



Justice Data Lab Experimental Statistics: Employment and benefits outcomes

This analysis investigates the **employment** and **benefits** outcomes of offenders who received grants for distance learning through the **Prisoners' Education Trust (PET)** scheme, compared with a group of similar offenders who did not receive these grants. The findings are an extension of the original analysis conducted by the Justice Data Lab to assess the impact of PET on **reoffending**, which showed a significant improvement in reoffending rates for those supported by distance learning grants from PET (18%) compared with non-participants (25%).

Key Findings

39% of the treatment group were employed during the 12 months after release  This is **greater** than the comparison group (**31%**)

18% of the treatment group were employed 1 month after release  This is **greater** than the comparison group (**16%**)

27% of the treatment group were employed 12 months after release  This is **greater** than the comparison group (**22%**)

The treatment group spent on average **88 days** in employment during the 12 months after release  This is **more time** than the comparison group (**72 days**)

59% of the treatment group received out-of-work benefits during the 12 months after release  This is the **same** as the comparison group (**59%**)

51% of the treatment group received Job Seekers Allowance during the 12 months after release  This is **not significantly higher** than the comparison group (**50%**)

The treatment group spent on average **125 days** receiving out-of-work benefits during the 12 months after release  This is **less time** than the comparison group (**134 days**)

 or  = significant result

 = non-significant result

Contents

Key Findings	1
Overview	3
Methodology.....	4
Significant Results.....	6
The Results in Detail: Employment	7
Results Interpretation: Employment	8
Charts: Employment	10
The Results in Detail: Benefits	11
Results Interpretation: Benefits	13
Charts: Benefits	14
Treatment and Comparison Groups.....	16
Feedback – experimental statistics	17
Contacts	18
Annex A.....	19
Employment Tables	19
Benefits Tables	20
Annex B.....	21

Overview

Until now, the Justice Data Lab (JDL) has exclusively worked with intervention programmes to assess their impact on **reoffending**. Thanks to an existing cross-government data share between the Ministry of Justice (MoJ), Her Majesty's Revenue and Customs (HMRC) and the Department for Work and Pensions (DWP), it is now possible for the JDL to expand their analyses, to assess the impact of programmes on **employment** and **benefits** outcomes.

This report details the results of the first test case in this area, assessing the employment and benefits outcomes for offenders who received grants for distance learning through the Prisoners' Education Trust (PET) between 2002 and 2013. Headline results from their original **reoffending** analysis are below:

In the **treatment** group, the equivalent of:

 **18** out of 100 people committed a proven reoffence within a one-year period (a rate of 18%). This is **7 people fewer** than in the comparison group, per 100 people.

 **47 proven reoffences** were committed per 100 people during the year (a frequency of 0.47 reoffences per person). This is **28 fewer offences than** the comparison group, per 100 people.

 **175 days** was the average time before a reoffender committed their first proven reoffence. This is **18 days later*** than the comparison group.

In the **comparison** group, the equivalent of:

25 out of 100 people committed a proven reoffence within a one-year period (a rate of 25%).

75 reoffences were committed per 100 people during the year (a frequency of 0.75 reoffences per person).

It took **156 days** was the average time before a reoffender committed their first proven reoffence.

 or  = significant result  = non-significant result

* Please note: totals may not appear to equal the sum of the component parts, due to rounding

For further information about this intervention, please refer to the original JDL reoffending analysis of the PET distance learning grant scheme:
<https://www.gov.uk/government/statistics/justice-data-lab-statistics-september-2015>

Methodology

The standard JDL methodology was used for selecting the treatment and comparison groups, and for estimating the impact of the intervention programme, but the existing reoffending outcome measures were exchanged for a set of employment and benefits measures. Further information on the JDL methodology can be found in the Methodology Paper, published here:

<https://www.gov.uk/government/publications/justice-data-lab>

Measures

The employment and benefits outcomes were assessed using several measures. Further information about the measures can be found in [Annex B](#) of this report.

Employment

P45¹ employment start and end dates were used to identify employment spells that coincided with the one-year period for each offender after their release from prison, and to calculate the total number of days in employment during this time.

