_____ Research Report _____

Outcomes for Offender Employment Programs: Assessing CORCAN Participation

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Outcomes for Offender Employment Programs: Assessing CORCAN Participation

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Executive Summary

Key words: *CORCAN; offender employment; institutional employment; offender reintegration.*

Approximately 60% of federally sentenced offenders in Canada are assessed at intake as having significant employment needs. Recognising the important role of stable, meaningful employment in reintegration, employment programs are offered to offenders in the Correctional Service of Canada (CSC) as a core correctional intervention. As part of CSC's Employment and Employability Program (EEP), CORCAN, a special operating agency within CSC, provides employment related activities/interventions to develop the employability skills of offenders through meaningful work experience and vocational certification.

The current research follows an earlier evaluation of CSC's institutional employment programs (Taylor et al., 2008), providing a further examination of the relationship between CORCAN participation and institutional and post-release outcomes. Outcomes of three study groups were compared: 1) offenders who participated in CORCAN employment, 2) offenders who participated in general CSC institutional employment (not including CORCAN), and 3) offenders who had no employment assignment during their incarceration. The analyses examined both institutional and community outcomes, including: rates of institutional charges and admissions to segregation, time to and type of release to the community, community job attainment and maintenance, and recidivism (as measured by any revocation and revocation with a new offence while on conditional release).

Participation in CORCAN employment was found to be associated with a number of positive outcomes. For instance, 61% of CORCAN-employed offenders were granted day parole in comparison to 41% of CSC-employed and 51% of non-employed offenders. Finally, CORCAN-employed offenders were 1.09 times more likely to attain a job than CSC-employed offenders and 1.37 times more likely to attain a job than non-employed offenders. Furthermore, participation in CORCAN's Community Employment Centers (CECs), and vocational certification in addition to CORCAN employment, were found to contribute to an increased likelihood of obtaining a job in the community.

Involvement in CORCAN was not found to be associated with the length of time that offenders maintained their first job post-release. Furthermore, offenders who were CORCAN-employed were not less likely to be revoked for any reason or be revoked for a new offence than CSC-employed or non-employed offenders. Results, however, provided evidence for the stabilizing effect of community employment whereby offenders who were employed in the community were almost three times less likely to return to federal custody with a new offence than those who were not employed.

Finally, based on the objectives and priorities of CORCAN and CSC, key performance indicators to measure the ongoing success of CORCAN in fulfilling its mandate were identified.

Table of Contents

List of Tables

List of Appendices

Introduction

In response to the literature suggesting a link between employment needs and criminal behaviour (Andrew & Bonta, 1994; Gendreau, Goggin, & Gray, 1998), many correctional organizations worldwide have adopted employment and employability based interventions as a key rehabilitation component. Employment interventions are proposed to assist offenders in the reintegration process by mitigating the systematic barriers they face as a result of poor employment skills and, in turn, contribute to post-release success and public safety. Examples of these intervention strategies include institutional employment programs that allow offenders to develop generic work skills, acquire on-the-job work experience, and earn vocational certification linked to community labour market needs. Such programming also has the potential to contribute to the safe and orderly operation of institutions by keeping offenders engaged in pro-social pursuits and providing an overall positive influence on their behaviour.

Several meta-analyses and reviews have been conducted to examine the effects of offender vocational education and work programs on post-release outcomes. Some have established that such programs have an impact on decreasing re-offending; however, methodological shortcomings have limited the ability to draw firm conclusions regarding their efficacy. For instance, the research of Bouffard, Layton, MacKenzie, and Hickman (2000) pointed to support for offender vocational education and employment programs in reducing recidivism, but the authors noted the lack of scientifically rigorous program evaluations. Similarly, Wilson, Gallagher, and MacKenzie (2000) established that participants of corrections-based education, vocation and work programs were employed at a higher rate and recidivated at a lower rate than nonparticipants. Reductions in reoffending, however, were found to be greater for education programs than for work programs. Interestingly, Visher, Winterfield, and Coggeshall (2005) found that community employment programs for ex-offenders did *not* have an impact on recidivism. One of the primary methodological weaknesses noted in the literature is the difficulty in ruling out alternative explanations for positive effects such as the impact of multiple program components, lack of comparison group(s), and potential "self-selection" bias (i.e., pre-existing differences between program participants and the comparison group). Most importantly, the factors associated with employability may be confounded with factors related to

reduced criminal risk, and if not controlled, can inflate the impact of employment interventions.

More recent studies have attempted to address previously noted methodological weaknesses and have demonstrated the positive link between institutional employment programs and community outcomes, including increased success in finding employment (Brews, Luong, & Nafekh, 2010; Taylor et al., 2008; Visher & Kachnowski, 2007) and decreased likelihood of being readmitted to custody (Brews, Luong, & Nafekh, 2010; Callan & Gardner, 2007; Nafekh, 2003; Tripodi, Kim, & Bender, 2010). Although the majority of studies have primarily assessed the impact of work programs on post-release outcomes, research has also demonstrated that institutional work participation can have a positive impact on institutional behaviour through reduced institutional infraction rates (Maguire, 1996), and that offenders perceive positive benefits from having participated in employment programs while incarcerated (Hunter & Boyce, 2009; Shivy et al., 2007).

