OCE – Program Effectiveness and Identifying the

Best Offenders for the Program

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Oregon Correctional Enterprises (OCE) is a Department of Corrections (DOC) program that provides vocational training and experience to DOC inmates. OCE hires and trains inmates for many different vocations including laundry, woodworking, metal working, optician work, call centers, and other vocations. Vocational training and work experience may reduce recidivism by developing skills and providing funds for post-release housing.

These analyses quantify the effectiveness of OCE and identify the inmate populations best served by OCE. Quantifying the effectiveness of OCE programs recognizes the reduction in recidivism attributable to inmates participating in OCE programs. The second analysis recognizes the types of inmates who benefit the most from OCE programing. Understanding the effectiveness of OCE programming and targeting their services to particular inmate populations will allow OCE to maximize their effectiveness. The improvement in effectiveness may require changes to the business model. The outcome measure is recidivism – measured as a felony reconviction within three years of release. OCE is defined as inmates employed by OCE during their incarceration; these analyses do not quantify service effectiveness nor service matching for specific OCE programs.

The data: The first analysis which quantifies OCE effectiveness uses all 24,358 DOC inmates released from DOC correctional facilities between January 1, 2007 and December 31, 2011. There were 17,064 non-OCE inmates who did not recidivate and 5,775 non-OCE inmates who did recidivate (25.3%). For inmates provided OCE programming (N=1514), there were 1228 inmates who did not recidivate and 286 (18.9%) inmates who did recidivate. The overall recidivism rate for all DOC releases was 24.9% including 6061 recidivists and 18,294 non-recidivists. For those released between 2007 and 2011, about 6% of the inmates worked for OCE during their incarceration.

Determining the effectiveness of the OCE program

There were over 24,000 inmates released from DOC between 2007 and 2011. Some of these inmates worked for OCE and some did not. Logistic regression can recognize the relationship between OCE involvement and recidivism after release. The variables considered in the model are race, gender, risk to recidivate (Automate Criminal Risk Score or ACRS), admission age, length of stay, number of days worked for OCE in the last 2 years of incarceration, number of DOC discharges, and number of days worked at OCE during their incarceration.

Race is a categorical variable that includes Asian, African-American, Hispanic, Native American, and Caucasian. Risk to recidivate or ACRS is generated from static variables and estimates range from 0 to 1. Those with ACRS scoring close to zero are very unlikely to recidivate; those scoring close to one are extremely high risk to be convicted of a new felony in the three years post-release. Admission age is the age the offender enters a DOC facility. Age at release is embedded within the ACRS equation. Length of stay reflects the time spent in DOC facilities during a single incarceration. OCE time in the 2 years prior to release was suggested by OCE staff; the suggested inclusion of this variable was an important contribution to this analysis. The numbers range from zero to two and refer to the number of years worked during the last two years of an offender's incarceration. If someone works for OCE during 6 months of their last 24 months incarcerated, the variable would be coded .5 (half a year in the last 2 years of incarceration). The number of discharges from DOC was initially developed for merging data within DOC. This variable has been included in numerous risk equations despite its original purpose. A discharge requires a release from a DOC facility, being placed on parole, and completing their parole obligations. Some offenders may continue their criminality and return to prison and may not be "discharged" for many years; other offenders comply with the parole stipulations and are discharged after completing parole. Although the number of discharges is difficult to interpret, the variable periodically enters risk equations as proxies for other variables (e.g. crime severity, criminal activity while on parole, time on parole etc.). The number of hours each inmate works for OCE is well documented. Inclusion of this variable in the final model would suggest that working for OCE is associated with an increase or decrease in subsequent recidivism. A positive estimate for OCE hours would imply offenders work more OCE hours are more likely to recidivate. A negative parameter estimate would imply offenders with more OCE hours are less likely to recidivate. A nonsignificant association between OCE hours and recidivism would imply the number of OCE hours worked had no association with subsequent recidivism.

Results: Table 1 presents the variables associated with recidivism. The variables not associated with recidivism include number of days worked at OCE (P=.29) and number of DOC discharges (P=.93). Most race/ethnic groups, risk to recidivate, gender, admission age, length of stay, and OCE time in the last 2 years of incarceration are all significantly associated with recidivism.

