



# Exploring the outcomes of prisoner learners: analysis of linked offender records from the Police National Computer and Individualised Learner Records

Joint experimental statistical report from the Ministry of Justice and Department for Education

# **Executive Summary**

This is a joint report between the Ministry of Justice (MoJ) and the Department for Education (DfE) that presents initial findings from a data sharing project between the two departments. The Police National Computer (PNC) and Individualised Learner Records (ILR) were the two datasets matched. The matched data enables us to better understand the further education activities undertaken by prisoners and their impact on post-release outcomes such as employment and receipt of benefits.

The overall aim of this analysis was to compare the proven one year re-offending rates<sup>1</sup> of prisoner learners and prisoner non-learners.

#### Definitions of a prisoner learner and prisoner non-learner

A **prisoner learner** is an offender with an immediate custodial sentence who has at least one further education learning activity recorded during their prison sentence. For example, an offender may take an entry level certificate in maths that enables them to then take a National Vocational Qualification (NVQ). This analysis only includes offenders who were released from prison in 2010.

A **prisoner non-learner** is an offender with an immediate custodial sentence who was released from prison in 2010, but <u>did not have</u> any further education learning activity recorded during their prison sentence.

For this analysis, prisoner non-learners have been matched to around 10,000 prisoner learners using propensity score matching (PSM). **Annex A** provides more details on this statistical matching technique. PSM controls for some offender characteristics but may not fully account for differences in motivation between prisoner learners and prisoner non-learners.

#### **Key findings** (for prisoners who were released from prison in 2010):

- Prisoners who take any form of learning activity have a significantly lower re-offending rate on release from prison than their peers. The proven one year re-offending rate is 34% for prisoner learners compared to 43% for prisoner non-learners.
- On average, prisoner learners receive a prison sentence on re-offence that is 120 days shorter than their initial sentence. In contrast, prisoner non-learners receive a prison sentence on re-offence that is slightly longer than their initial sentence.
- If a drug issue was raised on entry into prison, the offender was more likely to reoffend, regardless of taking a learning activity
- Achievement of the learning activity makes little difference to the proven one year reoffending rate. It is taking part in the learning activity which appears to have the most
  impact.
- Prisoner learners and prisoner non-learners who were in P45 employment prior to their prison sentence have significantly lower proven one year re-offending rates compared to those not in P45 employment

<sup>&</sup>lt;sup>1</sup> A proven re-offence is defined as any offence committed in a one year follow-up period and receiving a court conviction, caution, reprimand or warning in the one year follow up or a further six months waiting period. The data source is the extract of the PNC held by MoJ.

# **Results**

# 1. Proven one year re-offending rates for prisoner learners

## Key findings:

- Prisoners who take any form of learning activity have a significantly lower re-offending rate on release from prison (proven one year re-offending rate is 34% compared with 43% for prisoner non-learners)
- The most common original offence type was violence, accounting for 27% of prisoner learners and 30% of prisoner non-learners
- The most common first re-offence type was theft with 24% of prisoner learners and 22% of prisoner non-learners (compared to 11% and 12% respectively for prisoner learners and prisoner non-learners' initial offence)

This section compares the proven one year re-offending rates for prisoner learners and prisoner non-learners who were released from prison in 2010 and included in the matched cohort (see **Annex A** for more details on the cohorts and methodology employed). Tables referenced in this report are available as accompanying tables.

The proven one year re-offending rate was significantly lower for prisoner learners, 34% compared with 43% for prisoner non-learners who were sentenced to immediate custody (Figure 1, Table 1.1)². In comparison, the published proven re-offending rate for the total 2010 cohort of offenders that had immediate custody was 48%³. The lower re-offending rates for prisoner learners and prisoner non-learners are due to these cohorts being a subset of those leaving prison in 2010.

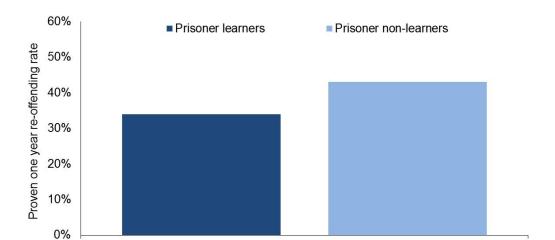


Figure 1. Proven one year re-offending rates for prisoner learners and prisoner non-learners

A t-test indicated that those taking a learning activity in prison had a significantly lower proven one year re-offending rate than prisoner non-learners.