Headline measures

1. The **overall employment rate** includes those who held employment at any point during the 12-month period, for any length of time.
2. The **1-month rate** includes only those who held an employment spell, of any length, at 1 month after their release from prison.
3. The **12-month rate** includes only those who held an employment spell, of any length, at 12 months after their release from prison.
4. The average **time spent in employment** by the **whole group** of participants is calculated using everyone, regardless of their employment status during the year (i.e. this will be 0 days for those without employment during the year).

Further measures

5. The average **time spent in employment** by those who were **employed**.
6. The average **time to first employment spell** for those who were **employed**.

These measures are calculated using only the **subset** of the treatment and comparison groups who were employed at some point during the year.

¹ Note that P45 employment excludes some types of employment e.g. self-employment.

Benefits

Out-of-work benefits start and end dates were used to identify spells that coincided with the one-year period for each offender after their release from prison, and to calculate the total number of days in receipt of out-of-work benefits during this time.

Headline measures

1. The **out-of-work benefits² rate** includes those who received out-of-work benefits at any point during the 12-month period, for any length of time.
2. The **Job Seekers Allowance rate** includes those who received Job Seekers Allowance at any point during the 12-month period, for any length of time.
3. The average **time spent receiving out-of-work benefits** by the **whole group** of participants is calculated using everyone, regardless of their benefits status during the year (i.e. this will be 0 days for those who received no benefits).

Further measure

4. The average **time spent receiving out-of-work benefits** by **benefit recipients** is calculated using only the **subset** of the treatment and comparison groups who received out-of-work benefits at some point during the year.

Please note: the further measures use subsets of the treatment and comparison groups. A subset of the treatment group may have different characteristics to a subset of the comparison group (see [Treatment and Comparison Groups](#)). Therefore, **inferences should not be made about the impact of the PET intervention programme on the further measures**, as any differences in the outcomes could be due to differences in the groups' characteristics. The statistics are provided for descriptive purposes only, in 'further findings' sections throughout the report.

Experimental statistics from the original data share between DWP and MoJ can be found here:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/304411/experimental-statistics.pdf

² Out-of-work benefits include: incapacity benefit, income support, job seekers allowance, employment support allowance, severe disablement allowance and passported incapacity benefit.

Significant Results

Five measures show a statistically significant result across the analysis. These provide evidence that:

1. **Participants are more likely to be employed** during the one-year period after their release from prison, compared to non-participants with similar characteristics ([Table 1](#)).
2. **Participants are more likely to be employed** one month after their release date from prison, when compared with non-participants ([Table 1](#)).
3. **Participants are more likely to be employed** twelve months after their release date from prison, when compared with non-participants ([Table 1](#)).
4. **Overall, participants spend more days in employment**, compared with non-participants ([Table 2](#)).
5. **Overall, participants spend fewer days receiving out-of-work benefits** during the one-year period, compared with non-participants ([Table 4](#)).

The Results in Detail: Employment

Employment outcomes for treatment and comparison groups

In the **treatment** group, the equivalent of:

-  **39** out of 100 people were employed during the one-year period after their release from prison (a rate of 39%). This is **8 people more** than in the comparison group, per 100 people.
- 
-  **18** out of 100 people were employed at 1 month after their release from prison (a rate of 18%). This is **2 people more** than in the comparison group, per 100 people.
- 
-  **27** out of 100 people were employed at 12 months after their release from prison (a rate of 27%). This is **5 people more** than in the comparison group, per 100 people.
- 
-  On average, participants spent **88 days** in employment during the year. This is **15 days more** than the comparison group.
- 

In the **comparison** group, the equivalent of:

- 31** out of 100 were employed during the one-year period after their release from prison (a rate of 31%).
- 16** out of 100 were employed at 1 month after their release from prison (a rate of 16%).
- 22** out of 100 were employed at 12 months after their release from prison (a rate of 22%).
- The comparison group spent on average **72 days** in employment during the year.

 or  = significant result

 = non-significant result

Estimated impact of the intervention on employment

For any **100** typical people who receive the intervention, compared with any **100** similar people who do not receive it:

-  The number of people who are employed during the one-year period after release could be **higher** by between **6 and 9 people**.
-  The number of people who are employed at 1 month after release could be **higher** by between **1 and 3 people**.
-  The number of people who are employed at 12 months after release could be **higher** by between **4 and 6 people**.
-  On average time spent in employment during the year could be **greater** by between **12 and 19 days**.

