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Vocational training in NSW prisons: Exploring the relationship between traineeships and recidivism

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AIM

To measure the relationship between participation in a prison-based traineeship program and recidivism.

METHOD

The study includes all 'working age' trainees (aged 65 years or below) who were released from prison between January 2010 and May 2019. There are four measures of recidivism. These are the probability of re-conviction; committing a personal, property or serious drug offence; property offending; and re-imprisonment within 12 months of release from prison. The recidivism of trainees is compared with ex-inmates who are eligible for a traineeship but did not participate. To account for differences among trainees and ex-inmates in the comparison group, the regression specification includes an extensive range of control variables, such as individual demographics, prison employment history and criminal record.

RESULTS

Relative to ex-inmates in the comparison group, participating in a traineeship is associated with large and statistically significant reductions in recidivism within 12 months of release from prison. After including a wide range of controls, there are large and statistically significant reductions in personal, property or serious drug offending (-5.7 percentage points), property offending (-5.1 percentage points) and re-conviction (-2.9 percentage points). Trainees are also less likely to be re-imprisoned (-2.0 percentage points), but the reduction is not statistically significant. Further results indicate large reductions in recidivism among different sub-groups of trainees, including trainees assessed as being at high-risk of recidivism, and the reduction in recidivism persists 24 months after release. Robustness checks of the main findings continue to find statistically significant reductions in recidivism.

CONCLUSION

Trainees are less likely to re-offend, particularly for property offences. However, these results should be interpreted as an associative relationship between traineeship participation and recidivism because it is not possible to rule out omitted variable bias.

KEYWORDS Recidivism | Traineeship | Employment | Vocational training

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INTRODUCTION

Recidivism among adult ex-prisoners in New South Wales (NSW) has been steadily rising in recent years. In 2010, 34.6 per cent of ex-prisoners committed a new and proven offence within 12 months of release from prison but by 2018, the proportion re-offending had risen to 42.2 per cent.[1] In response, the NSW government has set a target of a five per cent reduction in re-offending among ex-prisoners by 2023. This target focuses on achieving reductions in personal, property and serious drug offending; offences that are typically considered to be relatively more serious in nature.[2] To date, much of the work undertaken to deliver on this outcome has focused on increasing the uptake and completion of custodial and community-based behaviour change programs, particularly those underpinned by the risk-needs-responsivity (RNR) framework (Bonta & Andrews, 2007; Howard & Chong, 2019; Ooi, 2020). However, there is emerging evidence that recidivism of ex-inmates is strongly linked to improving their educational outcomes and their ability to find stable employment post-release.

Vocational training, employment and recidivism

A number of recent studies have found a causal relationship between post-release employment opportunities and recidivism. Using a large dataset of ex-prisoners released across 43 different states in America, Yang (2017) examined the influence of cyclical changes in local labour market conditions, specifically the wages of low-skilled males across different industries, on recidivism rates. The author found that ex-prisoners who are released during a period of wage growth are roughly two to four per cent less likely to re-offend. And importantly, the reduction in recidivism was largely driven by wage growth in industries that typically employ ex-prisoners, such as the construction and manufacturing sectors.

These findings are supported in a similar study by Schnepel (2018). Unlike Yang (2017), who measured the impact of cyclical changes in wages on recidivism, Schnepel (2018) investigated the influence that local job opportunities have on the re-imprisonment of parolees released in California between 1993 to 2008. Job opportunity was measured as the number of workers starting a new job at the same time period that the parolee was released. Schnepel (2018) reported that parolees were less likely to be re-imprisoned if there are a greater number of employment opportunities at the time of release. These reductions in re-imprisonment were largely driven by job opportunities in the construction and manufacturing industries, which is consistent with the findings reported by Yang (2017).

While these studies indicated that obtaining a stable job, particularly in industries that typically hire low-skilled males, is related to a reduction in recidivism, prisoners face a variety of barriers to finding post-release employment. Most prison inmates have very little education or formal vocational training (VT). In Australia, a third of inmates have not completed Year 10, with even lower rates of schooling among Aboriginal inmates (Australian Institute of Health and Welfare, 2019). Further, more than half of all inmates have no tertiary education beyond schooling and only a third have completed a trade certificate. Inmates also have low levels of work experience. For instance, more than half of prison inmates report being unemployed in the 30 days prior to incarceration. Again, there are even higher rates of unemployment (67 per cent) among Aboriginal inmates. At the end of their prison sentence, most inmates can expect to be unemployed immediately upon release, with less than a quarter of inmates having arranged to begin employment within two weeks of release.

In addition to limited employment opportunities due to low levels of education, ex-inmates face difficulties locating and applying for job vacancies (Baldry et al., 2018), and when they do apply for a vacancy, often experience discriminatory treatment from employers due to their criminal history. This is particularly true for those from a racial minority background (Agan & Starr, 2018; Doleac & Hansen, 2020; Pager, 2003).

1 Recidivism statistics were obtained from the NSW Bureau of Crime Statistics and Research (BOCSAR) website, which are available from: https://www.bocsar.nsw.gov.au/Pages/bocsar_pages/Re-offending.aspx (accessed: 26 February 2021).
2 For more information, please see: https://www.nsw.gov.au/improving-nsw/premiers-priorities/reducing-recidivism-in-the-prison-population/ (accessed: 25 September 2020).

Employers also report that ex-inmates typically lack important non-technical skills, or 'soft skills', which are considered essential for successful integration into a team environment (Fahey, Roberts, & Engel, 2006). Further, the strict post-release conditions placed on ex-inmates by the justice system can also hinder their employability. Hardcastle et al. (2018) interviewed both ex-inmates and employers across Australia and found that parole conditions can act as a barrier for ex-inmates who are attempting to find a stable job. For instance, ex-inmates reported that parole conditions which stipulated mandatory appointments made it difficult to successfully retain full-time employment. Employers also reported that parolees were often reluctant to fully disclose their parole obligations, even when the employer was willing to accommodate the parole requirements. Other barriers to post-release employment identified in this study were parole conditions that restrict an ex-inmate's ability to travel to specific locations or work in certain environments, such as licenced premises.

To improve prisoners' prospects of finding work post-release and reduce recidivism, adult correctional centres abroad and in NSW offer prison-based employment and VT and education programs. In a widely cited study, Saylor and Gaes (1997) evaluated the Post-Release Employment Project (or PREP), which was a prison-based VT program in the United States. The authors collected data on more than 7,000 offenders (over a 5-year period) who had participated in prison-based employment or VT for at least six months prior to their release. The authors found that ex-inmates who had participated in VT were less likely to re-offend within 12 months of release from prison than a matched comparison group, and these reductions persisted eight to 12 years after release. Importantly, they also reported that those who had participated in VT were also more likely to obtain post-release employment. While these findings are promising, the statistical methods used are unable to rule out selection bias and, as such, their results cannot be interpreted as evidence for a causal relationship between prison-based VT on post-release offending.