CSC's Employment Programs

The Canadian federal offender population demonstrates significant employment and employability needs. Approximately 60% of offenders have employment needs identified at intake to federal custody.[1] Many of these offenders have unstable job histories, are unemployed at the time of arrest, and lack the employability skills that employers are seeking in today's workforce. Given the important role of stable, meaningful employment in the reintegration process, CSC provides employment interventions, both within the institution and the community, and has established an employment program continuum to enhance the employment and employability of offenders.

Employment programs are one of the core correctional interventions offered to offenders in CSC. CORCAN is a Special Operating Agency (SOA) within CSC responsible for helping to deliver CSC's Employment and Employability Program (EEP). The EEP provides employment related activities/interventions that offer a continuum of programming throughout an offender's sentence; from the intake process (e.g., employment needs assessments, correctional plan and employment assignments), throughout incarceration (e.g., education programs, vocational and on-the-job training, work releases), and following release into the community (e.g., community

[1] Data were extracted from OMS and reflected all offenders in federal custody as of December 1st, 2012.

employment centres). The main objectives of the EEP is to develop the employability skills of offenders through meaningful work experience and skills programs that contribute to a safe institutional environment, successful reintegration, decreased recidivism, and ultimately safer communities. The institutional component of CSC's employment strategy comprises the following:

1) CORCAN work assignments: Offenders have the opportunity to gain work experience and on-the-job training through CORCAN production shops. These are commonly referred to as "prison industries" in the literature. CORCAN currently operates in 31 of 52 institutions across CSC and provides products and services for four business lines: textiles, manufacturing, construction, and services (e.g., printing, laundry, etc.). These shops operate in a businesslike manner to provide the most realistic work environment possible. Products and services produced are held to private sector norms and standards, and are typically used within CSC or Canada's public sector.

2) Vocational training and certification: CSC also affords offenders the opportunity to participate in a wide range of vocational certification programs aimed at better preparing offenders for employment in the community. Offenders receive certifications in fields related to labour market needs (e.g., construction trades; safety; food industry and food safety; general cleaning and maintenance; horticulture; transport/operator and equipment; textile).

3) National Employability Skills Program: The National Employability Skills Program (NESP) provides employability skills training to incarcerated offenders with identified employment needs with the goal of developing and/or enhancing offenders' generic employability skills to better prepare them for employment upon release. The program uses the model developed by the Conference Board of Canada, as outlined in the Employability Skills 2000+ (Conference Board of Canada, 2000).

4) CSC work assignments: Offenders can also participate in CSC institutional work assignments. These are different from CORCAN work assignments in that they primarily consist of jobs that are maintenance-oriented and provide essential services to the institution (e.g., cleaning, laundry services, cooking, administration, and grounds-keeping).

Effectiveness of CSC's employment programming. Several evaluations have been conducted on CSC's employment strategy, including the institutional component, Community Employment Centres (CECs), and the National Employability Skills Program (NESP). Overall,

the results of these evaluations found that participation in employment programming was associated with positive correctional outcomes. For instance, Taylor and colleagues (2008) demonstrated that CSC institutional employment and vocational programs was related to offender productivity (e.g., decreased involvement in institutional incidents), job readiness (e.g., reductions in employment need), and job attainment. Although the study did not find that employment programming was associated with a decreased likelihood of recidivism, offenders employed in the community (whether they had previously attended an employment program or not) were less likely to recidivate than those who were not employed. Brews, Luong, and Nafekh (2010) found that participation in CECs was associated with an increased likelihood to obtain community employment and a decreased likelihood to be readmitted to custody for both technical violations and new offences. Finally, participation in NESP was found to be associated with significant improvements in offenders' employability skills levels. Participation was also associated with an increased likelihood to gain community employment for women offenders, while participation was associated with a reduced likelihood of return to federal custody for male offenders and Aboriginal offenders (Didenko, Luong, & Carré, 2010).

Present Research

The current study follows an earlier evaluation of CSC's institutional employment programs (Taylor et al., 2008) and offers a further examination of the relationship between participation in employment programs and institutional and community outcomes. A primary objective was to assess the effectiveness of CORCAN participation on correctional institutional and post-release outcomes.

The following questions were examined: 1) Do CORCAN participants have better institutional outcomes than non-CORCAN participants, including lower rates of institutional charges and admissions to segregation, a smaller proportion of sentence served at release, and a greater likelihood of being granted discretionary release?; 2) Do CORCAN participants have better community employment and supervision outcomes than non-CORCAN participants, including acquiring employment more quickly, retaining employment for a longer period of time, and lower recidivism rates (as measured by any revocation and revocation with a new offence while on conditional release)?; and 3) Does the combination of CORCAN employment and vocational certification result in the best institutional and community outcomes? Outcomes for

women offenders and Aboriginal offenders were also investigated.

A secondary objective of the present study was to identify key performance indicators that would assist CORCAN with the ongoing assessment of its effectiveness in achieving its mandate. Thus, based on the results of the assessment of outcomes for CORCAN participants, several indicators were proposed for the purpose of performance measurement.