Further Findings

The following outcomes are calculated for **subsets** of the matched treatment and comparison groups, which may not be matched on all characteristics. Therefore, inferences should **not** be made about the impact of the PET intervention programme on these outcomes, as any differences in the outcomes could be due to differences in the groups' characteristics (see [Treatment and Comparison Groups](#)). Statistics are provided for descriptive purposes only:

- Of those who were **employed** in the treatment group, **226 days** were spent in employment on average during the 12 months, fewer than the comparison group (**232 days**).
- Of those who were **employed** in the treatment group, it took **75 days** on average to start their first employment spell, more than the comparison group (**72 days**).

Understanding the time in employment measures

The findings show that the average **employed person** in the treatment group spent **fewer** days in work than the average **employed person** in the comparison group during the year after their release from prison.

This could partly be explained by the finding that it took longer for people in the treatment group to start work after their release from prison, leaving fewer days available in the one-year period for employment.

Despite this, the treatment group spent **more** days in employment **overall**. This is due to a greater proportion of employed people in the treatment group: the days in employment contributed by these additional individuals compensated for the reduction in working days seen within the employed subset of the treatment group. This means that more days were spent in employment by the treatment group **as a whole**.

Please note: inferences should **not** be made about the impact of the PET intervention programme on the 'further findings' based on the employed subsets of the treatment and comparison groups, as any differences in the outcomes could be due to differences in the sub-groups' characteristics. For example, those who were employed after receiving grants for distance learning through the PET scheme, were less likely to have been employed in the year before conviction (**57%**) compared with the employed subset of the comparison group (**67%**). See the [Treatment and Comparison Groups](#) section for more information on the groups' characteristics.

Results Interpretation: Employment

How to correctly interpret the employment outcomes in the year after release from prison:

What you can say about the one-year employment rate:

- ✓ "This analysis provides evidence that, for every 100 participants, the Prisoners' Education Trust scheme may increase the number of people employed during a one-year period by between 6 and 9 people."

What you cannot say about the one-year employment rate:

- ✗ "This analysis shows that the Prisoners' Education Trust scheme has no effect on the one-year employment rate of its participants."

What you can say about the employment rate (1 month after release):

- ✓ "This analysis provides evidence that, for every 100 participants, the Prisoners' Education Trust scheme may increase the number of people employed 1 month after release by between 1 and 3 people."

What you cannot say about the employment rate (1 month after release):

- ✗ "This analysis shows that the Prisoners' Education Trust scheme has no effect on the employment rate of its participants 1 month after release."

What you can say about the employment rate (12 months after release):

- ✓ "This analysis provides evidence that, for every 100 participants, the Prisoners' Education Trust scheme may increase the number of people employed 12 months after release by between 4 and 6 people."

What you cannot say about the employment rate (12 months after release):

- ✗ "This analysis shows that the Prisoners' Education Trust scheme has no effect on the employment rate of its participants 12 months after release."

What you can say about the time in employment (overall):

- ✓ "This analysis provides evidence that the Prisoners' Education Trust scheme may increase the average time in employment during the year by between 12 and 19 days."

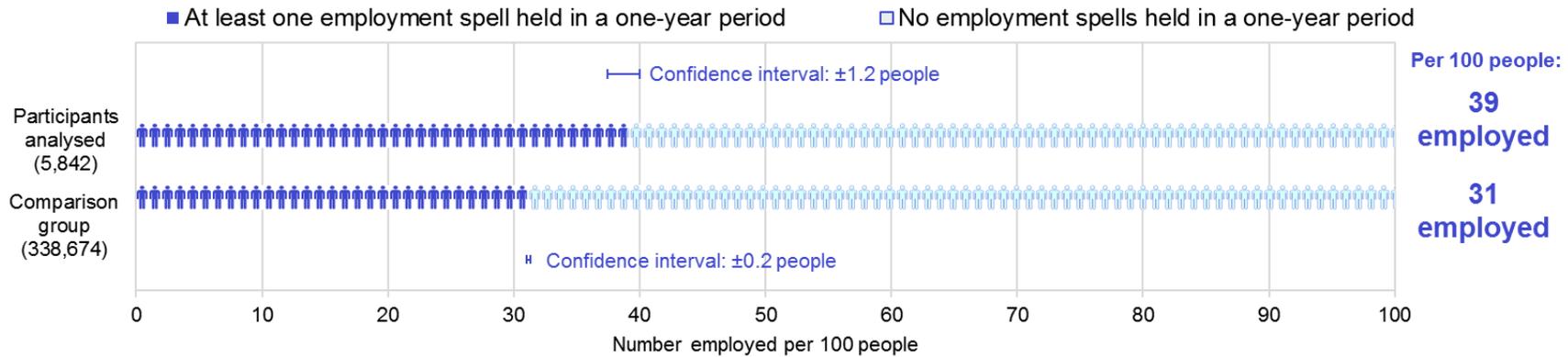
What you cannot say about the time in employment (overall):