Both Wilson et al. (2000) and Newton et al. (2016), in their systematic reviews of the literature, found only a small number of experimental studies that measure the causal impact of participation in VT on recidivism and most of these were conducted in the United States. Nevertheless, the few experimental studies that have been conducted found that participation in VT is effective in reducing recidivism. However, the authors identified a number of important caveats. First, there is heterogeneity in the treatment effect. Specifically, VT appeared to be more effective among high-risk offenders and older offenders. Furthermore, local labour market conditions, such as the local employment rate and the quality of available jobs, also appeared to influence the success of VT programs. Second, participation in VT is intended to improve the employability of offenders, but there is a lack of data on post-release employment outcomes of participants. Wilson et al. (2000) argue that establishing the effectiveness of VT programs in improving post-release employability "increases the plausibility of the program's effectiveness" (p. 362). Including intermediate outcomes to empirically establish a causal chain between VT programs and recidivism is particularly important when offenders are not randomly assigned to participation in VT.

Vocational training in NSW adult correctional centres

Corrective Services Industries (CSI) NSW manage prison-based employment programs in NSW adult correctional centres and provide work for a substantial proportion of the NSW prison population. In 2018-19, for instance, 84.1 per cent of inmates were employed by CSI (Steering Committee for the Review of Government Service Provision, 2020). Jobs in a wide variety of industries are available to inmates through this scheme, including construction, agriculture and horticulture, engineering, food preparation, and maintenance. CSI also offers adult education programs, which are designed to provide prisoners with further education in fundamental learning areas, such as literacy and numeracy. Despite the low rates of schooling completed by prison inmates, only a relatively small proportion of inmates participate in adult education programs. In 2018-19, around 8.5 per cent and 0.1 per cent of the prison population in NSW were enrolled in secondary school and higher education courses, respectively (Steering Committee for the Review of Government Service Provision, 2020).

CSI also provides VT to prisoners with the aim of enhancing workplace skills and employability post-release. VT is available in a variety of occupations, such as asbestos removal, forklift operation, heavy vehicle licences and traffic control. Inmates participate in VT for several reasons, including increasing their chances of finding employment post-release, to occupy themselves in prison and to obtain useful skills (Lindeman & de Almeida Neto, 2017). Indeed, in a recent study by Lindeman and de Almeida Neto (2017), around 60 per cent of ex-inmates who found post-release employment reported that their VT was helpful in obtaining their job.

The traineeship program in NSW adult correctional centres

One type of VT course offered by CSI is a prisoner traineeship program. The purpose of traineeships is to enhance inmates' work skills and qualifications, boost employability post-release, and ultimately, reduce recidivism.[3] A traineeship is typically 12 months in duration and training is generally 'on the job', with trainees being required to maintain stable employment for the entire period. Trainees are exposed to 'real-world' working environments through the commercial workplaces that CSI operates across different correctional centres. Inmates also receive mentoring from CSI staff throughout the traineeship program. Traineeships are available across a variety of different industries, including business administration, construction, transport and logistics, engineering and food processing. Inmates can nominate to start a traineeship in a particular industry provided funding is available and the industry operates at the correctional centre where the inmate is held. Once the program has been completed, an inmate receives a formal qualification and a certificate of program completion.

Participation in a traineeship is voluntary. To be eligible for a traineeship, an inmate must fulfil the following criteria:

1. Be currently employed in a CSI industry;
2. Have at least 12 months remaining to their earliest possible release date;
3. Have an assessed Core Skill Assessment (CSA) result that meets the requirements of the qualification;[4] and,
4. Be an inmate of the correctional centre where the application was submitted.[5]

Typically, inmates who volunteer are then carefully screened prior to participation in a traineeship. Traineeships are costly to offer and operate and require the inmate to commit to at least 12 months of steady employment. As such, to maximise the likelihood of completion among participants, prospective trainees must participate in an interview and successfully complete a one-month placement trial before applying for a traineeship program to assess their suitability.[6] CSI must also consider the suitability of an inmate in terms of the security and safety risk posed to prison staff.

Current study

The aim of the current study is to explore the influence of prison-based traineeships on recidivism. Specifically, this study will measure the relationship between participating in the Corrective Services NSW (CSNSW) traineeship program and the likelihood of recidivism and re-imprisonment among a cohort of offenders released from prison. Furthermore, the study will also examine the relationship between participation in the traineeship program and the probability of committing a personal, property or serious drug offence. This recidivism outcome is included in the current study because the NSW government has set a target to reduce re-offending of this type by five per cent by 2023.

3 For more information about CSI, please see: https://www.csi.nsw.gov.au/Pages/csi-policy-manual/csi-policy-manual.aspx (accessed: 12 April 2021).
4 The Australian Core Skills Framework (ACSF) is a tool that assesses an individual's proficiency in the 'core skills' or 'domains' of learning, reading, writing, oral communication and numeracy. For each core skill, an individual is awarded a level between 1 to 5, with lower levels indicating a lower proficiency. For more information about the ACSF, please see: https://www.dese.gov.au/skills-information-training-providers/australian-core-skills-framework (accessed: 27 April 2021).
5 For security reasons, offenders can be transferred to a different correctional facility after they begin a traineeship.
6 Consequently, the selection criteria of the traineeship program often exclude offenders who have short custodial episodes.

METHOD

Data

Two data sources are used in this study. NSW Corrections Research, Evaluation and Statistics (CRES) provided an extensive dataset of every prisoner who participated in the CSI traineeship program between January 2010 and May 2020. For every trainee, the data includes the program start and end dates, and the number of traineeship hours and sessions completed. In addition to traineeship participation, for each prisoner's index custodial episode, the data contains a complete record of their prison-based employment. These records include the number of hours worked, every job in which the inmate was employed, and the wage and duration of employment for each job. The dataset also includes each offender's education history prior to the index custodial episode, relationship status, correctional centre security classification and location, whether the prisoner was released on parole, the number of infractions committed during their prison sentence, and their CSA levels for reading, writing, oral communication and numeracy. The dataset does not contain information about the occupation type related to the traineeship.

The data provided by CRES was combined with data from the NSW Bureau of Crime Statistics and Research (BOCSAR) Re-offending Database (ROD). The ROD includes a comprehensive record of each prisoner's criminal history, such as prior criminal court appearances (both as a juvenile or adult) and all prior custodial episodes. It also includes demographic information (age, gender, Aboriginality and socioeconomic background) and most recent Level of Service Inventory – Revised (LSI-R) score prior to release from prison.[7] Importantly, ROD also contains information on each prisoner's recidivism behaviour after their index custodial episode. This includes the date and type of re-offence(s), whether the offence was proven and the subsequent sentence imposed by the court. The dataset includes all new offences finalised in NSW Criminal Courts up until May 2020.

