Offender Reentry Programs
Preliminary Evaluation

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Criminal Justice Commission

Kelly Officer

Devarshi Bajpai

Michael Wilson

State of Oregon

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Summary

Offender Reentry Programs in Oregon are funded through the Edward Byrne Memorial Justice Assistance Grant (JAG) Program to increase community-based services and resources to offenders transitioning from Oregon Department of Corrections (DOC) substance abuse and co-occurring residential treatment programs. The program was originally funded in four counties in Oregon over a two year period from April 1, 2009 to March 30, 2011. This preliminary evaluation of the Offender Reentry Programs includes program participants who were released from prison between May 2009 and September 2010. A comparable control group was composed of offenders who successfully completed substance abuse treatment while incarcerated at a DOC institution and were released to a program county before the Offender Reentry Program was implemented.

Both arrest and charge outcomes were analyzed for this preliminary evaluation. The time from release for each offender is between four and 22 months, with an average of about 14 months. The analysis shows that offenders who participated in the Offender Reentry Program had a 33% drop in recidivism as measured by re-arrest compared to offenders who did not participate in the program. Participants in the program also show a 27% drop in recidivism as measured by overall charges and a 33% drop in recidivism as measured by felony charges. This preliminary evaluation shows that the Offender Reentry Program is effective at reducing recidivism and a follow-up evaluation with a longer time to recidivate and a larger sample size is planned.

Program Description

Currently the Department of Corrections (DOC) provides drug treatment to inmates that are assessed to have a high need for these services. DOC provides residential substance abuse or co-occurring disorder treatment programs during incarceration at a DOC institution. Participants in drug treatment programs are adult offenders with a moderate or high risk to recidivate, among other requirements. The Offender Reentry Programs were funded with the intent to continue these services once offenders are released to the community. The program enhances the community-based response to barriers to successful reentry of adult offenders. Emphasis is placed on assessment of the community treatment needs of these offenders and initiation of treatment prior to institution release (reach-in), coordination of community supervision and treatment, and linkage with ancillary services that increase self-sufficiency. Ancillary services may include those related to mental health, employment counseling/career development, and employment, housing, and GED attainment. The main goals of the Offender Reentry Program are to increase public safety and to reduce recidivism.

There are four counties with Offender Reentry Programs: Multnomah, Jackson, Washington, and Josephine. The programs started in May 2009 and continue through the present. For the purposes of this evaluation, offenders that were released between May 2009 and September 2010 were included, providing a total sample size of 358. The majority are in Multnomah County with 224 participants, 55 in Jackson County, 47 in Washington County, and 32 in Josephine County. This includes offenders who completed the program, absconded, or were terminated for another reason from the program. The table below shows summary statistics of the program

participants including gender, age and ethnicity. The majority of the participants are male and white, and the average age is 37. Most of the participants were incarcerated for a property crime, while the remaining are about evenly split for person and statutory crimes. The most common crimes committed by participants were identity theft, followed by burglary in the first degree, theft in the first degree, felony DUII, and burglary in the second degree.

	Re-entry Program Participants (n=358)
% Male	80.7%
% White	83.0%
% Black	12.6%
% Hispanic	2.5%
Average Age	37.0
Person Crime	24.8%
Property Crime	51.9%
Statutory Crime	23.4%

Data

DOC provided data for offenders who participated in drug treatment programs while incarcerated and who were released from January 2007 and September 2010. The data provided demographic and custody specific variables, as well the offenders' Automated Criminal Risk Score (ACRS score) and Texas Christian University Drug Screen (TCU) score. Another risk score available is the Public Safety Checklist (PSC) score for felony reconviction. This score shows the probability an offender will be reconvicted of a felony within three years of release from prison. There were several aspects to consider and decisions made about the data available; see the appendix for details. The Law Enforcement Data Systems (LEDS) database maintained by Oregon State Police was used for the arrest outcome. Arrests in which an offender is finger-printed are entered into LEDS by law enforcement agencies statewide. The Oregon Judicial Information Network (OJIN) database was used for the charge outcome. OJIN contains felony and misdemeanor charges for criminal cases in all counties in Oregon.