- ✗ "This analysis shows that the Prisoners' Education Trust scheme has no effect on the average time in employment in the year after release."

The **employed subsets** of the matched treatment and comparison groups may not be matched on all characteristics. Therefore, inferences should **not** be made about the impact of the PET intervention programme on these outcomes, as any differences in the outcomes could be due to differences in the groups' characteristics (see [Treatment and Comparison Groups](#)).

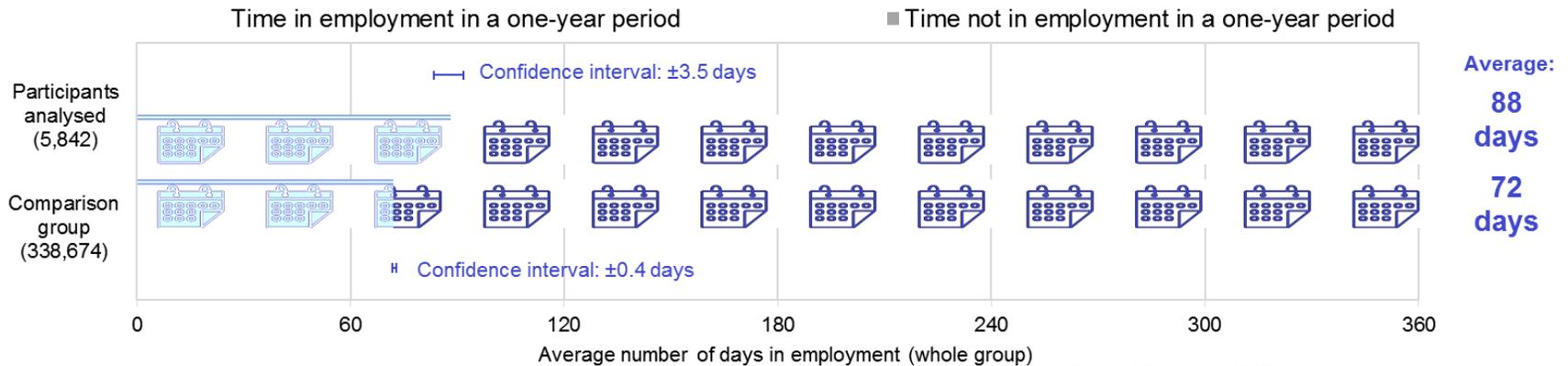
Charts: Employment

One-year employment rate after receiving grants from Prisoners' Education Trust



Significant difference between groups

Average time in employment after receiving grants from Prisoners' Education Trust (whole...)



Significant difference between groups

The Results in Detail: Benefits

Benefits outcomes for treatment and comparison groups

In the **treatment** group, the equivalent of:

 **59** out of 100 people received out-of-work benefits during the one-year period after their release from prison (a rate of 59%). This is **the same** as the comparison group, per 100 people.

 **51** out of 100 people received Job Seekers Allowance during the one-year period after their release from prison (a rate of 51%). This is **1 person more** than the comparison group, per 100 people.

 On average, participants spent **125 days** receiving out-of-work benefits during the year. This is **9 days fewer** than the comparison group.

In the **comparison** group, the equivalent of:

59 out of 100 people received benefits during the one-year period after their release from prison (a rate of 59%).

50 out of 100 people received Job Seekers Allowance during the one-year period after their release from prison (a rate of 50%).

