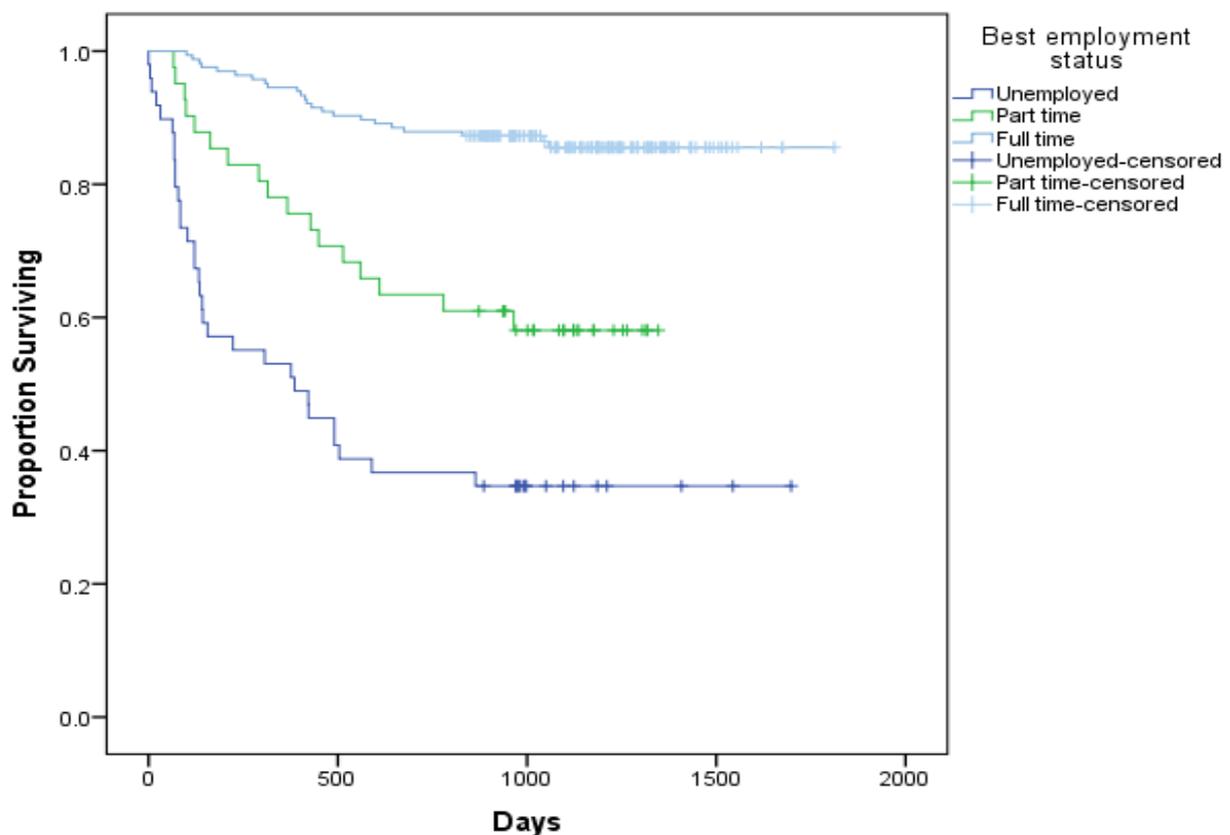
Employment quality and recidivism

Figure 3 shows the time to reconviction survival distributions for offenders whose 'best employment' obtained over the measurement period was full-time employment, part-time employment or unemployment. Offenders who obtained full-time employment at any point during

the follow-up period had a 13.9% likelihood of reconviction. In contrast, those who were employed part time had a reconviction rate of 41.5%. Offenders who remained unemployed at all follow-up measurement points had a reconviction rate of 65.3%.

Overall model testing showed that there were significant differences in survival distributions between the groups (log rank $\chi^2(2) = 75.72$; $p < .0005$). A series of pairwise comparisons showed that on average, full-time employees had a significantly lower hazard of recidivism compared to those who were part-time employed ($\chi^2(1) = 18.75$; $p < .0005$) and unemployed offenders ($\chi^2(1) = 77.89$; $p < .0005$). Part-time employed offenders also had a significantly lower hazard of recidivism compared to unemployed offenders ($\chi^2(1) = 6.98$; $p = .008$).