Control group

Finding a comparable control group for this population is difficult. The treatment group is comprised of all offenders released to the program counties between May 2009 and September 2010. A control group was comprised of offenders released to the program counties prior to the start of the program. These offenders were released to the program counties between January 2007 and September 2010 and received residential or day drug treatment while incarcerated. The strength with this approach is that the control group is comprised of offenders from the same county. Differences across counties in criminal justice systems and outcomes can be substantial and this approach limits these differences. The weakness with this approach is the difficulty in accounting for changes within the program counties' criminal justice systems during

the study time period that would affect recidivism. We attempted to capture the effect on outcomes of changes in the criminal justice system in a couple of ways; see the Uncontrolled Factor Differences Section in the appendix.

From here the treatment group participants were matched to participants in the control group by county, TCU score, and PSC risk score; see appendix for details. The table below shows the comparison between the treatment and control groups. The TCU score and risk scores are not significantly different, which would be expected since they were included in the matching requirements. The percentage male, percentage white, and percentage black are also not significantly different between the groups. The average age is significantly different, with the treatment group slightly older by an average of about two years.

	Control Group (n=324)	Treatment Group (n=324)	p-value
% Male	83%	80%	0.3643
% White	81%	83%	0.4747
% Black	14%	12%	0.5607
Average Age	34.8	36.9	0.0046
Average TCU	5.3	5.5	0.3146
Risk Score	30%	29%	0.9318

With the matched treatment and control groups, the arrest and charge outcomes can be analyzed. The latest end date used for outcome measurement was March 30, 2011. The length of time to recidivate was determined for each pair as the shortest amount of time between the two from release date to March 30, 2011. Each pair has the same amount of time in which to recidivate, although that window is at different times depending on when the offender is released.

Time to Recidivate Limitations

There are a few limitations to consider in this preliminary evaluation of the reentry program. The follow-up time of offenders to account for recidivism is relatively short, between six months and 22 months, depending on the release date from incarceration. A more typical follow-up period would be 36 months for all participants. Once released, offenders participate in the reentry program anywhere from 1-12 months, with an average of about four months, so the follow-up period includes the time period when the offender is actively participating in the program. Recidivism patterns can vary from in-program time periods to post-program time periods. A follow-up evaluation showing 36 months post-program recidivism rates is planned.

Arrest Outcome

This section looks at an arrest in LEDS as an outcome during the time period following release from prison. The treatment group includes all program participants; those that completed the program, absconded, or were terminated for another reason. The control group is comprised of pair-wise matches to the treatment group; see the control group section above. The length of time to recidivate is unique to each pair. Arrest outcomes for all arrests, person arrests, property

arrests, and statutory arrests are shown in the table below. The table shows multivariate-adjusted arrest rates specifically using logistic regression modeling; see appendix for details.

Arrest Outcome	Control Group (n=324)	Treatment Group (n=324)*	p-value	Effect Size
Any Arrest	27.5%	18.5%	0.0103	-32.8%
Person Arrest	9.6%	7.2%	0.3001	-24.6%
Property Arrest	10.5%	6.5%	0.0782	-38.0%
Statutory Arrest	20.4%	15.5%	0.1248	-24.0%

*Multivariate-adjusted arrest rate, see appendix for details

These results show a significant difference in the likelihood of an arrest for any crime and marginal significance for a property crime. The treatment group is significantly less likely to be arrested for any crime or for property crimes specifically. The treatment group shows a 33% drop for the overall arrest rate and a 38% drop for the property crime arrest rate. There is not a significant difference for arrests for person crimes or statutory crimes, although the p-value for statutory arrests is fairly close to the 0.10 cut-off at 0.125. The results for any arrest were broken out by county; see appendix for details.