Non-participants spent on average **134 days** receiving out-of-work benefits during the year.

 or  = significant result

 = non-significant result

Estimated impact of the intervention on receipt of benefits

For any **100** typical people who receive the intervention, compared with any **100** similar people who do not receive it:

 The number of people who received out-of-work benefits during the one-year period after release could be **lower by as much as 1 person, or higher by as much as 1 person**.

 The number of people who received Job Seekers Allowance during the one-year period after release could be **the same, or higher by as many as 2 people**.

 On average time in receipt of out-of-work benefits during the year could be **less by between 5 and 12 days**.

Further Findings

The following outcomes are calculated for **subsets** of the matched treatment and comparison groups, which may not be matched on all characteristics. Therefore, inferences should **not** be made about the impact of the PET intervention programme on these outcomes, as any differences in the outcomes could be due to differences in the groups' characteristics (see [Treatment and Comparison Groups](#)). Statistics are provided for descriptive purposes only:

- Of those who **received benefits** in the treatment group, **212 days** were spent receiving benefits on average during the 12 months, fewer than the comparison group (**227 days**).

Results Interpretation: Benefits

How to correctly interpret the benefits outcomes in the year after release from prison:

What you can say about the one-year out-of-work benefits rate:

- ✓ "This analysis provides evidence that, for every 100 participants, the Prisoners' Education Trust scheme may decrease the number of people receiving out-of-work benefits during a one-year period by up to 1 person, or may increase it by up to 1 person."

What you cannot say about the one-year out-of-work benefits rate:

- ✗ "This analysis shows that the Prisoners' Education Trust scheme increases/ decreases, has no effect on the one-year out-of-work benefits rate of its participants."

What you can say about the one-year Job Seekers Allowance rate:

- ✓ "This analysis provides evidence that, for every 100 participants, the Prisoners' Education Trust scheme may have no effect on the number of people receiving Job Seekers Allowance during a one-year period, or may increase it by up to 2 people."

What you cannot say about the one-year Job Seekers Allowance rate:

- ✗ "This analysis shows that the Prisoners' Education Trust scheme increases the one-year Job Seekers Allowance rate of its participants."

What you can say about the time spent receiving out-of-work benefits(overall):

- ✓ "This analysis provides evidence that the Prisoners' Education Trust scheme may decrease the average time spent receiving benefits during the year by between 5 and 12 days."

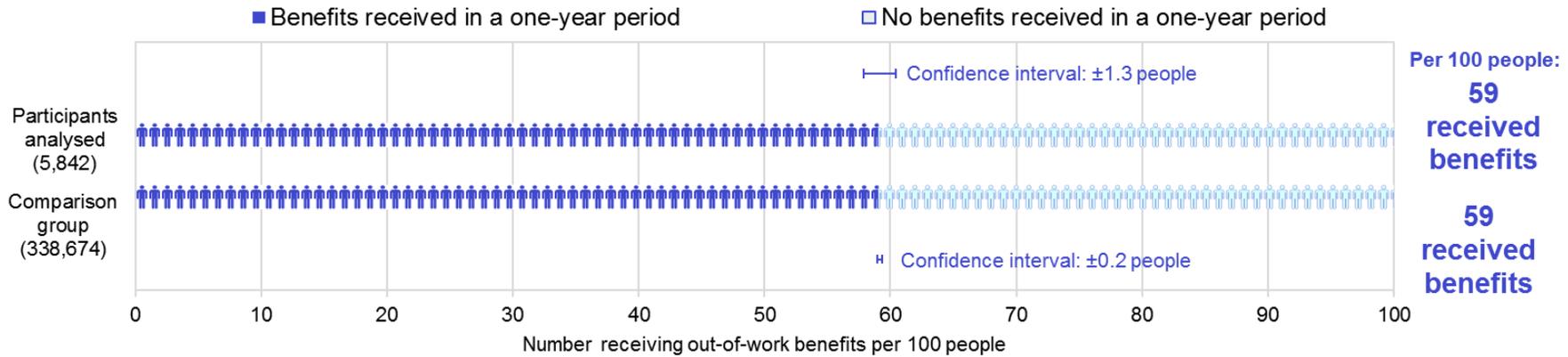
What you cannot say about the time spent receiving out-of-work benefits(overall):

- ✗ "This analysis shows that the Prisoners' Education Trust scheme has no effect on the time its participants spend receiving benefits."