Figure 3 – Survival plot of time to reconviction by best employment status

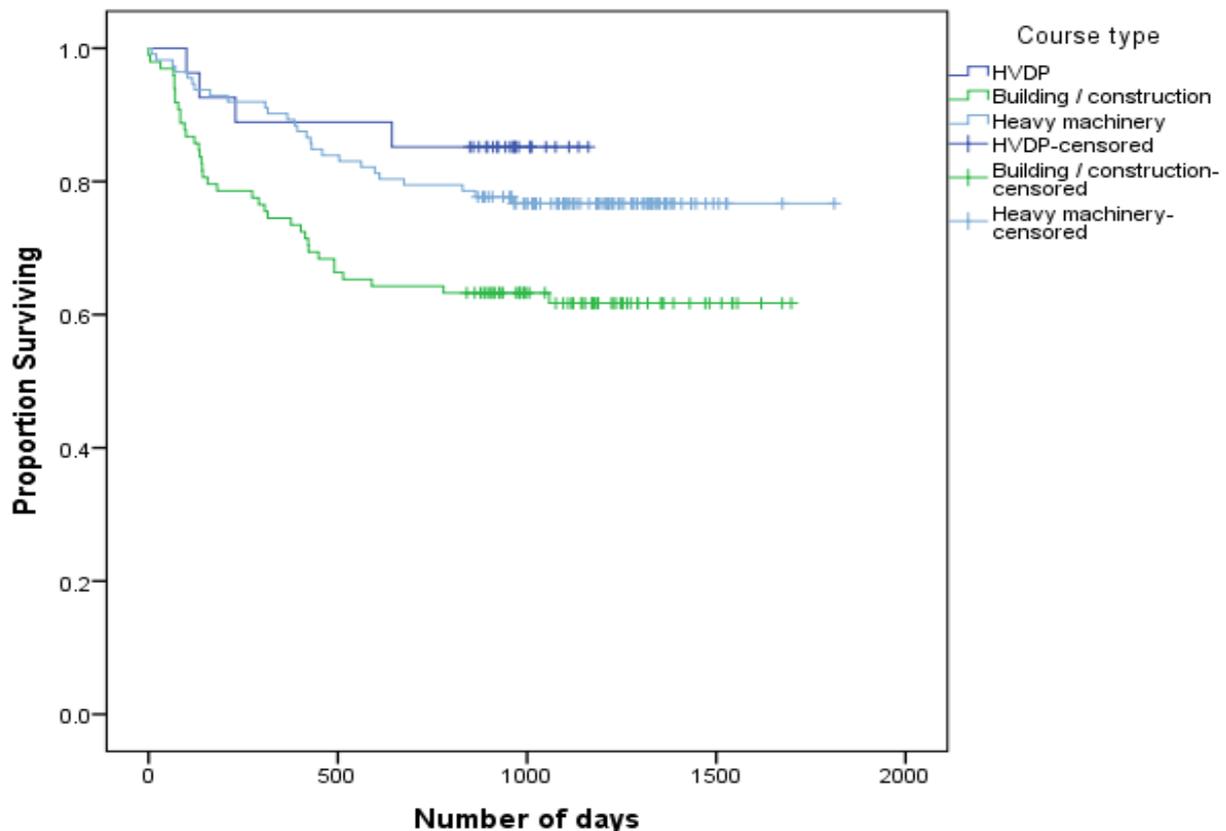


Vocational training category and recidivism

Examination of the recidivism data indicated that participation in the categories of vocational training program was associated with differences in the likelihood of return to custody. Across the follow-up measurement period, the gross rate of recidivism for offenders who attended the heavy vehicle drivers program was relatively low at 14.8%. The gross rate of recidivism for participants of vocational training programs in the heavy machinery category was 23.2%. In comparison, almost two-fifths (37.8%) of offenders who attended courses in the building and construction category returned to custody.