Method

Participants

The sample for this study was taken from all federal offenders who were incarcerated on their first term between April 1, 2006 and March 31, 2011.[2] For the purpose of the present study, only offenders who were released prior to the end-of-the-study period were included (*N* = 11,430).[3] Three study groups were formed based on offenders' participation in institutional employment activities:

1. *CORCAN-employed*. The first group included offenders who were CORCAN-employed, recognizing that they may have also participated in other CORCAN job readiness activities (i.e., NESP or vocational training[4]), but did not participate in CSC work assignments during their incarceration (*n* = 1,516).
2. *CSC-employed*. The second group included offenders who were CSC-employed, but were not CORCAN-employed and did not participate in other CORCAN job readiness activities during their incarceration (*n* = 7,282).
3. *Non-employed*. The final group included all offenders who did not participate in any type of CORCAN activity or CSC work assignment during their incarceration (*n* = 2,632).

It should be noted that offenders who did not fall under one of the three groupings were excluded from the analyses. This included, for example, offenders who may have been CORCAN-employed, but who also participated in CSC work assignments. This restriction was set to better differentiate the effects of CORCAN employment from those of CSC employment.

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[2] A criterion of an admission date of 1997 or later was selected as a result of database limitations prior to this date.
[3] This method was chosen to ensure that in profiling the non-employed group of offenders, that they were indeed not employed during any part of their incarceration (even after the study end date of March 30, 2011). This also allowed for consistency in the profiling of the study sample that was used to examine community outcomes. In doing so, however, it is important to note that the profile of the study groups did not include those offenders who participated in institutional employment but were not released at the time the data was extracted for the present study. Therefore, a comparison was done between the profile of all incarcerated offenders and the profile with only those offenders who were released, and the two were found to be comparable.
[4] It should be noted that due to data quality issues, it was not possible to determine which offenders participated in vocational training, but rather only those who received a vocational certificate(s). Therefore, the data and corresponding groups formed reflect the number of offenders who obtained vocational certificate(s) rather than actual participation in vocational training.

Table 1 presents the breakdown by region at intake for each of the study groups. It is interesting to note that there appears to be a disproportionate number of offenders in the CORCAN-employed group in the Atlantic and Prairies regions, a disproportionate number of offenders in the CSC-employed group in the Quebec region, and a disproportionate number of offenders in the non-employed group in the Ontario region. As a result, regional differences will be explored in more detail in the analysis.

Table 1

Frequencies of Offenders in Each Study Group by Region at Intake

	CORCAN-employed (n = 1,516)		CSC Employed (n = 7,282)		Non-Employed (n = 2,632)		Total (N = 11,430)	
	%	*n*	%	*n*	%	*n*	%	*n*
Atlantic	32.7	490	40.6	608	26.7	399	13.1	1,497
Quebec	7.2	204	80.7	2,295	12.1	344	24.9	2,843
Ontario	7.9	250	59.3	1,868	32.8	1,034	27.6	3,152
Prairies	16.4	458	63.8	1,777	19.8	552	24.4	2,787
Pacific	9.9	114	63.8	734	26.3	303	10.1	1,151

Measures

All offender information used in the present study was extracted from components of the Offender Management System (OMS), a computerized file system maintained by CSC to manage information on all federally sentenced offenders. This includes demographic information, sentence information, criminal histories, criminal history risk and criminogenic need profiles, information on correctional program and employment participation, institutional charges (minor and serious), admissions to segregation, conditional release information, community employment information, and information on revocations.

Much of the background information including risk and need profiles was drawn from the Offender Intake Assessment (OIA), a comprehensive evaluation conducted with all incoming offenders that includes the assessment of dynamic and static risk factors. A major component of the OIA is the Dynamic Factor Identification and Analysis (DFIA), which identifies a variety of dynamic risk factors grouped into seven criminogenic need domains (i.e., employment, marital/family, associates, substance abuse, community functioning, personal/emotional, and

attitude). The need level for each domain is assessed on a three or four point rating scale[5]: asset, no need, some need, and considerable need. This measure also provides an overall level of dynamic risk (need) categorized into low, medium, or high. Another component of the OIA is the Static Factors Assessment (SFA), which provides comprehensive information regarding an offender's criminal history and risk factors and yields an overall rating of low, medium, or high static risk. Information from the DFIA and SFA is used to inform an offender's correctional plan, with offenders assessed as high risk and high need usually being prioritized for correctional interventions.

Procedure

The three **s**tudy groups were compared on demographic and sentence characteristics, criminal history risk and criminogenic need profile, and educational and employment attainment. The appropriate inferential statistics were used including chi-squared tests, *t*-tests, and analysis of variance (ANOVA). Effect sizes were used to determine the overall strength of association between variables, including Cramér's *V* and R-squared values. Cramér's *V* is used to measure the strength of association between two categorical variables when one of these variables has more than two categories. The closer *V* is to 0, the smaller the association between the variables, and the closer *V* is to 1, the stronger the association between the variables. Values of .1 represent a small effect; values of .3 represent a medium effect; and values of .5 represent a large effect (Field & Miles, 2010). Thus, only values of .1 or more were considered of substantive importance in the present results. R-squared, or the coefficient of multiple determination, is the proportion of variance in one variable explained by one or more independent variables and can be used as a measure of effect size for an overall model from ANOVA and regression analyses. Values of .02 represent a small effect size; values of .13 represent a medium effect size; and values of .26 represent a large effect size (Cohen, 1988). Thus, only values of .02 or more were considered of substantive importance in the present results.