The **subsets** of the matched treatment and comparison groups who **received benefits** may not be matched on all characteristics. Therefore, inferences should **not** be made about the impact of the PET intervention programme on these outcomes, as any differences in the outcomes could be due to differences in the groups' characteristics (see [Treatment and Comparison Groups](#)).

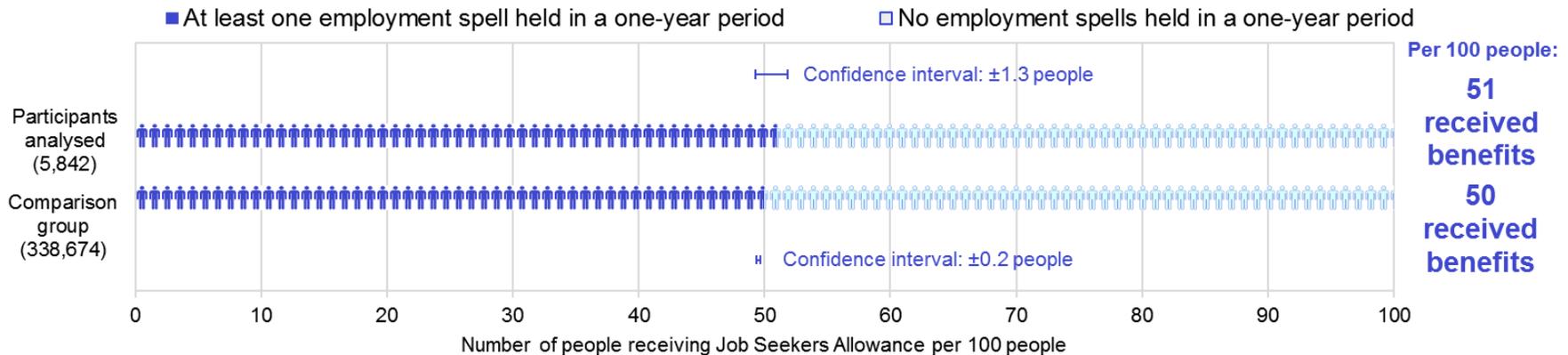
Charts: Benefits

One-year out-of-work benefits rate after receiving grants from Prisoners' Education Trust



Non-significant difference between groups

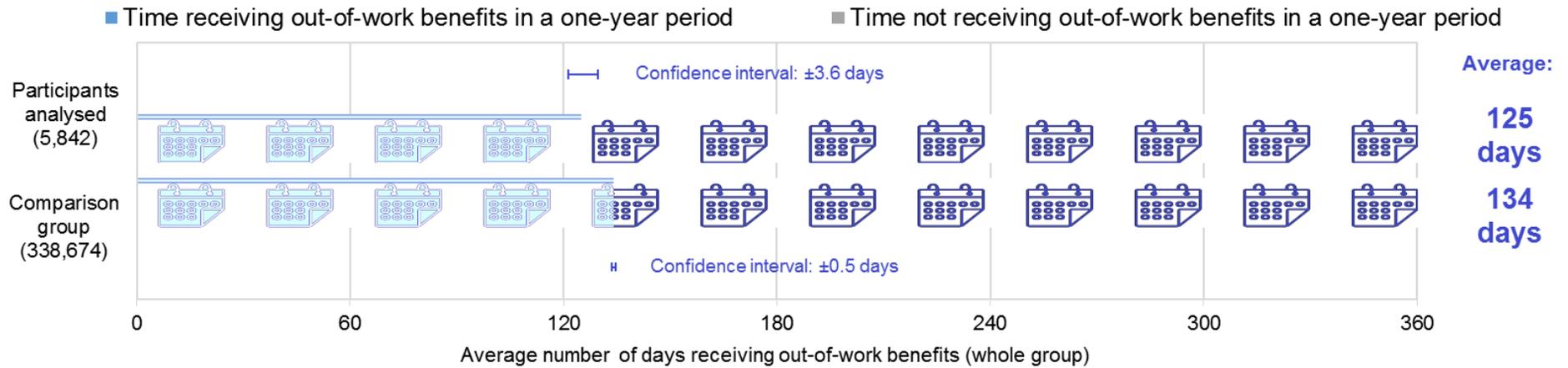
One-year Job Seekers Allowance rate after receiving grants from Prisoners' Education Trust



Non-significant difference between groups

Charts: Benefits cont.