Empirical approach

There are four binary outcomes of recidivism within 12 or 24 months of release from prison:

1. Probability of 're-conviction': equal to one if the offender commits a new and proven offence and zero otherwise. Re-conviction does not include breach of order offences;
2. Probability of committing a personal, property or serious drug offence: equal to one if the offender commits a new and proven personal, property or serious drug offence and zero otherwise;
3. Probability of committing a 'property' offence: equal to one if the offender commits a new and proven property offence and zero otherwise;[8] and,
4. Probability of 're-imprisonment': equal to one if the offender is sentenced to prison for a new and proven offence and zero otherwise.

Recidivism is measured within 12 months of release from prison as a large proportion of ex-inmates are typically re-convicted within one year of release (Ooi, 2020) and to retain the maximum sample size. To study the longer-term influence of traineeship participation on re-offending, these binary outcomes of recidivism are also measured from 24 months of release. The difference in recidivism between trainees and the comparison group is estimated via logistic regression. The marginal effect of traineeship participation on recidivism is measured by a binary variable equal to one for trainees and zero for the

7 The LSI-R is a predictive tool to assess an offender's risk of recidivism and identify the offender's criminogenic needs. Offenders are given a score between 0 and 54, with higher scores indicating a greater likelihood of recidivism. To determine 'risk-level', the LSI-R score is categorised as follows: Low (0-13), Low/Medium (14-23), Medium (24-33), Medium/High (34-40) and High (41-54).

8 Property offences include the following ANZSOC offence types: Unlawful entry with intent/burglary, break and enter, Theft and related offences, and Fraud, deception, and related offences. Property offences are included as an outcome as changes in employability and labour market conditions are linked to property crime (Becker, 1968).

comparison group.[9] The comparison group consists of ex-prisoners who satisfy the eligibility criteria to participate in a traineeship (as discussed previously) but did not start. The ex-prisoners in the sample are all 'working age'; that is, 65 years of age or below at the time of release into the community. The sample is limited to working age ex-inmates as the traineeship program is intended to enhance the employability and job readiness of participants upon release.[10] The final dataset includes every working age offender who was released from prison between January 2010 to May 2019.

To more precisely estimate the effect of traineeship participation on each recidivism outcome, the regression specification accounts for an extensive range of ex-inmate characteristics related to re-offending. These include demographics, such as Aboriginality, age at release, gender and marital status. The regression model also includes the number of prior finalised criminal court appearances, the number of prior prison sentences, whether the ex-inmate was a juvenile at their first contact with the NSW criminal justice system and the duration of the index custodial episode.[11] In addition, the regression model controls for the highest level of education completed and CSA scores for numeracy, reading and writing.[12] When estimating the marginal effect of traineeship participation on recidivism, it is important to include education and CSA scores as this information is used to determine the ex-inmate's eligibility. Other controls in the regression specification are LSI-R score and security classification prior to release, whether the ex-inmate was released on parole after their index custodial episode and fixed effects for the month and year of the ex-inmate's release from prison. The model also controls for offender behaviour while in prison during their index custodial episode, which is captured by the total number of institutional infractions. An infraction is a correctional centre offence as outlined in *Schedule 2: Correctional Centre Offences* under the *Crimes (Administration of Sentences) Act 1999 (NSW).*

The analysis also considers the impact of traineeship participation on recidivism rates among different sub-groups. These include Aboriginal prisoners, men below or above the age of 40 at release (the majority of trainee participants are male), ex-inmates from a disadvantaged background and offenders released from prison into the Sydney metropolitan area.[13] The latter group are of particular interest as the traineeship program is intended to improve the employment prospects of participants and the Sydney region is the largest labour market in NSW. Separate models are also estimated for ex-inmates with LSI-R scores of Medium or above (who are generally considered at greater risk of recidivism) and ex-inmates below Medium.

To directly attribute a change in recidivism to the traineeship program, the only difference between trainees and offenders in the comparison group should be participation in the traineeship program. While our regression specification controls for an extensive range of offender-level characteristics, it is not possible to entirely rule out the influence of important unobserved confounding variables. Prisoners were included in the comparison group if they met the eligibility criteria for the program but did not participate: they were employed by CSI, had at least a 12-month prison sentence and met the required CSA levels. However, it is possible that selection into the traineeship program also depends upon other individual-level factors, such as willingness to engage in a 12-month program or physical capability, or program-specific factors, such as reduced availability of traineeships at certain locations. If these factors are also associated with recidivism, the analysis will produce biased estimates of the treatment effect. Indeed, as discussed further in the results section, trainees appear to be at relatively lower risk of re-offending than those in the comparison group, which most likely reflects the careful selection of traineeship participants. Consequently, the marginal effect estimated in this study should be interpreted as an association between traineeship participation and recidivism post-release, rather than evidence of a causal relationship.

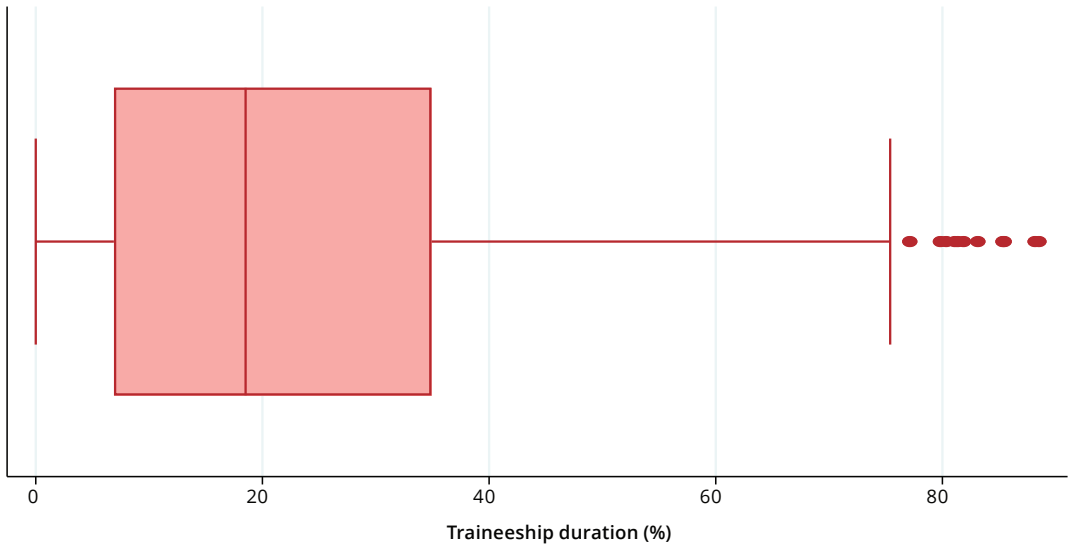
9 The marginal effect is also measured from a linear probability model (LPM) and a logistic regression via inverse-probability weighting (IPW) specifications. These additional results are presented in the appendix.
10 Overall, there are 25,483 ex-inmates who are working age in the sample. There are 581 ex-inmates are older than 65 years of age and are excluded from the analysis.
11 Prior prison sentences also include juvenile control orders.
12 CSA scores for writing are not included as it is missing for a substantial proportion of the offenders in the data.
13 Disadvantaged offenders include those who resided in a low socio-economic status area at the start of their index custodial episode. Low socio-economic status includes areas in the bottom two quartiles of the Socio-Economic Indexes for Areas (SEIFA) 2016.