Institutional charges (minor and serious) and admissions to segregation were compared across groups using rate calculations. This was necessary to control for time-at-risk, as offenders

[5] Two of the domains are only assessed on a three point scale as: none, some or high needs. These are: substance abuse and personal/emotional.

in the study sample were incarcerated for variable periods of time. Rates can be calculated by taking the number of events across an entire sample and dividing by the total time across the entire sample during which the events may have taken place. Rates were provided in 100 Offender-Person-Year (OPY) incarcerated, and can be interpreted as the expected number of incidents that would occur if 100 offenders were each incarcerated for a year. Rates were also compared pre- and post- employment start dates using rate ratios (i.e., after employment start over before employment start).

Analyses were also conducted to examine differences between the study groups on rates of employment attainment and maintenance post-release. This included the number of released offenders who attained employment within 90 days, the proportion of the first 90 days released that offenders were employed, and the number of released offenders who maintained their first employment for at least 90 days.

Survival analysis, Cox proportional-hazards regression, was used to determine the relative contribution of CORCAN participation and other variables to: (1) time to first community job attainment post-release; (2) length of maintenance of first job post-release; (3) time to (any) revocation; and (4) time to revocation with a new offence.[6] Survival analysis controls for time-at-risk by including it in the outcome of the test, whereby both the time to an event and the proportion of a group experiencing an event are considered in the hazard of an event. Hazard ratios can be interpreted as the change in hazard with a single unit of change in the associated variable. A hazard ratio of 1 indicates no change in the hazard of an event, whereas hazard ratios greater than 1 indicate that the hazard of experiencing an event increases as a variable increases or that the hazard in one group is greater than the other group. Hazard ratios less than 1 indicate that the hazard of an event decreases as a variable increases or that the hazard of one group is less than the other group.

In testing group differences, the relationship between survival time and a set of covariates (or predictor variables) is assessed. The "treatment" group is considered one of the covariates in order to determine whether treatment differences are present after statistically controlling for the other covariates (Tabachnick & Fidell, 2007). Thus, to control for pre-existing differences

[6] It should be noted that revocations were examined for an offender's current federal sentence only, and therefore did not capture new offences that occurred after the end of the offender's current federal sentence.

among the study groups as well as potential factors related to employment and recidivism, several other variables were also included as covariates in the models. These included: overall risk and need levels, age at release, employment need at release, time incarcerated, time institutionally employed, and community employment.

Results

Offender Profile

Although the three study groups significantly differed on several demographic and sentence characteristics (see Table 2), the effect sizes for these differences were quite small, suggesting a comparable demographic and sentence profile between the groups.

Table 2

Demographic and Sentence Characteristics by Study Group

	CORCAN Employed (n = 1,516)		CSC Employed (n = 7,282)		Non-Employed (n = 2,632)		
	M	*SD*	*M*	*SD*	*M*	*SD*	R^2
Age at Admission	34.5	11.2	35.2	11.7	35.7	13.5	.00*
Aggregate Sentence[a]	3.0	1.5	3.3	1.8	3.0	1.7	.01***
	%	*n*	%	*n*	%	*n*	*V*
Gender							
Male	95.0	1,440	96.1	6,997	92.8	2,442	.06***
Female	5.0	76	3.9	285	7.2	190	
Ethnicity[b]							.01$^{n.s.}$
Non-Aboriginal	83.1	1,250	83.1	6,008	84.3	2,161	
Aboriginal	16.9	254	16.9	1,224	15.8	404	
Marital Status[c]							.03***
Single	50.0	752	48.5	3,509	52.8	1,352	
Married/Common Law	38.1	572	41.1	2,974	36.4	934	
Divorced/Separated/ Widowed	11.9	179	10.3	746	10.8	277	
Major Offence							.07***
Homicide	2.4	36	3.5	252	2.9	76	
Sexual	10.3	156	11.8	857	12.2	320	
Assault	11.8	179	13.7	998	10.5	276	
Robbery	13.3	202	16.5	1,199	11.3	296	
Other Violent	1.3	20	2.3	169	1.4	38	
Drug	27.6	419	23.2	1,688	29.4	774	
Other Nonviolent	33.3	504	29.1	2,119	32.4	852	

Note. [a] Excludes those with life or indeterminate sentences. [b] The ethnicity of n = 243 offenders were unknown. [c] The marital status of n = 170 offenders were unknown and n = 84 were missing.
*p < .05. *p < .01. ***p < .001. *n.s.* = Not significant.