<sup>&</sup>lt;sup>2</sup> These proven one year re-offending rates were shown to be significantly different from a paired t-test at the 5% significance level

<sup>&</sup>lt;sup>3</sup> Table 18a, Proven Re-offending Statistics for Jan 2010 – Dec 2010 https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/218454/proven-reoffending-jan10-dec10.pdf

The most common original offence type was violence, which includes both serious and non-serious violence, with 27% of prisoner learners and 30% of prisoner non-learners being convicted of violent offences and sentenced to immediate custody. On first re-offence, theft is the most prevalent offence type for prisoner learners (24%) and prisoner non-learners (22%).

The breakdowns on re-offence are relatively similar for both cohorts, although a greater proportion of prisoner non-learners (14%) had a first re-offence of public order or riot (compared to 10% of prisoner learners). Table 1.2 in the accompanying tables provides more detail.

# 2. Change in sentence length on re-offence

## Key findings:

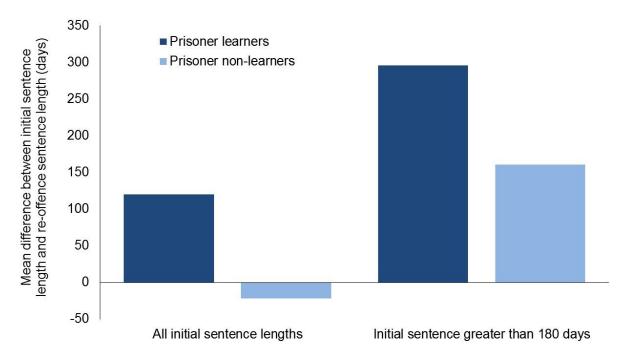
- 36% of prisoner learners who re-offend in the first year following release receive immediate custodial sentences at their first re-offence
- 40% of prisoner non-learners who re-offend in the first year following release receive immediate custodial sentences at their first re-offence
- On average, prisoner learners receive a prison sentence on re-offence that is around 120 days shorter than their initial sentence. In contrast, prisoner non-learners receive a prison sentence on re-offence that is slightly longer than their initial sentence.

Table 1.3 in the accompanying tables shows that 36% of prisoner learners and 40% of prisoner non-learners receive a custodial sentence on re-offence.

To give a proxy for severity of re-offence, the mean difference in days between the initial offence sentence and the re-offence sentence is shown in Figure 2. On average, prisoner learners receive a prison sentence on re-offence that is around 120 days shorter than their initial prison sentence. In contrast, prisoner non-learners receive a re-offence sentence that is slightly longer than their initial sentence.

Figure 2 also presents these comparisons for those with an initial sentence of more than 180 days. On average, these prisoner learners receive a prison sentence on re-offence that is 296 days shorter than their initial prison sentence. In contrast, these prisoner non-learners receive a sentence on re-offence that is 161 days shorter than their initial sentence.

Figure 2. Mean difference between initial sentence length and re-offence sentence length, for all initial sentences and initial sentences of more than 180 days



# 3. Drug issue raised on entry into prison

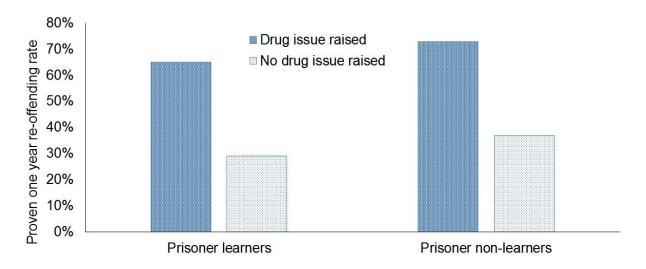
#### Key findings:

- Around 13% of prisoner learners and 17% of the prisoner non-learners had a drug issue raised on entry into prison
- If a drug issue was raised on entry into prison, the offender was more likely to reoffend, regardless of taking a learning activity
- Prisoner non-learners who had a drug issue raised on entry were significantly more likely to re-offend (73%) than prisoner learners with a drug issue (65%)

Around 13% of prisoner learners and 17% of prisoner non-learners had a drug issue raised on entry into prison<sup>4</sup>. Of those with recorded drug issues, 65% of prisoner learners and 73% of prisoner non-learners went on to re-offend (compared to 34% of all prisoner learners and 43% of all prisoner non-learners) (Figure 3). The difference between prisoner learners and prisoner non-learners with a drug issue is statistically significant. Prisoner non-learners with a drug issue raised on entry are more likely to re-offend than prisoner learners.