RESULTS

Descriptive statistics

Table 1 summarises traineeship program activity among traineeship participants who were released from prison between January 2010 and May 2019. On average, trainees completed roughly 22 hours of training and approximately 10 traineeship sessions. As previously mentioned, trainees must also maintain steady employment during the program, and on average, they worked just over 8,000 hours while employed by CSI during their index custodial episode.[14] Typically, traineeship participants are enrolled for 300 days. On average, participants are enrolled in a traineeship for slightly less than a quarter (approximately 23 per cent) of their index custodial episode, but as indicated in Column 2, there is substantial variation in the duration of traineeship activity. To illustrate this, Figure 1 displays the distribution in the duration of traineeship participation as a percentage of the index custodial episode. As depicted in the box plot, the median traineeship lasts for just less than 20 per cent of a participant's index custodial episode. The majority of participants are enrolled in a traineeship for less than 40 per cent of their index custodial episode. However, as clearly indicated in Figure 1, some participants are enrolled for a substantial proportion of their index custodial episode, and in some instances, greater than 80 per cent.

Figure 1. Box plot of traineeship duration as a percentage of the index custodial episode



It is also important to note that, despite including nearly a decade of traineeship participants, there is a relatively small number of 'working age' trainees in the sample (985 in total). In contrast, CSI employed 5,676 prisoners in 2015-16 alone. Thus, trainees comprise a relatively small proportion of prisoners employed by CSI.

14 In contrast, offenders in the comparison group work approximately 1,760 hours employed by CSI, on average. Thus, trainees have considerably more work experience with CSI at the end of their prison sentence.

Table 1. Summary of traineeship program activity

Hours of traineeship activity	22.027
	(53.163)
Number of sessions	10.058
	(9.929)
Hours worked in CSI	8,291.152
	(7,836.758)
Traineeship duration (days)	296.489
	(292.973)
Traineeship duration of index custodial episode (%)	23.107
	(19.790)
Traineeship duration at least half of episode	0.118
	(0.322)
N	985

Note. Table 1 reports the means for each measure of traineeship activity. The standard deviation is presented in brackets.

Table 2 describes the characteristics of the 'working age' trainees (Column 1) and characteristics of those in the comparison group (Column 2). Column 3 presents the difference between the two groups. Overall, trainees completed a higher level of schooling before their index custodial episode and have a shorter prior offending record compared with the ex-inmates in the comparison group.

Starting in Panel A, nearly a quarter of trainees are Aboriginal, which is a substantially lower proportion than the comparison group (40.8 per cent). Trainees are also older at the time of release from prison and are 1.8 percentage points more likely to be married. The proportion of male ex-inmates in the traineeship and comparison groups is almost identical. Panel B describes the educational background of trainees and the comparison group. Trainees are more likely to have completed schooling beyond Year 10 and a greater proportion of trainees (23.3 per cent) had completed Year 12 relative to the comparison group (13.8 per cent). In terms of the CSA levels, trainees and ex-inmates in the comparison group rank similarly in numeracy. However, trainees are more likely to score higher in terms of their reading performance (by 10.5 percentage points) and rank lower than the comparison group in writing (a difference of 8.3 percentage points). As indicated in Panel C, trainees have relatively greater participation in prison-based employment and are more likely to have worked in industries other than CSI during their prison sentence. This may, in part, be due to the selection process for the traineeship program, as prisoners must demonstrate stable employment with CSI during their index custodial episode to participate. Trainees are also more likely to have participated in work release than the comparison group.

Panel D of Table 2 summarises the offending history of trainees and ex-inmates in the comparison group. In general, trainees have a shorter criminal history relative to ex-inmates in the comparison group. On average, trainees have two prior prison sentences and six prior finalised criminal court appearances. In contrast, ex-inmates in the comparison group have roughly four prior prison sentences and 11 prior finalised criminal court appearances, on average. In addition, trainees are 15.6 percentage points less likely to be juveniles at their first known contact with the criminal justice system. Trainees also have much longer index custodial episodes than ex-inmates in the comparison group with trainees spending an extra 1,050 days in prison, on average. At release from prison, just over half of the trainees have an LSI-R score of Medium or above, compared with 73.6 per cent of ex-inmates in the comparison group. Similarly, about 90 per cent of trainees are classified as minimum security at release, which is 10.6 percentage points higher than the comparison group (79.3 per cent). Thus, trainees are generally considered to be at lower risk of recidivism than the comparison group. Both trainees and those in the comparison group commit few infractions during their index custodial episode, but the differences by type of infraction were statistically significant. Trainees are also 9.5 percentage points more likely to be released on parole than the comparison group (95.2 per cent of trainees compared to 85.7 per cent).[15]

15 In general, offenders released from prison to parole supervision are less likely to re-offend than those released unconditionally. See Ooi (2020) for a discussion on recidivism among parolees.