Table 3 presents the overall criminal history risk and criminogenic need profile ratings for the groups. There was a significant difference between groups on criminal history risk. The CSC-employed group had a greater proportion of offenders rated as high risk than the CORCAN-employed and non-employed groups. There was also a significant difference among the groups on criminogenic need, in which the CORCAN-employed group had a higher proportion of offenders who were rated as low and medium need than the CSC-employed and non-employed groups. Also displayed in Table 3 are the frequencies of ratings of some or considerable need on the seven criminogenic need domains. Although significant differences were revealed for all domains, Cramér's *V* values indicated that, with the exception of the employment, personal/emotional, and attitude domains, these associations were not of practical significance. Results indicated that there were a greater proportion of offenders in the CSC and non-employed groups with an identified need in the attitude and personal/emotional domains than in the CORCAN-employed group. With regard to the employment domain, there were a greater proportion of offenders in the non-employed and CORCAN-employed groups with an identified need than in the CSC-employed group. The non-employed group had the highest proportion of offenders with an identified employment need at intake. Thus, overall, the CORCAN group was lower risk based on analysis of criminal history and criminogenic need.

Table 3

Criminal History Risk and Criminogenic Need Profile by Study Group

	CORCAN-employed (*n* = 1,516)		CSC Employed (*n* = 7,282)		Non-Employed (*n* = 2,632)		
	%	*n*	%	*n*	%	*n*	*V*
Criminal History Risk							
Low	27.7	379	14.7	991	23.8	528	.10***
Medium	42.0	574	42.3	2,881	40.2	893	
High	30.3	415	42.8	2,892	36.0	799	
Criminogenic Need							.10***
Low	17.8	252	8.6	607	16.1	379	
Medium	38.8	550	33.0	2,316	32.5	763	
High	43.4	614	58.4	4,105	51.4	1,209	
Need Domains[a]							
Employment	61.9	876	53.2	3,741	67.7	1,591	.12***
Personal/Emotional	69.8	988	81.9	5,758	76.6	1,801	.10***
Attitude	48.5	687	63.6	4,471	62.5	1,469	.10***
Community Functioning	15.8	223	25.2	1,772	30.0	704	.09***
Associates	61.3	868	66.6	4,678	70.9	1,667	.06***
Marital/Family	30.2	427	36.0	2,531	32.6	765	.05***
Substance Abuse	70.0	991	67.5	4,742	62.2	1,464	.05***

Note. For each rating the number of missing values varied across the three groups. Percentages were therefore calculated using the *n* available (excluding missing values).

[a] For the purpose of this analysis, domain ratings of 'some need' and 'considerable need' were collapsed to indicate an overall need level for each domain.

*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Educational and employment information for the study groups is presented in Table 4. Overall, 63% (*n* = 7,149) of the sample were recorded as having less than a high school diploma or equivalent at intake. Although there are significant associations between the study groups and several education and employment variables, the Cramér's *V* values indicate that the strength of these associations was weak.

Table 4

Education and Employment Attainment by Study Group

	CORCAN-employed (*n* = 1,516)		CSC Employed (*n* = 7,282)		Non-Employed (*n* = 2,632)		
	%	*n*	%	*n*	%	*n*	*V*
< High School Diploma	72.2	909	76.7	4,625	79.1	1,615	.05***
< Grade 10	45.6	578	51.5	3,115	49.9	1,023	.04**
Unemployed at arrest	60.6	781	64.3	4,067	68.9	1,453	.05***
Employment history absent	9.7	126	10.0	637	12.3	261	.03**
Job history unstable	69.3	894	75.0	4,755	74.3	1,572	.04***
Dissatisfied with job skills	77.4	1,001	73.5	4,662	75.3	1,593	.03**
Cooperative work skills limited	7.2	91	9.8	610	9.3	191	.03*

Note. For each indicator the number of missing values varied across the three groups. Percentages were therefore calculated using the *n* available (excluding missing values).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Institutional Outcomes

Institutional charges and admissions to segregation. A goal of CORCAN employment is to enhance institutional adjustment by productively engaging offenders in job-readiness activities, thereby reducing institutional incidents and creating a safer institutional environment. Therefore, as an intermediate correctional outcome, this study examined the rates of institutional charges and admissions to segregation over time.

Rates of institutional charges and admissions to segregation per 100 OPY incarcerated were calculated for minor and serious institutional charges and admissions to segregation. Rates were calculated pre- and post- first employment start date (or interpolated date for the non-employed group[7]). Rate ratios indicating the change between pre- and post- rates were also calculated and compared across groups. All rates and their 95% confidence intervals are presented in Table 5.

Results revealed that CSC-employed offenders had a significantly greater rate of both

[7] To assess the rates for all three groups, it was necessary to create an interpolated employment start date for the non-employed group. This was based on the median proportion of time incarcerated prior to the start of employment for the CORCAN and CSC-employed groups of offenders.

minor and serious institutional charges and admissions to segregation than CORCAN and non-employed offenders both pre- and post- employment start dates. The rate ratios for serious institutional charges illustrate that all three groups had significantly higher rates of charges following the initial employment start date. The non-employed group presented the greatest increase, having 1.45 times more serious institutional charges per 100 OPY after their interpolated employment start date than before. This was followed by the CORCAN-employed group (rate ratio = 1.27), then the CSC-employed group (rate ratio = 1.06). With regard to minor institutional charges, only the non-employed group had a significantly higher rate of charges after their interpolated employment start date than before (rate ratio = 1.30).