<sup>4</sup> Information from the Offender Assessment System (OASys) was used to determine each prisoner's drug status

Figure 3. Proven one year re-offending rate for prisoner learners and prisoner non-learners by whether they had a drug issue on entering prison



# 4. The types of learning activities

#### Key findings:

- For around 70% of prisoner learners their most recent course was at Entry or NVQ Level 1, equivalent to an entry level certificate or a D-G grade at GCSE respectively
- At all levels of further education, re-offending rates were lower for prisoner learners when compared with prisoner non-learners
- Around half of courses taken by prisoner learners were in the subject sector area 'Preparation for Life and Work' which includes basic skills
- Re-offending rates were lower for prisoner learners across all subject areas compared to prisoner non-learners

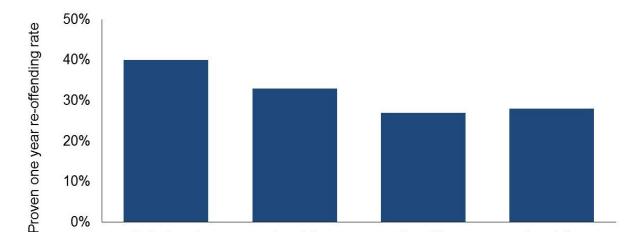
Only the **most recent course** taken by a prisoner learner before release from prison has been included in this analysis.

Each learning activity was given an equivalent grading on the NVQ scale (see table underneath Figure 4), although for 17% of prisoner learners this was unknown. Where the level was known, for around 70% of prisoner learners the most recent course was at an equivalent level to either an entry level certificate (Entry) or a D-G grade at GCSE (Level 1). Around half of these courses were in the subject sector area 'Preparation for Life and Work'. This subject sector area includes basic skills, such as applying for jobs, home maintenance and budgeting<sup>5</sup>. The proven one year re-offending rate for prisoner learners who took courses in every subject sector area (see Figure 5 and Table 4.2) is lower than the re-offending rate amongst prisoner non-learners (43%).

<sup>&</sup>lt;sup>5</sup> As described in the AQA syllabus for 'Preparation for Life and Work'. <a href="http://www.aqa.org.uk/subjects/work-and-life-skills/aqa-certificate/preparation-for-working-life-short-course-4800">http://www.aqa.org.uk/subjects/work-and-life-skills/aqa-certificate/preparation-for-working-life-short-course-4800</a>

These courses cannot be taken as a reflection of the prior educational attainment of prisoners, which is not robustly recorded in the ILR. These courses are more likely to be a reflection of the types of learning activities available for prisoners up to 2010.

OLASS3 and OLASS4 (Offenders' Learning and Skills Service) schemes were rolled into prisons from 2010. Further analysis of the 2010 matched cohort shows that 42% of learning activities taken were OLASS3 enrolments (and none were OLASS4, since the scheme started subsequent to the offenders' release from prison in 2010).



Level 1

Level 2

Level of qualification

Level 3+

Figure 4. Proven one year re-offending rate by level of learning activity

Equivalent grading of each NVQ level

NVQ level	Equivalent grading
Entry	Entry level certificates
Level 1	D - G grade at GCSE
Level 2	A* - C grade at GCSE
Level 3	A level
Level 4 and above	Higher Education
Other	Not recorded