Table 2. Descriptive statistics: Trainees and comparison group

	Trainees (1)	Comparison (2)	Difference (1) – (2)
Panel A. Demographics			
Aboriginal	0.235	0.408	-0.173***
	(0.013)	(0.002)	
Male	0.910	0.908	0.002
	(0.009)	(0.001)	
Age	42.616	39.417	3.199***
	(0.304)	(0.051)	
Married at start of sentence	0.333	0.315	0.018
	(0.015)	(0.002)	
Panel B. Education			
Lower than Year 10	0.316	0.420	-0.104***
	(0.014)	(0.002)	
Completed Year 12	0.233	0.138	0.095***
	(0.013)	(0.002)	
CSA numeracy level 3 or below	0.792	0.797	-0.005
	(0.012)	(0.002)	
CSA reading level 3 or below	0.564	0.669	-0.105***
	(0.016)	(0.002)	
CSA writing level 3 or below	0.773	0.690	0.083***
	(0.013)	(0.002)	
Panel C. Correctional centre work history			
Commercial services	0.240	0.163	0.077***
	(0.013)	(0.002)	
Domestic services	0.798	0.542	0.256***
	(0.013)	(0.003)	
Work release	0.128	0.031	0.097***
	(0.010)	(0.001)	
Panel D. Prior offending history			
Prior prison sentences	2.195	3.503	-1.308***
	(0.111)	(0.023)	
Prior finalised criminal court appearances	6.481	10.729	-4.248***
	(0.218)	(0.044)	
Juvenile at first criminal justice system contact	0.309	0.465	-0.156***
	(0.014)	(0.002)	
LSI-R Medium or above at release	0.520	0.736	-0.216***
	(0.015)	(0.002)	
Duration of index custodial episode (days)	1,529.982	482.505	1,047.477***
	(30.490)	(2.784)	
Violent infractions	0.426	0.356	0.070**
	(0.035)	(0.006)	
Drug infractions	0.889	0.532	0.357***
	(0.058)	(0.006)	
Other infractions	1.512	1.058	0.454***
	(0.080)	(0.012)	
Minimum security classification at release	0.899	0.793	0.106***
	(0.009)	(0.002)	
Released on parole	0.952	0.857	0.095***
	(0.007)	(0.002)	
N	985	34,322	

Note. Standard errors are reported in brackets. The number of prior prison sentences also includes prior juvenile control orders.

*** $p < .01$, ** $p < .05$, * $p < .10$

Mean comparison of recidivism outcomes

Table 3 presents the unadjusted means for each recidivism outcome for the traineeship (Column 1) and comparison (Column 2) groups. Column 3 compares the difference in re-offending outcomes between the two groups. In the 12 months after release from prison, 23.6 per cent of trainees were re-convicted for any new offence, 14.2 per cent were convicted of a new personal, property or serious drug offence, 3.5 per cent were convicted of a new property offence and 12.7 per cent were re-imprisoned. In contrast, the unadjusted mean outcomes for the comparison group are considerably higher; 48.3 per cent were re-convicted of any new offence, 34.6 per cent committed a new personal, property or serious drug offence, 11.3 per cent committed a new property offence, and 24.9 per cent were re-imprisoned within 12 months of release from prison. Thus, an unadjusted comparison of outcomes indicates that participating in a traineeship is associated with roughly a 25 percentage point reduction in the probability of re-conviction, a 20 percentage point reduction in the probability of committing a personal, property or serious drug offence, an 8 percentage point reduction in the probability of committing a property offence, and a 12 percentage point reduction in the probability of being re-imprisoned. Each of these differences is statistically significant at one per cent.

Given that trainees were generally assessed to be at lower risk of recidivism than those in the comparison group (as indicated previously in the descriptive statistics in Table 2), it is perhaps unsurprising that the unadjusted mean recidivism rates for trainees are substantially lower. To account for the observed differences between trainees and the comparison group and estimate a more precise impact of traineeship participation on recidivism, the next section presents the marginal effects from the regression model specification including an extensive set of control variables.

Table 3. Unadjusted mean recidivism outcomes for the trainees and comparison groups

	Trainees (1)	Comparison (2)	Difference (1) – (2)
Re-conviction	0.236	0.483	-0.247***
	(0.013)	(0.003)	
Personal, property or serious drug offence	0.142	0.346	-0.204***
	(0.011)	(0.002)	
Property offence	0.035	0.113	-0.078***
	(0.005)	(0.001)	
Re-imprisonment	0.127	0.249	-0.122***
	(0.010)	(0.002)	
N	985	34,322	

Note. Standard errors are reported in brackets.

*** $p < .01$, ** $p < .05$, * $p < .10$

Regression results: Marginal effects of traineeship participation on recidivism

Recidivism in the full sample

Table 4 presents the marginal effect of traineeship participation on each recidivism outcome within 12 months of release from prison for the full sample. The control variables are progressively added to the logistic regression model across columns (1) to (4). Each panel in Table 4 contains the marginal effects for the probability of re-conviction (Panel A); committing a personal, property or serious drug offence (Panel B); committing a property offence (Panel C); and re-imprisonment (Panel D). The marginal effects reported in each column include fixed effects for date of release from prison. A positive (or negative) marginal effect indicates that participating in a traineeship is associated with an increase (or decrease) in recidivism relative to ex-inmates in the comparison group. When interpreting the marginal effects reported in Table

4, it is important to keep in mind that, despite including a wide range of controls, it is not possible to rule out the influence of omitted variables. As such, these findings should be interpreted as an association between traineeship participation and recidivism.

Starting with Column 1, which includes controls for demographics only (age at release, Aboriginality, and sex), there are large and statistically significant reductions in the probability of recidivism for trainees across all four outcomes. Adding educational background and CSA scores to the regression specification attenuates the marginal effects very slightly (Column 2). In Column 3, the regression model is further augmented with controls for prior offending history. The inclusion of offending history reduces the marginal effects considerably. This suggests that a large amount of the variation in post-release offending rates is due to differences between trainees and the comparison group in prior criminal history. However, even after accounting for differences in criminal history, the reduction in the likelihood of recidivism remains large and statistically significant across all re-offending outcomes.

Finally, Column 4 reports the marginal effects once the full set of controls are included. It shows that trainees are 2.9 percentage points less likely to be re-convicted of any new offence, 5.7 percentage points less likely to commit a personal, property or serious drug offence and 5.1 percentage points less likely to commit a property offence. The reductions in property offending and, more broadly, personal, property or serious drug offending are statistically significant at one per cent. While trainees are also 2.0 percentage points less likely to be re-imprisoned within 12 months of release (Column 4 of Panel D), the difference is no longer statistically significant once the full set of controls are added to the specification.[16]

Table 4. Logistic regression marginal effects: The impact of traineeship participation on recidivism

	(1)	(2)	(3)	(4)
Panel A. Re-conviction				
Trainees vs comparison	-0.220***	-0.207***	-0.043***	-0.029*
	(0.018)	(0.017)	(0.016)	(0.017)
Panel B. Personal, property or serious drug offence				
Trainees vs comparison	-0.207***	-0.198***	-0.070***	-0.057***
	(0.020)	(0.019)	(0.018)	(0.018)
Panel C. Property offence				
Trainees vs comparison	-0.114***	-0.110***	-0.054***	-0.051***
	(0.017)	(0.017)	(0.017)	(0.016)
Panel D. Re-imprisonment				
Trainees vs comparison	-0.117***	-0.110***	-0.032*	-0.020
	(0.017)	(0.017)	(0.017)	(0.016)
Controls				
Demographics	Yes	Yes	Yes	Yes
Education and CSA scores	No	Yes	Yes	Yes
Prior offending history	No	No	Yes	Yes
Parole status, infractions and security classification at release	No	No	No	Yes
N	35,307	35,307	35,307	35,307