For admissions to segregation, CSC-employed offenders had significantly greater rates both pre- and post- employment start date than the non-employed offenders who, in turn, had significantly greater rates than the CORCAN-employed offenders. The rate ratios illustrate that only the non-employed group presented a significant decrease in admissions to segregation post-their interpolated employment start date (rate ratio = 0.67). Rate ratios for CORCAN and CSC-employed indicated similar rates of admissions to segregation pre- and post- employment start dates, with non-significant changes.

Table 5

Rates of Institutional Charges and Segregation Admissions per 100 Offender-Person-Year Post-Employment Start

		CORCAN-employed (n = 1,516)	CSC Employed (n = 7,282)	Non-Employed (n = 2,632)
Minor Institutional Charges	Pre	128.26	160.34	94.69
	[95% CI]	[119.69, 137.29]	[155.76, 165.08]	[87.49, 102.31]
	Post	125.71	161.78	123.16
	[95% CI]	[119.55, 132.11]	[159.12, 164.47]	[118.48, 129.97]
	Rate Ratio	0.97	1.01	1.30
	[95% CI]	[0.89, 1.06]	[0.98, 1.04]	[1.19, 1.42]
Serious Institutional Charges	Pre	35.04	64.86	39.35
	[95% CI]	[30.63, 39.90]	[61.94, 67.88]	[34.77, 44.38]
	Post	44.54	68.49	57.24
	[95% CI]	[40.90, 48.41]	[66.77, 70.25]	[54.07, 60.56]
	Rate Ratio	1.27	1.06	1.45
	[95% CI]	[1.09, 1.49]	[1.00, 1.11]	[1.27, 1.67]
Admissions to Segregation	Pre	94.31	182.65	164.67
	[95% CI]	[86.97, 102.09]	[177.73, 187.68]	[155.13, 174.63]
	Post	97.34	176.65	110.06
	[95% CI]	[91.95, 103.01]	[173.87, 179.46]	[105.64, 114.61]
	Rate Ratio	1.03	0.97	0.67
	[95% CI]	[0.94, 1.14]	[0.94, 1.00]	[0.62, 0.72]

Note. Admissions to segregation include the accumulative total of voluntary, involuntary, and disciplinary segregation.

Conditional release outcomes. The proportion of sentence served incarcerated before any first release significantly differed among the three study groups, whereby offenders in the CSC-employed group were incarcerated for significantly longer than offenders in the non-employed and CORCAN-employed groups (see Table 6). However, the effect size indicated this association was small. Table 6 also presents the first release type for offenders in each of the study groups. A greater proportion of offenders in the CORCAN-employed group were released on day parole than offenders in the CSC and non-employed groups. Non-employed offenders were most likely to receive full parole and other types of parole, and CSC-employed offenders were most likely to be released at their statutory release or WED.

Table 6

Proportion of Sentence Served and Type of Release Granted by Study Group

	CORCAN Employed (n = 1,516)		CSC Employed (n = 7,272)		Non-Employed (n = 2,595)		
	M	*SD*	*M*	*SD*	*M*	*SD*	R^2
Proportion of Sentence Served[a]	.41	.21	.48	.23	.39	.25	$0.03^{n.s.}$
	%	*n*	%	*n*	%	*n*	*V*
Release Type							0.16***
Day Parole	60.4	907	40.8	2,905	50.8	1,210	
Full Parole	3.3	49	3.2	229	7.9	189	
Stat Release	34.4	517	51.8	3,684	38.7	923	
WED	1.9	28	4.2	299	2.6	61	
Other[b]	1.0	15	2.1	155	8.2	212	

Note. [a]Excludes those with life or indeterminate sentences. [b] Includes: Deceased, Court Order Other Jurisdiction, Court Order Freedom, Transfer to Foreign Country, and Long Term Supervision.
*p < .05. *p < .01. ***p < .001. *n.s.* = Not significant.

Community Outcomes

A key objective of CORCAN employment is to support community reintegration by enhancing offenders' employability skills through gaining work experience while incarcerated. It is anticipated that increased job readiness at the time of release will assist offenders in the acquisition and maintenance of meaningful employment opportunities in the community, resulting in greater investment in social norms and reductions in criminal behaviour. The present study, therefore, examined the relationship between CORCAN employment and offenders' ability to find and maintain employment in the community as well as reductions in recidivism.

Job attainment. The difference in job attainment patterns among the study groups was first investigated by determining the percentage of participants who attained a job within 90 days post-release. A total of 9,990 offenders in the sample had a follow-up release period of 90 days or more (before either the end of the study period, return to custody, WED, deportation, or death). Overall, 40% of these offenders found employment within this time frame. Table 7 presents the frequencies of first job attainment in the community within 90 days by group. Results revealed that a significantly greater proportion of offenders in the CORCAN-employed group attained a job within 90 days of release than offenders in the CSC-employed and non-employed groups.

For offenders who had a follow-up release period of 90 days or more and were eventually employed (n = 4,017), the proportion of the first 90 days period that he or she was employed was also examined. Overall, there was a significant difference among the groups with offenders in the CORCAN-employed group spending a greater proportion of time released employed than offenders in the non-employed group; however, the effect size indicated this difference was small.