**Entry Level** 

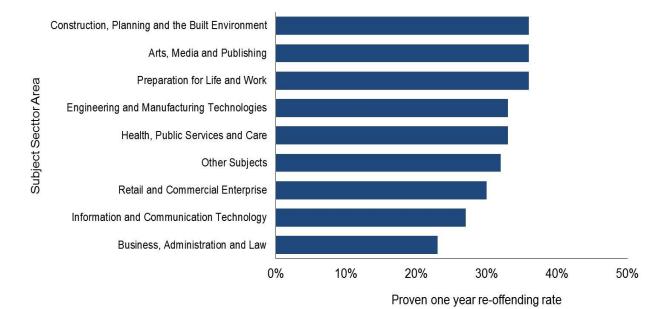


Figure 5. Proven one year re-offending rate by Subject Sector Area

# 5. Effect of achievement on proven one year re-offending rate

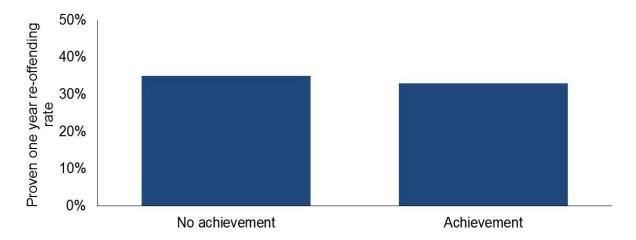
## Key findings:

- The proven one year re-offending rate was 33% for prisoner learners who achieved their activity
- This was not significantly different from the proven one year re-offending rate for prisoner learners who did not achieve their activity (35%)

Figure 6 and Table 5 compare the proven one year re-offending rates of those who achieved and those who did not achieve their most recent learning activity. There was little difference between the re-offending rates for prisoner learners who achieved their learning activity, compared with those who enrolled on the learning activity but did not achieve a pass (33% for those who achieved, compared with 35% for those who did not achieve). This difference is not statistically significant.

This implies that participation in learning, not the achievement of the learning activity, is a better predictor for lower proven re-offending. There could be other non-measurable factors that affect proven re-offending rates, such as motivation towards learning, especially as undertaking a learning activity in prison is normally voluntary.

Figure 6. Proven one year re-offending rate by whether prisoner learners both completed and achieved at least a pass in their learning activity



# 6. Employment status and benefits received by prisoners

The existing data share between MoJ-DWP/HMRC<sup>6</sup> has been linked to this data share to incorporate additional data. HMRC and DWP datasets determine the P45 employment<sup>7</sup> and benefit statuses for prisoners both before and after their prison sentence in this report.

This section compares whether P45 employment or the receipt of benefits has an impact on proven one year re-offending rates. As in previous sections, comparisons are drawn between the re-offending outcomes of prisoner learners and prisoner non-learners. In addition, comparisons can be made within these groups (for example, between prisoner learners who were or were not in P45 employment prior to their prison sentence).

<sup>&</sup>lt;sup>6</sup> Experimental Statistics from the 2013 MoJ-DWP/HMRC data share <u>https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/304411/experimental-statistics.pdf</u>

<sup>&</sup>lt;sup>7</sup> P45 employment is derived from P45 forms sent to HMRC by employers. P45 employment does not cover all employment. Self-employment and cash-in-hand employment are not recorded in P45 forms. In addition, HMRC only require periods of employment to be notified via a P45 form if earnings were above the Lower Earnings Limit and therefore not all lower paid jobs are included in the data, although some employers may still have reported these spells. Consequently, P45 employment figures under-record total employment and caution needs to be applied when interpreting these figures. Despite these limitations, P45 employment provides a useful proxy of employment.

## Key findings:

Impact of P45 employment or receipt of benefits <u>prior</u> to prison sentence on proven one year re-offending:

- Prisoner learners and prisoner non-learners who were in P45 employment prior to their prison sentence have significantly lower proven one year re-offending rates compared to those not in P45 employment
- Re-offending rates were lower for prisoner learners (26%) than prisoner non-learners (36%) in P45 employment prior to their sentence
- Regardless of learning, significantly more prisoners in receipt of benefits prior to their prison sentence went on to re-offend compared to those not receiving benefits
- Re-offending rates were lower for prisoner learners (40%) than prisoner non-learners (51%) in receipt of benefits prior to their sentence

Impact of P45 employment or receipt of benefits <u>after</u> release from prison on proven one year re-offending:

- Prisoner learners and prisoner non-learners who were in P45 employment after release from prison have lower proven one year re-offending rates compared to those not in P45 employment. This difference was not statistically significant.
- Regardless of learning, more individuals in receipt of benefits after release from prison went on to re-offend, compared to those not receiving benefits. This difference was not statistically significant.
- Re-offending rates were lower for prisoner learners (35%) than prisoner non-learners (44%) in receipt of benefits after release from prison

Figure 7 and Table 6 show that prisoners with previous P45 employment (i.e. from 2000 to initial prison sentence) have lower re-offending rates, regardless of learning (26% for prisoner learners and 36% for prisoner non-learners). Figure 8 shows that prisoners who received benefits<sup>8</sup> before their prison sentence had higher re-offending rates than offenders who did not receive benefits, regardless of their learning status. Please note that there is overlap between individuals who receive benefits and are in P45 employment.