Note. Robust standard errors presented in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .10$

16 The appendix includes two additional analyses that replicate the logistic marginal effects in Table 4. The coefficients in Table A1 replicate the findings in Table 4 by estimating a LPM that measures the impact of traineeship participation on each recidivism outcome. Generally, the conclusions from the LPM coefficients are consistent with those reported in Table 4. Even with the full set of controls, there are statistically significant reductions in recidivism among trainees, especially for personal, property or serious drug offending and property offending.
Table A2 presents logistic regression marginal effects of the impact of traineeship participation on recidivism via IPW. Once again, the pattern of results is similar to those reported in Table 4: trainees are generally less likely to re-offend, and in particular, less likely to commit property offending within 12 months of release. Thus, across the three sets of results, there are consistent and robust reductions in property offending, and to a lesser extent, personal, property or serious drug offending, among trainees.

Recidivism among sub-groups

The findings in the previous section reveal large reductions in recidivism among trainees in the full sample. This section presents results for the following sub-groups; Aboriginal and non-Aboriginal ex-inmates, younger and older males, people from disadvantaged backgrounds and offenders released in the Sydney metropolitan area. The marginal effects for each of these sub-groups is presented in Table 5 and each column includes the complete set of controls. Again, each panel within Table 5 presents the marginal effects for each recidivism outcome within 12 months of release from prison. In general, the results in Table 5 suggest that traineeship participation is associated with large and statistically significant reductions in property offending and personal, property or serious drug offending and smaller reductions for any re-conviction and re-imprisonment.

Columns 1 and 2 show the findings for Aboriginal and non-Aboriginal ex-inmates. Beginning with Column 1, Aboriginal trainees are less likely to re-offend across all four outcomes relative to Aboriginal ex-inmates in the comparison group. However, the only statistically significant reduction among Aboriginal trainees is for personal, property or serious drug offences (-7.9 percentage points). Non-Aboriginal trainees (Column 2) are less likely to re-offend with a personal, property or serious drug offence (-4.5 percentage points) or any new property offence (-5.3 percentage points), but the reduction in re-conviction and re-imprisonment is not statistically significant.

Columns 3 and 4 display the findings for young male ex-inmates (aged 40 or below at time of release) and older male ex-inmates (older than 40 years at time of release), respectively.[17] The marginal effect of traineeship participation on re-conviction or re-imprisonment for younger male trainees is small and not statistically significant (Column 3). Younger male trainees are less likely to commit a personal, property or serious drug offence (-3.5 percentage points) and any new property offence (-3.0 percentage points), but again, these reductions are not statistically significant. As seen in Column 4, the reductions in recidivism are larger for older male trainees. In particular, the marginal effects for personal, property or serious drug offences; property offences; and re-imprisonment are all large and statistically significant.

Column 5 includes the findings for ex-inmates who have a low socio-economic status based on the area where they lived prior to entering custody. While trainees from a disadvantaged background are less likely to re-offend than similar ex-inmates in the comparison group, none of the marginal effects in Column 5 are statistically significant. Column 6 presents the results for offenders who were released from prison to the Sydney metropolitan area. The reductions in the likelihood of re-conviction and re-imprisonment are small and not statistically significant. However, there are large and statistically significant reductions for personal, property or serious drug offences (-7.5 percentage points) and any new property offences (-5.8 percentage points).

17 As indicated in Table 2, the average age of the trainees and ex-inmates in the comparison group are roughly 40 years. Consequently, the sample is separated by ex-inmates younger or older than 40 years of age.

Table 5. Logistic regression marginal effects: The impact of traineeship participation on recidivism among six different sub-groups

	Aboriginal (1)	Non-Aboriginal (2)	Younger males (3)	Older males (4)	Disadvantaged (5)	Metro area (6)
Panel A. Re-conviction						
Trainees vs comparison	-0.036	-0.026	-0.011	-0.042	-0.014	-0.014
	(0.030)	(0.020)	(0.022)	(0.026)	(0.032)	(0.024)
Panel B. Personal, property or serious drug offence						
Trainees vs comparison	-0.079**	-0.045**	-0.035	-0.086***	-0.038	-0.075**
	(0.035)	(0.020)	(0.025)	(0.028)	(0.034)	(0.030)
Panel C. Property offence						
Trainees vs comparison	-0.040	-0.053***	-0.030	-0.080***	-0.021	-0.058**
	(0.029)	(0.019)	(0.021)	(0.027)	(0.026)	(0.029)
Panel D. Re-imprisonment						
Trainees vs comparison	-0.003	-0.025	0.007	-0.048*	0.015	-0.011
	(0.033)	(0.017)	(0.023)	(0.025)	(0.030)	(0.024)
N	14,266	21,041	18,624	13,463	14,029	10,978

Note. Every column includes the full set of controls. Robust standard errors are reported in brackets.
*** $p < .01$, ** $p < .05$, * $p < .10$

Recidivism by LSI-R score

Table 6 presents logistic regression marginal effects by LSI-R category when including the full set of controls. Column 1 reports the recidivism outcomes for ex-inmates with an LSI-R category of Medium or above. In general, offenders with Medium or above LSI-R scores are considered to be at greater risk of recidivism, and consequently, receive a higher level and intensity of rehabilitative treatment (Bonta & Andrews, 2007; Ooi, 2020). Among these high-risk ex-inmates, there are large and statistically significant reductions in recidivism. Trainees with an LSI-R of Medium or above are 4.0 percentage points less likely to be re-convicted, 7.6 percentage points less likely to commit a personal, property or serious drug offence and 5.4 percentage points less likely to commit a property offence. Each of these reductions in recidivism are statistically significant. 'High-risk' trainees are also less likely to be re-imprisoned (-3.6 percentage points) but the reduction is not statistically significant.

Column 2 includes the marginal effects for ex-inmates with an LSI-R category below Medium. Most of the marginal effects for trainees with an LSI-R category below Medium are small and not statistically significant. The exception is property offending: trainees are 4.6 percentage points less likely to commit a new and proven property offence, which is statistically significant (at 5 per cent).