Average time receiving out-of-work benefits after receiving grants from Prisoners' Education Trust (whole group)



Significant difference between groups

Treatment and Comparison Groups

The treatment group that was used for the original JDL analysis of reoffending outcomes was replicated for the current analysis, less 12 offenders who were outside the employment age limits for the cohort (18-65 years for men and 18-60 years for women).

Five people in the treatment group had no appropriate comparison matches and were therefore removed from the analysis. This left 5,842 in the final treatment group, matched with 338,674 similar offenders in the comparison group. The final treatment group was well-matched to the comparison group on all characteristics.

Profile of the Treatment Group (Participants included in analysis: 5,842 offenders)

Gender:	91% male, 9% female	
Ethnicity:	73% white, 19% black, 8% unknown/other	
Nationality:	90% UK nationals, 10% non-UK nationals	
Age:	18 to 65 at the time of release (mean 33 years)	
Sentence type:	100% custodial	
Sentence length:	6 months - 4 years	31%
	4 - 10 years	55%
	More than 10 years	7%
	Life sentence	7%
Release dates:	2002 - 2013	

Please refer to the original Justice Data Lab reoffending analysis of the Prisoners' Education Trust for further information about the participants:

<https://www.gov.uk/government/statistics/justice-data-lab-statistics-september-2015>

Characteristics of the employed subsets

Those who were employed, after receiving grants for distance learning through the PET scheme, were **less likely** to have been **employed in the year before conviction** (57% compared with 67% of the employed subset of the comparison group). They were also less likely to have been employed in the month before conviction (36% compared with 45% of the employed subset of the comparison group).

Feedback – experimental statistics

This report is the first test case exploring employment and benefit outcomes of offenders who have participated in an intervention programme. We are **seeking feedback**, which will be used to shape our ongoing work in this area. Specifically:

- Are these new measures useful?
- Should employment/benefit analyses be incorporated into every JDL report?
- Regarding the time spent in employment/receiving benefits, we have provided two measures:
 - 1) average days in employment for the overall group (demonstrating the impact of the intervention as a whole)
 - 2) average days just for those who are employed/receive benefits (to assess the difference for individuals who are employed/receive benefits)

The latter cannot demonstrate the impact of the intervention, due to the sub-groups not being matched on their characteristics.

- Do you find one of these measures more helpful than the other? Or are both useful?
- Would you find the subset measure more useful if the treatment and comparison subset groups were matched on characteristics?
- Would you find it useful to see the standard JDL ‘time to reoffence’ measure presented in the same way as the further findings in this report, given that this is also calculated from non-matched sub-groups?
- Any other comments?

Please feedback any comments or suggestions to justice.datalab@justice.gov.uk

Contacts

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General information about the official statistics system of the United Kingdom:

www.statisticsauthority.gov.uk/about-the-authority/uk-statistical-system

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Annex A

Employment Tables

Tables 1-2 show the measures of employment. Significant differences between treatment and comparison groups are highlighted **blue** in the tables. Significance testing and estimated differences are not provided for subset groups.

Table 1: Proportion of people in employment during the one-year period after release from prison.

Analysis	Number in treatment group	Number in comparison group	Proportion in employment				p-value
			Treatment group rate (%)	Comparison group rate (%)	Estimated difference (% points)	Significant difference?	
Employment (one-year period)	5,842	338,674	39	31	+6 to +9	Yes	0.00
Employment (1 month after release)	5,842	338,674	18	16	+1 to +3	Yes	0.00
Employment (12 months after release)	5,842	338,674	27	22	+4 to +6	Yes	0.00

Table 2: Time spent in employment during the one-year period after release from prison, and time until the start of the first employment spell

Analysis	Number in treatment group	Number in comparison group	Average time in/until employment (days)				p-value
			Treatment group time	Comparison group time	Estimated difference	Significant difference?	
Days in employment (whole group)	5,842	338,674	88	72	+12 to +19	Yes	0.00
Days in employment (employed only)	2,262	92,849	226	232	-	-	-
Days to first employment spell (employed only)	2,262	92,849	75	72	-	-	-

Benefits Tables

Tables 3-4 show the measures of benefits receipt. Significant differences between treatment and comparison groups are highlighted **blue** in the tables. Significance testing and estimated differences are not provided for subset groups.