Results of the Kaplan-Meier survival analysis by vocational training program category are shown in Figure 4. There were significant differences in hazard of recidivism across the three categories of training program (log rank $\chi^2(2) = 9.12$; $p = .01$). A series of pairwise comparisons indicated that offenders who had completed the building and construction category of programs in custody had a significantly higher hazard of recidivism compared to those who had completed the heavy machinery category of programs ($\chi^2(1) = 6.32$; $p = .01$) and those who had completed the heavy vehicle drivers program ($\chi^2(1) = 4.48$; $p = .03$). In contrast, there was no significant difference in survival distributions between those in the heavy machinery and heavy vehicle drivers programs ($\chi^2(1) = .75$; $p = .39$).

Figure 4 – Survival plot of time to reconviction by vocational training course category



Discussion

Offenders leaving custody face a number of challenges to entering the labour market, beginning with the social stigma attached to their criminal record and compounded by a frequent lack of work experience, previous education and 'soft skills' (such as team skills, communication skills, and time-management skills), all of which culminate in poor employment prospects following release. One response to these challenges by CSNSW is the provision of vocational education and training programs to offenders in custody. The aim of this study was to provide a quantitative evaluation of program uptake, employment after release, and recidivism outcomes among a sample of parolees who had participated in identified vocational training programs as part of their custodial sentence.

The results of this study indicated that the identified vocational training programs within CSNSW correctional centres were largely oriented towards heavy machinery and building and construction skills. A smaller number of offenders trained towards accreditation for driving heavy vehicles; this may reflect differences in the resources required to implement courses and places available as opposed to offender demand for the programs (Lindeman & Neto, manuscript in preparation). Following release, most employed offenders found work in areas that were consistent with their training, including the labourer, machinery operator and driver, and technician and trade worker occupational categories. The degree of congruence between vocational training and employment was high, with 88.3% of employed offenders working in fields that matched their training certification. This outcome is similar to previous research which demonstrated congruence between vocational training and a subsequent community job in the trades, transport, and equipment operators and related positions (Nolan & Power, 2014).

The results also suggested that categories of vocational training had differential associations with employment status after release. Around nine in ten offenders who participated in the heavy vehicle drivers program (88.9%) and the heavy machinery category of programs (88.4%) were recorded as finding some level of employment over the follow-up period, whereas fewer offenders (68.4%) who participated in building and construction courses found a job. These differences in employment outcomes appeared to be expressed in the likelihood of finding any employment when in the community as opposed to the quality of that employment (full-time; part-time).

A range of factors may contribute to the relationship between vocational training program and employment outcome, including the quality of the certification or marketable skills, levels of demand in the corresponding job market, and potentially differences in the characteristics of offenders who attend each of the courses. CSNSW aims to deliver training that improves offenders' knowledge and skills so as to enhance their employment prospects. Therefore, it is important to better understand factors underlying industry congruence and employment outcomes to ensure that the most relevant vocational certification is being provided to offenders.

Findings from this study further emphasise the relationship between employment in the community and successful reintegration. The first three months after release were a crucial period for offenders to establish themselves and transition back into the community. Rates of return to custody were highest during the first three months after release than at any other discrete time period. Having employment at this time was significantly associated with employment at 12 and 18 months post-release, so that nine in ten offenders who were unable to find employment within three months continued to be unemployed after a year. In addition, employment status at three months was a significant predictor of survival in the community and likelihood of reconviction. This is consistent with prior research findings suggesting that employment is associated with a reduced likelihood of reoffending (Carmichael & Ward, 2001; Fergusson et al., 1997; Lockwood et al., 2016; Uggen 2000; Verbruggen et al., 2012).

While early employment appeared to be protective of recidivism outcomes, the results indicated that quality of employment was also relevant. Full-time employment was indicative of greater stability and a lower reconviction rate in the community. In this study, offenders who were employed in a full-time position were significantly less likely to be reconvicted during the follow-up period compared to those who had part-time employment in addition to those who remained unemployed. Other studies have similarly found that low quality temporary employment with inadequate hours and pay may provide little incentive to avoid reoffending (Uggen, 2000). In this regard not all jobs are created equal; individuals may be less likely to commit crime when they work more often, have greater job stability and consider their employment to have career potential (Huiras, Uggen & McMorris, 2000; Uggen, 1999).