Charge Outcome

This table looks at a charge listed in OJIN as an outcome during the time period following release from prison. The table shows charge outcomes for all, misdemeanor, and felony charges. This table shows multivariate-adjusted charge rates specifically using logistic regression modeling; see appendix for details.

Charge Outcome	Control Group (n=324)	Treatment Group (n=324)*	p-value	Effect Size
Any Charge	28.7%	21.1%	0.0349	-26.6%
Misdemeanor Charge	15.7%	9.3%	0.0160	-41.1%
Felony Charge	20.4%	13.7%	0.0303	-32.8%

*Multivariate-adjusted arrest rate, see appendix for details

This table shows the treatment group is significantly less likely to be charged with a misdemeanor or felony crime. The treatment group shows a 27% drop for the overall charge rate, a 41% drop for the misdemeanor charge rate, and a 33% drop in the felony charge rate.

Cost Benefit

The preliminary findings above show that the Offender Reentry Programs have positive impacts on reducing recidivism. Offenders who go through the program are much less likely to be rearrested or charged with a new crime. However, program effectiveness is not the same as cost-effectiveness. It is important to know if investing tax payer money into these programs is a

sound investment. The Oregon Criminal Justice Commission has developed a cost-benefit model that estimates the benefits to tax payers and crime victims of programs that reduce crime.[1] The benefits of the Offender Reentry Program can be estimated using this model and we can answer the question of whether or not this program is cost-effective.

The costs of the program are estimated from actual CJC spending. CJC funds supplemented existing resources, and do not accurately represent the total cost of services delivered. They do, however, represent the *additional* cost of this program. During the original two year grant period from April 2009 to March 2011, the programs cost $1,610,505 and served 471 offenders. This results in an average cost of $3,419 per offender.

Using the effect size estimated above (-26.6%) and the cost-benefit model developed by the CJC, the benefits or avoided costs of crime can be estimated. An estimated effect size of 27% means that for every 10 offenders who enter the Offender Reentry program 3.6 felony convictions are avoided over a 10 year follow up. These 3.6 avoided convictions result in many more than 3.6 avoided victims, arrests and charges. This also avoids tax payer costs for probation, jail, prison and post-prison supervision. On average the benefits of the program far outweigh the costs. The estimated benefit of one offender who enters the reentry program in terms of avoided victimization costs and avoided tax payer costs is more than $23,000. This means that for every dollar invested in Offender Reentry Programs there are $6.73 of benefits. This is a conservative estimate as the cost-benefit model does not include the savings from avoided misdemeanors or the savings to other non-criminal justice outcomes.

Cost-Benefit Analysis of Reentry Programs	
Benefits of Reduced Recidivism	
Criminal Justice Tax Payer Cost Avoided per Participant	$8,631
Crime Victim Costs Avoided per Participant	$14,388
Total Crime-Related Costs Avoided per Participant	$23,019
Cost of the Reentry Program	$3,419
Net Gain per Participant	$19,600
Benefit-to-Cost Ratio	$6.73

[1] The CJC cost-benefit methodology is available at http://www.oregon.gov/CJC/docs/Cost_Benefit_Methodology_090106.pdf.

Appendix

Data Considerations

There are several aspects of the data we received that needed consideration. The Automated Criminal Risk Score (ACRS) is used by the Department of Corrections when considering inmate programming. It provides a score for the risk to recidivate. One of the variables used for the ACRS score calculation is earned time. Starting in 2009, HB 3508 increased the maximum earned time from 20% to 30%. The Department of Corrections verified that adjustments had been made to the ACRS score calculation to account for this, however we did see differences when comparing the earned time variable.

Another risk score available is the Public Safety Checklist (PSC) score for felony reconviction. This score shows the probability an offender will be reconvicted of a felony within three years of release from prison. This score takes into account more variables than the ACRS score, doesn't require an adjustment for 30% earned time, and can be shown statistically to have better model fit than the ACRS model. For these reasons it was decided to use the PSC score in the evaluation over the ACRS score.