-

<sup>&</sup>lt;sup>8</sup> This includes all types of benefit

Figure 7. Proven one year re-offending rate of prisoner learners and prisoner non-learners who were in P45 employment between 2000 and the start of the initial prison sentence

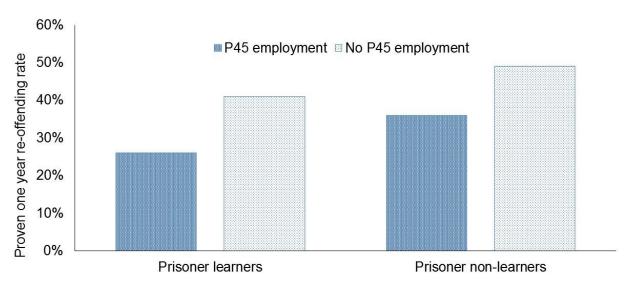
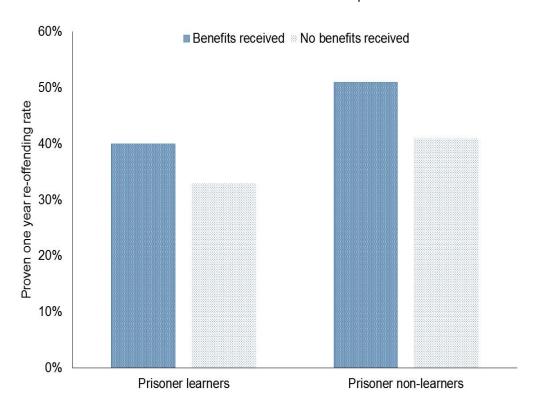


Figure 8. Proven one year re-offending rate of prisoner learners and prisoner non-learners who received benefits between 2000 and the start of the initial prison sentence



The latest MoJ-DWP/HMRC data share included data up to various points in 2013. As a consequence, post-release employment and benefit outcomes were explored for prisoner learner and prisoner non-learners up to 2013. P45 employment or receipt of benefits could occur before or after any re-offence.

Figure 9 and Table 7 show that the proven one year re-offending rates were higher for offenders who did not go on to have P45 employment. Conversely, Figure 10 shows that those offenders in receipt of benefits after release from prison have higher proven one year re-offending rates.

When comparing the difference between the proven one year re-offending rates of those who go on to P45 employment, prisoner learners have, on average, lower proven one year re-offending rates than prisoner non-learners. This is also the case with benefit outcomes, where prisoner learners who go on to receive benefits have a lower proven one year re-offending rate than prisoner non-learners.

Figure 9. Proven one year re-offending rate of prisoner learners and prisoner non-learners who were in P45 employment between the end of their initial prison sentence and 2013

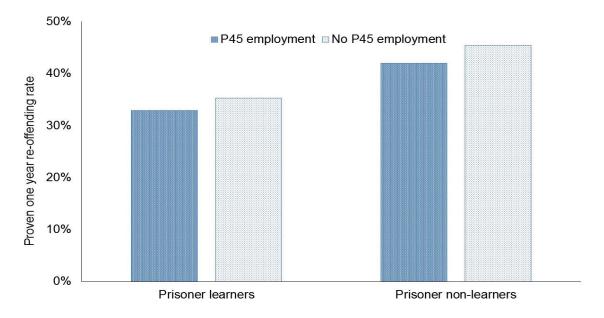
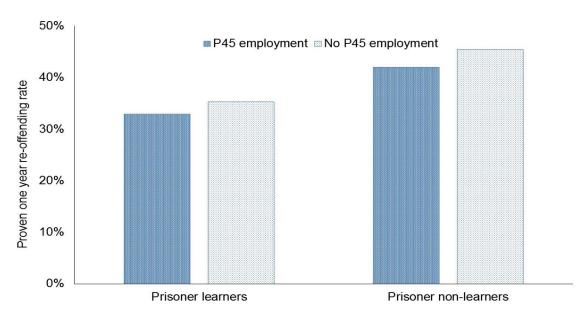