Table 7

Job Attainment within 90 Days by Study Group

	CORCAN Employed (n = 1,391)		CSC Employed (n = 6,327)		Non-Employed (n = 2,272)		
	%	*n*	%	*n*	%	*n*	*V*
Employed within 90 Days or Less[a]							.10***
Yes	47.8	665	41.3	2,614	32.5	738	
No	52.1	726	58.7	3,713	67.5	1,534	
							R^2
Proportion of first 90 days employed	*M* = .71		*M* = .69		*M* = .67		< .01*

Note. [a] Only applies for those offenders who had a 90 day follow-up period available following release (before either the end of the study period, return to custody, warrant expiry date, deportation, or death).
*p < .05. *p < .01. ***p < .001. *n.s.* = Not significant.

Survival analysis was conducted to examine the relationship between the three study groups (i.e., CORCAN-employed, CSC-employed, and non-employed) and time to first community employment. Covariates reflecting pre-existing differences among the study groups and factors related to community employment were identified and included in the model (i.e., criminal history risk, criminogenic need, age at release, employment need, time employed in the institution). The model was built such that all non study group covariates were first entered into the model and covariates were removed one-by-one if they became non-significant at a significance level of .1. This was done to avoid problems due to multicollinearity. The study group covariates were then added to this model with the reduced set of covariates to determine whether study group would predict survival after statistical adjustment for the effects of the other covariates. The overall model with all covariates and the associated hazard ratios is presented in Table 8. Even after controlling for covariates, hazard ratios indicated that offenders in the CSC-

employed and non-employed groups were significantly less likely to attain a job than offenders in the CORCAN-employed group (hazard ratios of 0.92 and 0.73, respectively). CORCAN-employed offenders were 1.09 times more likely to attain a job than CSC-employed offenders, and 1.37 times more likely to attain a job than the non-employed offenders.

Table 8

Proportional-hazards Regression Model Predicting Community Job Attainment

Covariate	χ^2	Hazard Ratio
Criminal History Risk	52.93***	-
Medium vs. Low	21.23***	0.82
High vs. Low	52.66***	0.68
Criminogenic Need	127.96***	-
Medium vs. Low	20.78***	0.80
High vs. Low	104.19***	0.57
Age at Release (in years)	329.61***	0.98
Employment Need	214.92***	0.64
Time Institutionally Employed (in weeks)[8]	6.04*	1.00
Study Group	41.96***	-
CSC-employed vs. CORCAN	3.91*	0.92
Non-Employed vs. CORCAN	36.80***	0.73

Note. The overall model was significant (χ^2 (9) = 1053.35, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Survival models predicting community job attainment were also developed for women offenders and Aboriginal offenders (these tables are presented in Appendix A). For women offenders, the model including only the study group as a covariate was not significant, indicating that CORCAN-employed women offenders were not more likely to attain a job than CSC-employed or non-employed women offenders. Furthermore, this null result was not simply due to loss of statistical power caused by the small sample of women offenders. The hazard ratios indicating the relative chances that women offenders obtained community employment across study groups did not follow the pattern seen for the sample as a whole. The hazard ratios indicated that CORCAN-employed, CSC-employed and non-employed women offenders had

[8] This hazard ratio for time institutionally employed is significant even though it is 1.00 because it is in number of weeks. Although the actual hazard ratio of 1.001 appears minimal, it is considerable if considered in terms of a year. For instance, if taken for an entire year, an offender would be 1.05 times more likely to attain community employment with every one week institutionally employed ($1.001^{52} = 1.05$).

similar chances of finding community employment. For Aboriginal offenders, even after controlling for potentially confounding variables, CSC-employed offenders were significantly less likely to attain a job than CORCAN-employed offenders (hazard ratio = 0.75). There were no significant differences between non-employed Aboriginal and CORCAN-employed Aboriginal offenders.

Regional differences. As previously noted, a review of demographic characteristics revealed that the proportion of offenders in each study group differed by the region the offenders were in at the time of their intake into CSC. This indicates potential regional difference in the types of offenders who are CORCAN or CSC-employed or non-employed. As a result, survival analyses for job attainment were also conducted for each region separately and are presented in Appendix A. Models were consistent with the overall model in the Atlantic, Ontario and Pacific regions but not for the Quebec and Prairies regions. In the Prairies region, CORCAN-employed offenders were significantly more likely to attain a job than non-employed offenders but were not more likely to attain a job than CSC-employed offenders. In the Quebec region, CSC-employed offenders were significantly more likely to attain a job than both CORCAN-employed and non-employed offenders.

Community Employment Centres. In addition to institutional employment activities, CSC also operates Community Employment Centres (CECs), the goal of which is to assist offenders on conditional release to find meaningful employment. A separate survival analysis was conducted with receipt of CEC services (yes/no) included. Missing CEC data prior to April 1st, 2008 greatly limited the available sample for this analysis. Therefore, a separate analysis was necessary to maximize the sample in the previous analysis of job attainment. The results of this analysis are presented in Appendix A. Similar to the overall model presented above for job attainment, results revealed that offenders in the CORCAN-employed group were more likely to attain a job in the community than offenders in the CSC-employed and non-employed groups (1.12 and 1.45 times, respectively), even after controlling for CEC servicing.