The Department of Corrections also provided the Texas Christian University (TCU) Drug Screen score. This is a score between zero and nine that measures drug dependency. A score of at least three is required for residential drug treatment while incarcerated. However, in the data provided there were TCU scores that were less than three. Since it was a requirement to enter residential drug treatment, we changed any TCU scores less than three to three as part of the data cleaning process.

Control group

Finding a comparable control group for this population is difficult. The treatment group is comprised of all offenders released to the program counties between May 2009 and September 2010. A control group comprised of matched offenders from the remaining counties in Oregon that were released during the same time period was considered. These offenders received resident or day drug treatment while incarcerated, but we assume did not receive additional drug treatment once released to the county. The weakness with this approach is the substantial variation between criminal justice systems in counties across Oregon. This would be very difficult to account for in the evaluation, and any effects of the criminal justice system would be different for each county. Instead, it was decided to comprise a control group from offenders released to the program counties prior to the start of the program. These offenders were released to the program counties between January 2007 and September 2010 and received residential or day drug treatment while incarcerated. The strength with this approach is that the control group is comprised of offenders from the same county. The substantial variation between criminal justice systems in counties in Oregon is controlled for with this design. The weakness with this approach is the difficulty in accounting for changes within the program counties' criminal justice systems during the study time period that would affect recidivism. We

attempted to capture the effect on outcomes of changes in the criminal justice system in a couple of ways; see the Uncontrolled Factor Differences Section.

Matching Technique

A matching algorithm was used to find pair-wise matches for each participant in the treatment group. The matching was done on the county, Texas Christian University Drug Screen (TCU), and Public Safety Checklist risk score (PSC) variables. The matching allowed for a 3 point difference in TCU score, 5% difference in PSC score, and was done within county. After matching there are 324 matched pairs, leaving 34 participants in the treatment group unmatched, and therefore not included in the evaluation.

Uncontrolled Factor Differences

We attempted to measure the effect on outcomes of the uncontrolled factors in this comparison in a couple of ways. First, we looked at prison releases to the non-program counties during this time period that received residential or day drug treatment while incarcerated. The matching technique described above was used to match offenders released between May 2007 and April 2009 to offenders released between May 2009 and April 2010. We would expect the recidivism rates between the two groups to be similar, unless some unknown factor or factors affected recidivism. The table shows arrest rates one year from the incarceration release date between the time periods.

Non-program Counties	Matched Offenders that received residential or day drug treatment while incarcerated			
	Released between May 2007 and April 2009 (n=723)	Released between May 2009 and April 2010 (n=723)	p-value	Effect Size
1 year Arrest Rate	32.1%	31.8%	0.9102	-0.9%

The recidivism rates did not substantially change between these time periods, which suggest there were not substantial changes in the criminal justice systems between these time periods that affected recidivism. This analysis shows no substantial change in the non-program counties, but what about within the program counties? We attempted to look at this by examining one year recidivism rates for prison releases from May 2007 to April 2010 for those that did not receive residential or day drug treatment while incarcerated. These offenders did not qualify for the reentry program in the county. The same matching and comparison was done as above to see if the recidivism rates change between these two time periods.

Program Counties	Matched Offenders that did NOT receive residential or day drug treatment while incarcerated			
	Released between May 2007 and April 2009 (n=671)	Released between May 2009 and April 2010 (n=671)	p-value	Effect Size
1 year Arrest Rate	32.9%	30.7%	0.3906	-6.6%

The recidivism rates in the program counties for these offenders did not significantly change between these time periods. If we assume that this relationship holds for offenders that did receive residential for day drug treatment while incarcerated, then it does not appear that uncontrolled factors are affecting recidivism during this time period.

Unadjusted Effect Sizes by County

To look at results within county, ideally we would have multivariate-adjusted arrest rates for each. Unfortunately the sample size within county is not large enough for multivariate modeling. The table below shows unadjusted arrest rates and effect sizes for each county. The arrest rates and effect sizes reported have not been adjusted for demographic and risk score factors, as was done for the overall sample. A chi-square test was used to statistically test the difference between the control group and treatment group arrest rates.