Figure 10. Proven one year re-offending rate of prisoner learners and prisoner non-learners who received benefits between the end of their initial prison sentence and 2013



# **Annex A: Methodology**

## Data Matching

This data share matched offence data held on MoJ's extract of the Police National Computer (PNC) with the Individualised Learner Records (ILR) held by Department for Education (DfE). Overall, 51% of the 10 million offenders recorded on the PNC between January 2000 and February 2014 were matched to the ILR between 2002/03 and 2012/13. This equated to 5.2 million offenders. The remaining 48% of the PNC cohort did not match to the ILR either because they were not recorded as taking any further education between 2002/03 and 2012/13 or because their characteristics were not consistently recorded across the two datasets.

The PNC and ILR do not contain a common unique identifier, such as National Insurance number, and were therefore matched using the set of rules listed in Table A1 based on forename, surname, date of birth, postcode and gender. The rules were applied in order, from 5 to 3E, where each subsequent matching rule was applied to those PNC records who did not match on the previous rule.

Table A1. Matching rules used to match the PNC and ILR datasets (highlighted cells indicate those variables that are included under each Matching Rule)

Matching Rule	5	5A	5B	5C	5C 2	5D	5E	5G	5H	4A	4A 3	4A 4	4B	4C	4D	4D 2	4F	4G	4G 2	41	4J	4K	4K 2	4M	40	4S	3B	3E
Surname																												
Soundex <sup>9</sup> surname																												
First 3 initials surname																												
Date of birth (DOB)																												
Month and year of DOB																												
Date and month of DOB																												
Postcode																												
Forename																												
Soundex forename																												
First 3 initials forename																												
Initial of forename																												
gender																												

## 2. Quality assurance of matched data

To check that the matching rules were suitable and resulted in high quality matches, a sample of matches from each rule was selected and personal details were manually checked. It was found that these 28 matching rules were correct at least 80% of the time, with the exception of rules 4O, 4S and 3E (these were retained as they accounted for changing names, especially females).

<sup>&</sup>lt;sup>9</sup> Soundex is used in fuzzy data matching and is a phonetic algorithm for indexing names by sound, as pronounced in English so that names can be matched despite minor differences in spelling.

As part of quality assurance, bias testing was carried out on the matched and unmatched data to check the representativeness of the matched data with regards to age, gender and ethnicity. Overall, the matched data was reasonably representative of the PNC and ILR populations. A greater proportion of the matched data were in younger age groups compared to the PNC and a lower proportion compared to the ILR. This was not considered surprising as further education courses are often targeted at young people. A greater proportion of the matched data were in black and minority ethnic groups compared to the PNC and a lower proportion compared to the ILR.

The overall match rate was 51%. Match rates by year of offence varied between 43% and 54%, with the best match rates being for those offending between 2004 and 2009. These years are most likely to have matched with the 2002/03 to 2012/13 ILR data.

## 3. Cohort for analysis

In order to assess the impact of further education on the proven one year re-offending rates, the cohort of offenders was restricted to those **whose prison sentence ended in 2010**. This aligned it with the 2010 re-offending dataset<sup>11</sup> and meant that six years of further education information could be used which spanned the majority of prison sentences (only 1% had sentences longer than six years). Two further variables were added to the cohort, which indicated whether the offender had been in receipt of benefits (from the National Benefit Database held by DWP) or had been in P45 employment (from the employment records held by HMRC) prior to their prison sentence. This information was derived using unique identifiers present in both the MoJ-ILR and MoJ-DWP/HMRC data shares.<sup>12</sup> Linking the MoJ-DWP/HMRC data share to the MoJ-ILR data share was agreed by all four departments (MoJ, DWP, HMRC and the former BIS).

The **2010 prisoner cohort** consisted of around 33,000 individuals, around 6,000 (18%) of whom did not match to the Individualised Learner Records (ILR) records and around 12,000 (36%) who started a learning activity between August 2004 and the end of their prison sentence in 2010. It has been assumed that those who did not match were non-learners, although some learners may not have matched due to variations in how their identifiers were recorded. Unsurprisingly, since they were controlled for using PSM (see Section 4 of this Annex for more details), little difference was seen between learners and non-learners for age, gender and ethnicity and so these results are not included in this publication.