Finally, preliminary analyses suggested that participation in the various vocational training programs was associated with differences in recidivism outcomes. Offenders who participated in the heavy vehicle drivers program or heavy machinery training courses were ultimately less likely to return to custody following reconviction than offenders who participated in building and construction courses. It appears likely that this variance in recidivism outcomes is partly associated with abovementioned differences in the likelihood that offenders who participated in each of the three categories of training were able to find employment after release. As previously discussed, however, it is unclear from the present study as to whether relationships between vocational training program and trajectories of employment and recidivism in the community can be attributed to effects of the training itself or differences in the characteristics of offenders who complete each of the programs. This and other limitations of the study will be discussed in the following section.

Limitations

A number of limitations of the study are noted. Firstly, data on post-release employment outcomes were obtained through examination of Community Corrections case notes. Therefore employment data was not captured if offenders did not report such information to their CCO. Supervising officers typically aim to corroborate employment by requesting to see pay slips and even checking with employers. Additionally, parolees had an incentive to report employment status as it affects the frequency of their reporting to CCOs and allows flexibility of reporting times around their work schedule. Despite this, it is feasible that there was still some over and/or underreporting. Concerns about the validity of work reports necessitated the recording of employment data only when case notes were substantiated by payslips or some other method of verification.

Secondly, in relation to community employment outcomes we were unable to measure the influence of qualifications, employment or experience previously acquired by the offender. It is possible that in some circumstances vocational training obtained in custody may not have been required for an offender to gain employment in a certain area. It is also worth noting that the current study only addressed vocational training obtained during an offender's most recent period of incarceration; consequently, previously undertaken formal or informal job skills training would not have been taken into account.

Additionally, it was not possible to measure an offender's motivation for gaining a specific vocational certificate. However, complementary research has been undertaken to assess prisoners' motivation to participate in the selected training courses and attitudinal and behavioural outcomes resulting from course completion (Lindeman & Neto, manuscript in preparation). Furthermore, when examining the influence of vocational training and employment on recidivism the problem of selection biases occurs; offenders who engage in training or employment after release may have different characteristics to other offenders, and these characteristics may also be associated with their propensity to reoffend (Gottfredson & Hirschi, 1990). Consistent with this, examination of sample characteristics indicated that offenders who participated in training programs had fewer criminogenic needs related to employment and lower overall risk of reoffending, as assessed by the LSI-R, compared to the equivalent parolee cohort.

It is feasible that participation in some vocational training programs has effects in producing positive post-release employment outcomes which then influence risk of recidivism. However, given the absence of an experimental design with equivalent comparison groups, both in terms of offenders who did not receive any vocational training and those who were eligible but did not receive specific categories of training programs, it is difficult to determine any causal link between the vocational training undertaken and post-release outcomes. For instance, parolees who had

chosen to undertake training may have been more motivated, may have had a more internalised locus of control, or may have taken greater initiative in planning their post-release futures (Davis et al., 2013) than those who had not engaged in training initiatives. To address this gap, future research in this series of evaluation will compare the outcomes of the current sample to a matched comparison group of offenders who had been waitlisted to complete the selected training courses but who had been unable to do so.

A final possible limitation was the measurement of recidivism, which was primarily measured by return to custody as a result of reoffending, and could have been affected by the parole period served. That is, offenders are more likely to breach their parole conditions and return to custody when they are arrested whilst on parole compared to when they are no longer under CSNSW supervision. To be part of the study sample, participants must have been released to parole supervision, which means that unless a further offence was very minor they would have returned to custody. Fortunately for this analysis, while the duration of parole ranged from 33 to 2,557 days (median = 685 days) only a small proportion of the study sample had their parole expire within 12 months (7.8%). Therefore the majority of the study sample was still being supervised in the community and their offending behaviour was recorded by Community Corrections during the initial follow-up. At 18 months nearly one quarter of the sample had successfully completed their parole (24.3%).