County	Any Arrest Outcome				
	Sample Size	Control Group	Treatment Group*	p-value	Effect Size
Multnomah	213	28.2%	16.0%	0.0024	-43.3%
Washington	45	33.3%	31.1%	0.8215	-6.7%
Jackson	40	20.0%	25.0%	0.5923	25.0%
Josephine	26	23.1%	19.2%	0.7342	-16.7%

**Unadjusted Arrest Rate*

The sample sizes in Washington, Jackson, and Josephine Counties are small; all less than 50 and only 26 in Josephine County. The differences between the control and treatment groups in these counties are not significant, which is not surprising given the small sample sizes. The effect sizes for these small sample sizes are also difficult to interpret, due to small sample sizes. The difference between arrest rates for the control group and treatment group in Multnomah County is significant, and it drives the significance in the overall group.

Multivariate Models

Logistic regression analysis was used to calculate the model-adjusted arrest rates. The models for any, person, property and statutory arrests are shown below, as well as models for any, misdemeanor and felony charges. The race variable was not included in the person arrest or the misdemeanor charge model due to poor model fit. The regression coefficient was used to adjust the arrest rate for the treatment group. Using the arrest rate of the comparison group

(abbreviated as ‘c’) and the regression coefficient for the group variable (abbreviated as ‘a’) the adjusted arrest rate for the treatment group was calculated as follows:

$$\frac{(\frac{c1-c}{\quad}) * \exp(a)}{1 + \left(\frac{c}{1-c}\right) * \exp(a)}$$

	Any Arrest		Person Arrest	
Variable	Parameter Estimate	p-value	Parameter Estimate	p-value
Group	0.5154	0.0103	0.3081	0.3001
Intercept	-4.5282	<.0001	-1.8618	0.0284
Gender	-0.8492	0.0083	-0.9167	0.0879
White	1.0162	0.2080	--	--
Black	1.8205	0.0301	--	--
Hispanic	0.8910	0.3930	--	--
TCU score	0.0371	0.3515	-0.0928	0.1361
age	0.0097	0.3789	-0.0248	0.1389
PSC risk score	0.0485	<.0001	0.0226	0.0258

	Property Arrest		Statutory Arrest	
Variable	Parameter Estimate	p-value	Parameter Estimate	p-value
Group	0.5224	0.0782	0.3337	0.1248
Intercept	-5.3135	0.0002	-4.3649	<.0001
Gender	-1.7105	0.0199	-0.7863	0.0285
White	0.5575	0.6053	0.5839	0.4675
Black	0.8277	0.4646	1.5472	0.0645
Hispanic	0.3097	0.8363	0.8616	0.4069
TCU score	0.0888	0.1231	0.0328	0.4500
age	0.0092	0.5792	0.0108	0.3719
PSC risk score	0.0436	<.0001	0.0468	<.0001

	Any Charge		Misdemeanor Charges		Felony Charges	
Variable	Parameter Estimate	p-value	Parameter Estimate	p-value	Parameter Estimate	p-value
Group	0.4111	0.0349	0.6040	0.0160	0.4776	0.0303
Intercept	-4.2979	<.0001	-3.6592	<.0001	-4.2254	<.0001
Gender	-0.9890	0.0020	-0.7757	0.0632	-0.9301	0.0127
White	1.0714	0.1811	--	--	0.5175	0.5165
Black	1.9369	0.0199	--	--	1.1860	0.1548
Hispanic	1.2434	0.2137	--	--	0.7851	0.4458
TCU score	0.0434	0.2624	0.0016	0.9742	0.0839	0.0531
age	0.0086	0.4265	0.0068	0.6188	0.0062	0.6122
PSC risk score	0.0452	<.0001	0.0386	<.0001	0.0388	<.0001