Before the analysis was conducted, only records with recorded entries in all variables from both the PNC and re-offending variables were kept. The individuals with incomplete records were removed because they could not be included in the regression models, which do not accept empty values. As only 1% of records were incomplete, the potential bias to the sample caused by their removal was negligible. A number of the ILR variables were not well populated, so these were not used in this analysis, which restricted its scope to the completion and achievement statuses of the learning activities, the broad subject sector area, and the notional NVQ level. At each stage, quality assurance was conducted by analysts external to the project team to ensure the analysis presented was robust.

## 4. Propensity Score Matching

Propensity score matching (PSM) is a statistical matching technique which gives an estimate of a treatment effect (in this case taking a learning activity) by accounting for covariates. The propensity score is a single value between 0 and 1, which contains a fraction of the value assigned to each covariate for that individual, with the relative importance or weighting of the covariate determining the size of the fraction. In this case, the covariates are descriptive characteristics, benefit/employment histories, the offending histories and the current offence details for each offender in the cohort (see Table A2 for all covariates included in the PSM model). A regression model was built, with learning activity as a binary covariate and one year re-offending (binary 0/1) as the variable being predicted and

<sup>12</sup> https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/304411/experimental-statistics.pdf

<sup>&</sup>lt;sup>10</sup> Offenders who did not match (i.e. did not have any further education recorded) or further education participants who did not match (i.e. did not have any offending recorded)

<sup>11</sup> https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/218454/proven-reoffending-jan10-dec10.pdf

this included all variables that have a significant impact on the model to a level of p-value<0.2. This has been shown in previous analyses to be tolerant enough to give accurate matches<sup>13</sup>. The treatment (prisoner learners) and control (prisoner non-learners) groups were then paired on similar propensity scores (with a calliper = 0.001, and allowing replacement of the control group).

Table A2. The covariates included in the PSM model

Covariate	Description
Prison sentence length	Banded prison spells: < 6 months, 6- 12 months, 1 – 4
-	years, 4 – 10 years, > 10 years
OGRS index <sup>14</sup>	The offence type: absconding/bail offences;
	criminal/malicious damage; domestic burglary, drink
	driving offences; drugs (import/export/production/supply);
	drugs (possession); fraud/forgery; handling; other
	burglary; other motoring offences; public order or riot;
	robbery; sexual offences; sexual offences (child);
	soliciting or prostitution; taking and driving away and
	related offences; theft; theft from vehicles; violence; other offences
٨٥٥	Age of prisoner at release
Age Previous PND events	Number of previous penalty notices for disorder <sup>15</sup>
Previous prison events	Number of previous offences resulting in a prison
r revious prisori events	sentence
Drug issue flag	Was a drug issue raised on individual?
Number of previous offences	Number of previous offences
Previous employment	P45 employment entered into at least once from 2000 to
. ,	the start of offence (where individuals were released in
	2010)
Previous benefits	Benefits received at least once from 2000 to the start of
	offence (where individuals were released in 2010)
Previous public order events	Number of previous public order offences
Previous fraud/forgery events	Number of fraud or forgery offences
Gender	Gender: Male, Female, Unknown/Not recorded
Previous criminal/malicious damage	Number of previous criminal or malicious damage
events	offences
Previous drugs possession/supply	Number of previous drug possession or supply offences
events	Niverban of annihing that affects
Previous theft events	Number of previous theft offences
Ethnicity  Provious soliciting or prostitution	Ethnicity: White, Asian, Black, Other, Not Recorded
Previous soliciting or prostitution events	Number of previous soliciting or prostitution offences
Previous domestic burglary events	Number of previous domestic burglary offences
Frevious domestic burgiary events	radificer of previous doffiestic burgiary offerices

A step-wise procedure was used in R (using the function step()) to establish the covariates that have the greatest impact on the predictor (re-offending), ranked according to the AIC (Akaike Information Criterion) value for each model computed for each covariate. These covariates were added to the model, until the AIC no longer decreased. A logistic regression model was used to obtain the propensity scores, assuming a binomial distribution. The treatment and control groups were then paired together (using the R package, Matchlt), where the nearest propensity scores were assumed to be a pair, as long as the difference between the scores was less than the calliper (0.001 standard deviations). Replacement of the control group was allowed and 93% of the treatment group was matched to control individuals.