Table 6. Logistic regression marginal effects: The impact of traineeship participation on recidivism by LSI-R category

	LSI-R Medium or above (1)	LSI-R below Medium (2)
Panel A. Re-conviction		
Trainees vs comparison	-0.040*	-0.001
	(0.021)	(0.024)
Panel B. Personal, property or serious drug offence		
Trainees vs comparison	-0.076***	-0.011
	(0.023)	(0.021)
Panel C. Property offence		
Trainees vs comparison	-0.054***	-0.046**
	(0.021)	(0.023)
Panel D. Re-imprisonment		
Trainees vs comparison	-0.036	0.011
	(0.022)	(0.015)
N	25,693	9,614

Note. Every column includes the full set of controls. Robust standard errors are reported in brackets.

*** $p < .01$, ** $p < .05$, * $p < .10$

Longer-term recidivism

The results shown in Table 4 measure the likelihood of recidivism within one year of release from prison for the full sample. In this section, the regression model measures re-offending with a longer follow-up period of 24 months. To measure recidivism within two years of release, the sample is limited to ex-inmates who were released from their index custodial episode in the period up until May 2018. These marginal effects, which include the complete set of control variables, are presented in Table 7.

Table 7. Logistic regression marginal effects: The impact of traineeship participation on 24-month recidivism

	Full controls (1)
Panel A. Re-conviction	
Trainees vs comparison	-0.049***
	(0.015)
Panel B. Personal, property or serious drug offence	
Trainees vs comparison	-0.056***
	(0.017)
Panel C. Property offence	
Trainees vs comparison	-0.049***
	(0.017)
Panel D. Re-imprisonment	
Trainees vs comparison	-0.038**
	(0.018)
N	31,891

Note. Robust standard errors presented in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .10$

For each measure of recidivism in panels A to D, there are large and statistically significant reductions among traineeship participants relative to ex-inmates in the comparison group. Trainees are 4.9

percentage points less likely to be re-convicted; 5.6 percentage points less likely to commit a personal, property or serious drug offence; 4.9 percentage points less likely to commit a property offence; and 3.8 percentage points less likely to be re-imprisoned within 24 months of being released from prison relative to the comparison group. Each of these reductions in recidivism is statistically significant.

DISCUSSION

The aim of this study is to investigate the impact of participation in the CSNSW prison-based traineeship program on recidivism. Overall, across a wide range of outcomes, the analysis found that participating in a traineeship is associated with significant reductions in recidivism, particularly for property crime. The main results indicate that, on average, prisoners who participate in a traineeship while incarcerated are 2.9 percentage points less likely to be re-convicted of any new offence, 5.7 percentage points less likely to commit a personal, property or serious drug offence, and 5.1 percentage points less likely to commit a new property offence within 12 months of release from prison compared with similar offenders who satisfy the program eligibility criteria, but who never commenced a traineeship. All of these reductions are large and statistically significant. Crucially, these reductions in recidivism remain even after controlling for an extensive range of offender-level characteristics and persist for up to two years after release from prison. Additional findings presented in the appendix replicate the main results via LPM regression and IPW. In general, while the pattern of results produced via OLS regression is consistent with the main findings, the magnitude of the OLS coefficients is smaller. Similarly, the IPW coefficients are also broadly consistent with the main results, with the exception that the 2.4-percentage point reduction in property offending estimated via IPW is not statistically significant. It is likely that this is due to the small number of traineeship participants in this study. Despite this, these additional results are generally consistent with the main findings.

Further analysis for different prisoner sub-groups reveals that the association between traineeship participation and recidivism is stronger for older males, prisoners who are released from custody to the Sydney metropolitan area and prisoners who are assessed at greater risk of re-offending (as measured by the LSI-R score). These findings are consistent with the results from studies reviewed earlier (for example, Newton et al. 2018). In general, trainees from each of these sub-groups were significantly less likely to commit any new property offence and any new personal, property or serious drug offence compared with similar prisoners released at the same time. Older male trainees were also significantly less likely to be re-imprisoned within 12 months of release. There is also evidence for large and statistically significant reductions in personal, property or serious drug offending among Aboriginal trainees. This is particularly notable as Aboriginal prisoners typically have lower levels of formal schooling than non-Aboriginal offenders (Australian Institute of Health and Welfare, 2019) and higher rates of return to custody in NSW.[18] The association between traineeship participation and recidivism was found to be weaker for trainees who lived in disadvantaged areas.

A primary objective of the CSNSW traineeship program is to improve the post-release employment prospects of participants, and in doing so, reduce the probability of recidivism. The larger associative effect for property crime and for males residing in Sydney metropolitan areas is broadly consistent with the notion that the crime reduction benefits occur through increased employment opportunities rather than through other channels, such as improved social skills, pro-social attitudes/beliefs or engagement with education providers. The relationship between traineeships, employment, and recidivism could not be directly examined in this study because post-release employment data was not readily accessible. However, further evidence for a link between improved employment outcomes for CSNSW VT participants and reduced recidivism rates is provided by Lindeman, Howard, and de Almeida Neto (2017). Using

18 Aboriginal recidivism statistics were obtained from the NSW BOCSAR website, which is available from: https://www.bocsar.nsw.gov.au/Pages/bocsar_pages/Re-offending.aspx (accessed: 9 March 2021).

data contained in the supervision case notes of parolees who had participated in a CSNSW VT program, these authors found that parolees who successfully obtained full-time employment 12 to 18 months after release from prison were significantly less likely to be re-convicted than those who did not gain full-time employment. While the study did not include a comparison group or provide separate estimates for different types of VT programs (e.g. traineeships), the findings are again suggestive of an association between VT, post-release employment and a reduction in recidivism. Nevertheless, as Wilson et al. (2000) point out, it is theoretically plausible that VT programs may effectively reduce recidivism via mechanisms other than obtaining post-release employment, such as improving an individual's self-control or encouraging inmates to participate in other rehabilitative programs. Understanding precisely how traineeships, or prison-based VT more generally, can successfully rehabilitate offenders, influence their chance of finding steady employment and reduce recidivism is an important question that should be the focus of future evaluations of correctional programs.

Although the number of Aboriginal trainees included in this study is small, the reduction in serious offending found for this sub-group is encouraging and highlights the potential benefit of increasing participation rates for Aboriginal inmates and possibly expanding the traineeship program to other regional correctional facilities where traineeships are not yet available. However, the larger reduction in recidivism among prisoners released in the Sydney metropolitan area suggests that local labour market conditions are an important factor to be considered if the traineeship program is to be successfully expanded into other areas of NSW. Labour market opportunities may also, in part, explain the poorer outcomes for younger males and trainees from disadvantaged backgrounds. This suggests that aspects of the traineeship program may need to be modified or intensified to successfully address the unique challenges faced by these inmates upon release from prison. For instance, Bushway (2003) suggests that VT may be less effective in rehabilitating younger males because they may be more "embedded in a life of crime" (p. 9) and, consequently, improving their employability alone is insufficient to reduce their re-offending.