Table 3: Proportion of people receiving out-of-work benefits at any point during the one-year period after release from prison.

Analysis	Number in treatment group	Number in comparison group	Proportion receiving benefits				p-value
			Treatment group rate (%)	Comparison group rate (%)	Estimated difference (% points)	Significant difference?	
Out-of-work benefits	5,842	338,674	59	59	-1 to +1	No	0.99
Job Seekers Allowance	5,842	338,674	51	50	-0 to +2	No	0.12

Table 4: Time spent receiving out-of-work benefits during the one-year period after release from prison

Analysis	Number in treatment group	Number in comparison group	Average time receiving benefits (days)				p-value
			Treatment group time	Comparison group time	Estimated difference	Significant difference?	
Days receiving Out-of-work benefits (whole group)	5,842	338,674	125	134	-12 to -5	Yes	0.00
Days receiving Out-of-work benefits (benefits recipients only)	3,457	210,508	212	227	-	-	-

Annex B

Further information on the measures used in the analyses can be found in the tables below.

Employment measures

Variables	Comments
One-year employment rate	<ul style="list-style-type: none"> • P45 employment. This excludes some individuals who held non-P45 employment e.g. self-employed. • No minimum length of spell required to be included as a valid employment term. • Uses linked data from an existing cross-government data share with Her Majesty's Revenue and Customs. • Employment spells that began before the offender's release date from prison were not excluded.
Employment rate (1 month after release)	<ul style="list-style-type: none"> • A subset of those employed at any point during the one-year period, limited to those employed at 1 month after their release from prison.
Employment rate (12 months after release)	<ul style="list-style-type: none"> • A subset of those employed at any point during the one-year period, limited to those employed at 12 months after their release from prison.
Time in employment (Whole group)	<ul style="list-style-type: none"> • The total number of days in employment is counted for each person, regardless of employment status, and an average calculated for the treatment and comparison groups (i.e. those who were not employed during the 12 months contribute '0 days' to the average). • Where an individual has multiple spells that overlap, the days are not double-counted. • This measure gives an indication of the overall impact of the intervention.
Time in employment (Employed only)	<ul style="list-style-type: none"> • This only includes people with at least one employment spell during the one-year period after their release from prison. • The total number of days in employment is counted for these people, and an average calculated for the treatment and comparison groups (i.e. those who were not employed during the 12 months do not contribute to the average). • Where an individual has multiple spells that overlap, the days are not double-counted. • This measure gives further information about those who were employed at some point during the year.
Time to first employment spell	<ul style="list-style-type: none"> • This only includes those with at least one employment spell during the one-year period after their release from prison. • If employment was held on or before the release date, time to first employment spell is '0 days'.

Benefits measures

Variables	Comments
Out-of-work-benefits rate	<ul style="list-style-type: none"> • Includes incapacity benefit, income support, job seekers allowance, employment support allowance, severe disablement allowance and passported incapacity benefit. • No minimum length of spell required to be included as a valid benefits spell. • Uses linked data from an existing cross-government data share with the Department for Work and Pensions.
Job Seekers Allowance rate	<ul style="list-style-type: none"> • A subset of out-of-work benefits, limited to those receiving Job Seekers Allowance.
Time on benefits (Whole group)	<ul style="list-style-type: none"> • The total number of days receiving out-of-work benefits is calculated for each person, and an average calculated for the treatment and comparison groups (i.e. those who received no benefits during the 12 months contribute '0 days' to the average). • Where an individual has multiple spells that overlap, the days are not double-counted. • This measure gives an indication of the overall impact of the intervention.
Time on benefits (Benefit recipients only)	<ul style="list-style-type: none"> • This only includes people who received out-of-work benefits at some point during the one-year period after their release from prison. • The total number of days receiving benefits is calculated for these people, and an average calculated for the treatment and comparison groups (i.e. those who received no benefits during the 12 months do not contribute to the average). • Where an individual has multiple spells that overlap, the days are not double-counted. • This measure gives further information about those who were in receipt of benefits at some point during the year.