<sup>&</sup>lt;sup>13</sup> This methodology is used by the Justice Data Lab

<sup>&</sup>lt;sup>14</sup> Offender Group Reconviction Scale (OGRS) offences. https://core.ac.uk/download/pdf/1556521.pdf

<sup>&</sup>lt;sup>15</sup> Penalty notices for disorder. <a href="https://www.gov.uk/government/publications/penalty-notices-for-disorder-guidance-for-police-officers">https://www.gov.uk/government/publications/penalty-notices-for-disorder-guidance-for-police-officers</a>

To assess the validity of the PSM method, the difference in the covariate values was calculated between the treatment and control individual in each pair. For example, the difference between the numbers of previous prison events. If the individuals have the same characteristics, the difference will be 0, and the average between all pairs should be 0. Figure A1 shows the boxplots for each covariate and indicates that the matching process is reasonably robust, with exceptions for age and the number of previous convictions and cautions. The centre of each box plot for all covariates is at 0 but the spread for these two covariates (number of previous convictions and cautions) is significant.

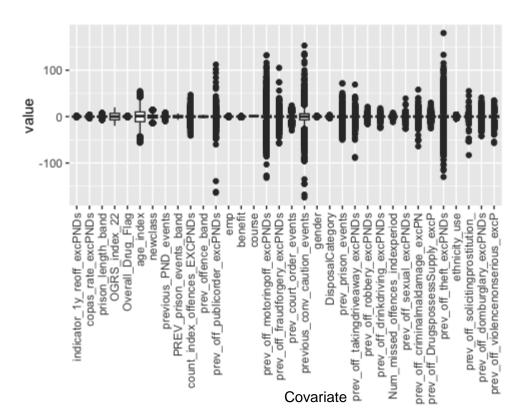


Figure A1. The average difference between the covariates for the treatment and control pairs, after PSM

## 5. Predicting proven one year re-offending rates from a regression model

To estimate the proven one year re-offending rates for offender learners compared with offender non-learners, a logistic regression model was built using a training set of half of the cohort. The regression model was then tested on a test set, which showed a predictive accuracy of 77%. This means that the variables used in the model had good predictive power and so can describe the re-offending rates to an accuracy of 77%.

Further to this, the regression model was tested for its predictive power on the whole cohort. To establish a proven one year re-offending rate for learners and non-learners, the cohort was duplicated and in the first step, learning activity was set to 0 for everyone and in the second step, learning activity was set to 1 for everyone. This gave a proven one year re-offending rate of 41% for prisoner learners, and 43% for prisoner non-learners, which were statistically significant when tested using a paired t-test at the 5% level. These numbers are the re-offending rate for the whole population, not only the PSM matched pairs. It is therefore expected that these proven one year re-offending rates would be different to those quoted in Section 1. However, a statistically significant difference between the proven one year re-offending rates persists, despite using a different statistical methodology.

## **Contacts**

Press enquiries should be directed to the MoJ press office.

#### **Ministry of Justice**

Press enquiries:

Telephone: 020 3334 3555

Other enquiries about the analysis should be directed to:

#### **David Dawson**

Data Linking Team
Justice Statistical Analytical Services
Ministry of Justice
102 Petty France
London
SW1H 9AJ

Telephone: 07967 592554.

E-mail: <u>David.Dawson@justice.gsi.gov.uk</u>

General enquiries about the statistical work of the Ministry of Justice can be e-mailed to: statistics.enquiries@justice.gsi.gov.uk

Other enquiries about the analysis should be directed to:

#### **Feedback**

This is an experimental statistical release based on initial analysis of the MoJ-DfE data share. Feedback and ideas for further analysis would be welcomed through <a href="mailto:statistics.enquiries@justice.gsi.gov.uk">statistics.enquiries@justice.gsi.gov.uk</a>

© Crown copyright 2017. Produced by the Ministry of Justice and Department for Education You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit <a href="https://www.nationalarchives.gov.uk/doc/open-government-licence">www.nationalarchives.gov.uk/doc/open-government-licence</a> or email: psi@nationalarchives.gsi.gov.uk