While the stronger effect for higher risk offenders found in the current study is consistent with international evidence (Newton et al., 2018), it contrasts with findings from recent Australian research undertaken by Cale et al. (2019). Using corrective services data from four Australian jurisdictions, including NSW, these authors compared return to custody rates for offenders who completed a VT course with similar offenders who either did not complete or did not undertake any VT while in custody. The authors report that, among males, the impact of completing VT varied by risk level, with a larger treatment effect observed among lower risk prisoners.

In contrast, Cook et al. (2015) report a positive impact of VT on individuals who are at higher risk of recidivism. This could be due to differences in the type of VT programs being evaluated in these two studies. Cook et al. (2015) analysed a VT program designed to provide ex-prisoners with the skills typically required on a day-to-day basis in the workplace, while the VT programs studied by Cale et al. (2019) were provided in a class-based environment. Similar to Cook et al. (2015), a unique aspect of the CSNSW traineeship program is that it provides offenders with practical 'real-world' work experience. Given 'high-risk' offenders generally have shorter employment histories and generally lower levels of education, providing these prisoners with the necessary technical skills and qualifications needed to find steady employment in appropriate industries may lead to better outcomes for this group. Another unique aspect of the CSNSW traineeship program is that it requires offenders to commit to the duration of the traineeship. According to Bushway (2003), this is a key determinant of the success of employment-based rehabilitation programs. As well as instilling a strong work ethic through established routines, long-term training programs can also assist offenders in developing 'soft skills' (for example, the ability to communicate effectively or pro-social attitudes towards work) that lead them to desist from further offending (Bushway, 2003).

Despite finding a consistent reduction in recidivism across a range of regression specifications, the results reported in this study should be interpreted cautiously. Typically, prison inmates are carefully selected to participate in a traineeship and are generally at lower risk of recidivism; they have completed a higher

level of schooling and have a shorter offending history than other inmates employed by CSI. Even though the regression specifications include an extensive array of control variables, it is not possible to discount the possibility of omitted variable bias. Consequently, these results should be interpreted as associative rather than a causal effect of participating in a traineeship on recidivism. Future evaluations of VT programs should consider using methods that establish a causal relationship between VT participation and recidivism and, in particular, with a larger sample of participants. Other limitations in the current study that should be addressed in future research are identifying the mechanisms that VT programs can impact recidivism, for example, by measuring the causal effect of VT participation on post-release employment outcomes and/or behaviour change.

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APPENDIX

Regression results: LPM estimates of recidivism outcomes

Here, we replicate the main results presented in Table 4 by estimating a linear probability model (LPM) that measures the impact of traineeship participation on recidivism in the full sample. Panels A to D include the LPM coefficients for each re-offending outcome. Control variables are sequentially added to the LPM specification from columns 1 to 4. Each regression includes fixed effects for time of release.

Broadly speaking, the findings reported in Table A1 are generally consistent with the main results, although the magnitude of the marginal effect of traineeship participation on re-offending is smaller. Similar to the main findings, a large amount of the variation in re-offending is accounted for by the ex-inmate's prior offending history. Once prior offending history is included in the LPM specification, the magnitude of the coefficients in Column 3 attenuates considerably across each recidivism outcome.

Column 4 includes the full set of control variables. There are statistically significant reductions in personal, property or serious drug offending (-1.9 percentage points) and property offending (-1.7 percentage points) within 12 months of release. While trainees are also less likely to be re-convicted (-1.0 percentage point), the coefficient is not statistically significant. Furthermore, the reduction in re-imprisonment is small (-0.1 percentage points) and not statistically significant, which is consistent with the main findings in Table 4.

Table A1. LPM regression results: The impact of traineeship participation on recidivism

	(1)	(2)	(3)	(4)
Panel A. Re-conviction				
Trainees vs comparison	-0.194***	-0.181***	-0.026**	-0.010
	(0.013)	(0.013)	(0.013)	(0.013)
Panel B. Personal, property or serious drug offence				
Trainees vs comparison	-0.154***	-0.146***	-0.031***	-0.019*
	(0.011)	(0.011)	(0.011)	(0.011)
Panel C. Property offence				
Trainees vs comparison	-0.068***	-0.065***	-0.015**	-0.017**
	(0.006)	(0.006)	(0.006)	(0.008)
Panel D. Re-imprisonment				
Trainees vs comparison	-0.088***	-0.082***	-0.011	-0.001
	(0.011)	(0.011)	(0.010)	(0.011)
Controls				
Demographics	Yes	Yes	Yes	Yes
Education and CSA scores	No	Yes	Yes	Yes
Prior offending history	No	No	Yes	Yes
Parole status, infractions, and security classification at release	No	No	No	Yes
N	35,307	35,307	35,307	35,307

Note. Robust standard errors presented in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .10$

Regression results: Inverse-probability weighting estimates of recidivism outcomes

In this section, we re-estimate the main results presented in Table 4 via inverse-probability weighting (IPW). Briefly, IPW uses the propensity score to calculate weighted means to control for confounding effects. Among trainees, the weight is the inverse of the propensity score, whereas for ex-inmates in the comparison group, the weight is the inverse of one minus the propensity score. Consequently, ex-inmates with a higher propensity score are assigned a smaller weight. Table A2 includes the marginal effects from a logistic regression model via IPW. The model includes the full set of control variables.

In general, the pattern of results in Table A2 resembles the main results. Trainees are less likely to re-offend within 12 months of release from prison across all four measures in contrast with the comparison group. However, only the reduction in re-conviction (-6.8 percentage points) and personal, property or serious drug offending (-6.0 percentage points) are statistically significant in Table A2. While trainees are -2.4 percentage points less likely to commit a new property offence, the reduction is not statistically significant. This could be due to the small number of traineeship participants in the sample. Nevertheless, the pattern of findings in Table A2 are broadly consistent with those presented in the main results; that is, trainees are less likely to re-offend than ex-inmates in the comparison group and the reductions for both re-conviction and personal, property or serious drug offending are statistically significant, even after including a wide array of controls.

Table A2. Logistic regression (IPW) marginal effects: Robustness check

	Full Controls (1)
Panel A. Re-conviction	
Trainees vs comparison	-0.068** (0.034)
Panel B. Personal, property or serious drug offence	
Trainees vs comparison	-0.060* (0.037)
Panel C. Property offence	
Trainees vs comparison	-0.024 (0.034)
Panel D. Re-imprisonment	
Trainees vs comparison	-0.006 (0.034)
N	31,845

Note. Robust standard errors presented in parentheses.

*** $p < .01$, ** $p < .05$, * $p < .10$

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