Conclusion

This study examined offenders' participation in various vocational training programs offered in custody and their relationship with the type and quality of employment obtained following release into the community. The study also tracked employment patterns of offenders who had participated in vocational training over discrete points in time post-release, and assessed associations between employment and recidivism outcomes.

Results demonstrated that for the majority of offenders in the study sample, the type of employment obtained in the community tended to correspond with the type of vocational training completed in custody. Findings also highlighted the importance of the initial months of reintegration, as this was the period recidivism was most likely to occur. For those parolees who were reconvicted, this was most likely to occur within the first six months after release from prison. Additionally, employment within the first three months and employment that was full-time, as opposed to part-time, was predictive of both stability of employment over time and recidivism outcomes within this sample.

Employment is just one component of successful integration but for ex-prisoners who are motivated to work, vocational training courses may improve their marketable skills or assist with planning for their post-release future (Lindeman & Neto, manuscript in preparation). From an employer's perspective, course participation, completion and endorsement from a training organisation may also provide valuable information, a signal, to employers to identify those who are ready to work and desist from offending (Bushway & Apel, 2012).

The results of this study are intended to complement a concurrent evaluation of offenders' motivation for participating in institutional vocational training, their readiness to seek employment and their experiences finding employment in the community (Lindeman & Neto, manuscript in preparation). Further research is also underway to better understand how participation in vocational training, and participation in different categories of vocational training program, has an effect on recidivism outcomes when compared to equivalent controls. This will assist in determining whether or not outcomes observed in the current study, including the associations between vocational training programs, post-release employment, and recidivism, can be

attributed to vocational training in custody. These studies will attempt to provide greater insight into the causal mechanisms of employment and the impact that vocational training and employment has upon the desistance process.

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Appendix A

ABS Cat. no. 1220.0 ANZSCO -- Australian and New Zealand Standard Classification of Occupations, Version 1.2

Major and Sub-Major Groups

Major Group

Sub-Major Group

- 1 MANAGERS
 - 11 Chief Executives, General Managers and Legislators
 - 12 Farmers and Farm Managers
 - 13 Specialist Managers
 - 14 Hospitality, Retail and Service Managers

- 2 PROFESSIONALS
 - 21 Arts and Media Professionals
 - 22 Business, Human Resource and Marketing Professionals
 - 23 Design, Engineering, Science and Transport Professionals
 - 24 Education Professionals
 - 25 Health Professionals
 - 26 ICT Professionals
 - 27 Legal, Social and Welfare Professionals

- 3 TECHNICIANS AND TRADES WORKERS
 - 31 Engineering, ICT and Science Technicians
 - 32 Automotive and Engineering Trades Workers
 - 33 Construction Trades Workers
 - 34 Electrotechnology and Telecommunications Trades Workers
 - 35 Food Trades Workers
 - 36 Skilled Animal and Horticultural Workers
 - 39 Other Technicians and Trades Workers

- 4 COMMUNITY AND PERSONAL SERVICE WORKERS
 - 41 Health and Welfare Support Workers
 - 42 Carers and Aides
 - 43 Hospitality Workers
 - 44 Protective Service Workers
 - 45 Sports and Personal Service Workers

- 5 CLERICAL AND ADMINISTRATIVE WORKERS
 - 51 Office Managers and Program Administrators
 - 52 Personal Assistants and Secretaries
 - 53 General Clerical Workers
 - 54 Inquiry Clerks and Receptionists
 - 55 Numerical Clerks
 - 56 Clerical and Office Support Workers
 - 59 Other Clerical and Administrative Workers

- 6 SALES WORKERS
 - 61 Sales Representatives and Agents
 - 62 Sales Assistants and Salespersons
 - 63 Sales Support Workers

- 7 MACHINERY OPERATORS AND DRIVERS
 - 71 Machine and Stationary Plant Operators
 - 72 Mobile Plant Operators

73 Road and Rail Drivers

74 Storepersons

8 LABOURERS

81 Cleaners and Laundry Workers

82 Construction and Mining Labourers

83 Factory Process Workers

84 Farm, Forestry and Garden Workers

85 Food Preparation Assistants

89 Other Labourers



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