Table 1. Final Model for All Releases

Parameter	Estimate	Odds ratio	P-value
Intercept	-1.360		<.001
Race			
Asian	-0.118	0.809	0.321
African-American	0.206	1.119	<.001
Hispanic	-0.573	0.513	<.001
Native American	0.391	1.346	<.001
Gender	-0.118	0.790	<.001
Risk	3.645	38.281	<.001
Admission age	-0.030	0.970	<.001
Length of stay	0.000	1.000	0.002
OCE time in the last 2 years	-0.393	0.675	<.001

There are five different ethnic groups – Asian, African-American, Hispanic, Native American, and Caucasians. For these analyses, each ethnic groups is compared to Caucasians. For groups that are not statistically significant, their recidivism and the recidivism of Caucasians are the same. When statistical differences exist, a particular race/ethnicity recidivates at a higher rate or lower rate than Caucasians. When statistical differences, do exist, their recidivism is either significantly higher (i.e. positive parameter estimate) or significantly lower (i.e. negative parameter estimates). The magnitude of the racial/ethnic effect is recognized by the odds ratio. Groups recidivating at higher rates will have positive parameter estimates (i.e. and odds ratios greater than 1.0). An odds ratios of 1.25 implies that a particular race/ethnic group recidivates at rates 25% above Caucasians. Racial/ethnic groups with negative parameter estimates and odds ratios of less than 1.0 are less likely than Caucasians to recidivate. An odds ratio of .75 implies that particular race/ethnic group is 25% less likely to recidivate

relative to Caucasians. For most logistic regression analyses, the odds ratios provide the most useful information. Essentially the deviation from 1.0 identifies the magnitude of the effect. Ratios above 1.0 imply recidivism is higher and ratios below 1.0 imply recidivism is lower.

For this analysis, Asians and Caucasians have similar recidivism rates (P=.32). African-Americans recidivate approximately 12% higher than Caucasians after accounting for all the other variables in the model. Hispanics tend to recidivate approximately 49% below the recidivating rate of Caucasians; this large effect could be attributable to ICE detainers that are not acknowledged in the statistical model. Native Americans are 35% more likely to recidivate than Caucasians with similar demographics and similar criminal histories.

Females are generally less likely to recidivate and less likely to be involved with violent crime. For this analysis, female offenders are 21% less likely to recidivate when compared to male offenders with similar demographics and criminal histories. The reason for the lower females recidivism rate cannot be identified with these analyses.

ACRS is an actuarial risk equation that assesses offender's risk when entering DOC. Although some variables may change during incarceration (e.g. age and earned time), most ACRS variables are consider static (e.g. type of crime and time incarcerated). ACRS is calculated at intake and does not recognize any positive or negative influences which might occur during an offender's incarceration. Thus ACRS looks at an offender's characteristics known at intake and looks at the recidivism rate of similar individuals who entered DOC previously. Visits, program completion, behavioral issues are not considered in the ACRS equation. ACRS is always the most important variable in the model that uses recidivism as the outcome measure. For these offenders, an ACRS score of one is 38 times more likely to recidivate compared to individuals with ACRS scores approximating zero.

For most offenders, older offenders are generally associated with lower risk. For this analysis, for every year older the offender is at intake, there is a 3% reduction in the likelihood someone will recidivate. If you have two very similar individuals separated by10 years in age, the older offender is approximately 30% less likely to recidivate.

Length of stay is positively associated with recidivism. For every additional month of incarceration, recidivism increases slightly. In reality, the small increases in recidivism attributable to length of stay are generally negated by increasing age of the offender. The increased recidivism estimate is possibly associated with offenders becoming "institutionalized." This process might occur

when offenders become accustomed to prison life and are considerably less comfortable with life in the community. The situation may be attributable to difficulty finding employment, difficulty finding housing, and living in a considerably less structured environment.

Most variables in the OCE model are common when three year recidivism is the outcome measure. In addition, the magnitude of the effects mimic many identified in previous analyses. Of greatest interest is the variable "OCE time in the last 2 years of incarceration." Those who did not work for OCE in the last 2 years of incarceration are coded as zero; those working one of the last two years are coded as 1, and those working their last 2 years are coded as a 2. For each year worked in the last 2 years of incarceration, the average reduction in recidivism is 32.5%. For offenders with a 30% risk of recidivating at release, those who worked at OCE would have a 20% likelihood of recidivating (32.5% reduction from 30% approximates 20%). Individuals who worked for OCE the last two years of incarceration would have a much lower likelihood of recidivism. These analyses do not suggest why someone working at OCE would be much less likely to recidivate – it could be improved likelihood of employment, a better wage, the soft skills developed in a working environment, or any other benefits working at OCE.

Identifying the inmate population most impacted by OCE services

The first analysis associates particular variables with changes in recidivism. Some variables are associated with increases in recidivism (e.g. Automate Criminal Risk Score or ACRS), some variables are associated with decreases in recidivism (e.g. age), and some variables are not statistically associated with recidivism (e.g. total number days worked at OCE). Recognizing the associations between particular variables and recidivism is useful when targeting inmate populations expected to more effectively reduce recidivism attributable to OCE programming. These analyses might also identify OCE business practices that most influence recidivism of offenders.

Results: This analysis considers only those provided OCE services. The analysis asks if there are particular inmate populations more impacted by OCE programs than other inmate populations. The variables considered include gender, race, risk, age, time incarcerated, total number of OCE days worked, and OCE time in the last 2 years before release. There were 1,511 OCE offenders released between 2007 and 2011. Of these male and female offenders, 287 recidivated in the three years post-release (18.9%). The variable significantly associated with recidivism of OCE offenders include race, risk

5

(ACRS), admission age, and OCE time in the last two year of incarceration (Table 2). The variables not associated with recidivism of OCE offenders are gender, number of times an offender has been discharged from DOC, total days worked for OCE, and the length of their incarceration. These results suggest that male and female offenders who access OCE programming recidivate at the same rate. These results also suggest the number of times an offender has completed their parole is not indicative of subsequent recidivism. No association between total number of days worked at OCE suggests those working many days during their incarceration are equally likely to recidivate as offenders who work a few days. Previous DOC studies associating total number of OCE days worked and recidivism have concluded OCE work does not reduce offender recidivism. Lastly, the time incarcerated and likelihood to recidivate are not related. For many studies, shorter periods to recidivate (e.g. one year recidivism) often suggest longer periods of incarceration are associated with reduced recidivism. Longer

Table 2. Final Model for OCE Releases

Parameter	Estimate	Odds ratio	P-value
Intercept	-0.722		0.012
Race			
Asian	-0.392	0.771	0.449
African-American	0.375	1.659	0.094
Hispanic	-0.429	0.742	0.119
Native American	0.577	2.029	0.089
Risk	4.470	87.310	<.001
Admission age	-0.041	0.960	<.001
OCE time in the last 2 years	-0.431	0.650	0.004

recidivism periods (e.g. three years or more to recidivate) are often associated with increased recidivism. Some suggest that longer periods of incarceration are associated with some deterrence immediately after release; the higher recidivism estimates for longer incarcerations could reflect institutionalization of offenders incarcerated for long periods.

Summary: The analyses of all releases from DOC suggests OCE employment and vocational skill development greatly reduces subsequent recidivism. The more an individual works for OCE in the final two years of their incarceration, the lower the likelihood someone will recidivate. Although the effects of OCE are large relative to other inmate programs, very few (6%) of those being released have actually worked for OCE; even fewer have worked for OCE during their last two years of their incarceration. Interestingly, although OCE involvement in the final two years of incarceration is effective with reducing recidivism, the total number of OCE days worked during an incarceration is not associated with reduced recidivism.

Race is an important variable when considering the risk to recidivate. Comparison of the odds ratios from all releases with odds ratios for OCE releases, OCE tends to be less effective with African-Americans or Native Americans. Although not statistically significant, the odds rations from these OCE offenders suggest some minorities may not benefit as much from OCE involvement as other ethnic/racial groups.

The odds ratio for risk is considerable higher for OCE offenders than all releases from DOC facilities. The high odds ratio for OCE offenders might suggest the OCE program is less effective the highest risk offenders. Although conventional wisdom might suggest treatment should target the highest risk offenders, vocational training might be better suited for lower or moderate risk offenders.

The odds ratios for age at admission are very similar. If the difference tween estimate is real, OCE might be slightly more effective with slightly older offenders (at admission). The difference between estimates for the average sentence would be non-existent but might have some influence on those serving long sentences.