Job maintenance. Similar to the job attainment analyses, job maintenance patterns of the study groups over a 90-day time period were also examined. Displayed in Table 9 are the frequencies of offenders in each group who maintained their first job post-release for 90 days or more. There were no significant differences between the groups.

Table 9

First Job Maintenance by Study Group

	CORCAN Employed (n = 818)		CSC Employed (n = 3,241)		Non-Employed (n = 960)		
	%	*n*	%	*n*	%	*n*	*V*
Maintained Initial Job > 90 Days[a]							.03$^{n.s.}$
Yes	64.1	525	59.8	1,937	60.3	579	
No	35.8	293	40.2	1,304	39.7	381	

Note. [a] Only applies for those offenders who had a 90 day follow-up period available following first job attainment (before either the end of the study period, return to custody, warrant expiry date, deportation, or death).
*p < .05. *p < .01. ***p < .001. *n.s.* = Not significant.

Survival analysis was conducted to test whether the survival times of maintaining the first job in the community differed between the study groups. Once controlling for other covariates, there was no significant difference between the study groups in predicting job maintenance. The overall model is presented in Table 10. Models were also developed for women offenders and Aboriginal offenders; however, neither revealed significant differences between the study groups in predicting job maintenance.

Table 10

Proportional-hazards Regression Model Predicting Job Maintenance

Covariate[a]	χ^2	Hazard Ratio
Criminal History Risk	6.95*	-
Medium vs. Low	2.49$^{n.s.}$	1.08
High vs. Low	6.84**	1.17
Criminogenic Need	74.75***	-
Medium vs. Low	34.47***	1.42
High vs. Low	73.00***	1.78
Age at Release (in years)	88.49***	0.98
Employment Need	74.44***	1.27
Study Group	6.51*	-
CSC-employed vs. CORCAN	2.92$^{n.s.}$	1.09
Non-Employed vs. CORCAN	0.10$^{n.s.}$	0.98

Note. The overall model was significant (χ^2 (8) = 373.71, p < .001).
[a] Time institutionally employed was also included as a covariate, but was non-significant with the remaining covariates and thus was not included in the final model.
*p < .05. *p < .01. ***p < .001. *n.s.* = Not significant.

Any revocation on conditional release. Survival analysis was also conducted to examine the relationship between the three study groups and the first revocation on conditional release. After controlling for other covariates (i.e., criminal history risk, criminogenic need, age at release, community employment), results revealed a significant difference between the non-employed and CORCAN-employed groups, whereby non-employed offenders were less likely to be revoked than CORCAN-employed offenders and CSC-employed offenders. The overall model is presented in Table 11. It is interesting to note that although CORCAN participation was not a significant predictor of revocation with an offence, obtaining community employment was a significant covariate. Offenders who obtained a job in the community were significantly less likely to be revoked, even after controlling for other risk factors.

Survival models were also developed for women offenders and Aboriginal offenders (presented in Appendix B). For women offenders, there was no significant difference between the study groups after adjusting for other covariates. For Aboriginal offenders, CSC-employed offenders were significantly more likely to be revoked than CORCAN-employed offenders (hazard ratio = 1.27), even after other covariates were controlled.

Table 11

Proportional-hazards Regression Model Predicting Any Type of Revocation on Conditional Release

Covariate	χ^2	Hazard Ratio
Criminal History Risk	66.93***	-
Medium vs. Low	35.75***	1.44
High vs. Low	64.95***	1.70
Criminogenic Need	184.97***	-
Medium vs. Low	90.37***	2.38
High vs. Low	161.06***	3.31
Age at Release (in years)	660.02***	0.96
Community Employment	922.84***	0.35
Study Group	26.65***	-
CSC-employed vs. CORCAN	$2.76^{n.s.}$	1.09
Non-Employed vs. CORCAN	4.92*	0.88

Note. The overall model was significant (χ^2 (8) = 2269.03, $p < .0001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Revocation with a new offence. Survival analysis was also conducted to examine the relationship between the three study groups and first revocation with a new offence. After

statistically controlling for other covariates, CORCAN participation was not a significant predictor of revocation with an offence (see Table 12). Again, however, obtaining community employment was a significant covariate whereby offenders who obtained a job in the community were significantly less likely to be revoked with a new offence, even after controlling for other risk factors. A survival model was also developed for Aboriginal offenders; however, results revealed no significant differences between the study groups after controlling for other important risk factors. A model was not developed for women offenders because of the small number of events.

Table 12

Proportional-hazards Regression Model Predicting Revocation with a New Offence

Covariate	χ^2	Hazard Ratio
Criminal History Risk	14.41**	-
Medium vs. Low	14.30**	1.66
High vs. Low	11.29**	1.63
Criminogenic Need	45.56***	-
Medium vs. Low	24.94***	3.07
High vs. Low	40.42***	4.33
Age at Release (in years)	244.43***	0.94
Community Employment	196.31***	0.35
Study Group	$4.74^{n.s.}$	-
CORCAN vs. Non-Employed	$1.79^{n.s.}$	1.18
CSC-employed vs. Non-Employed	4.71*	1.22

Note. The overall model was significant (χ^2 (8) = 569.71, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Effects of Vocational Certification

Also of interest in the present study was whether having obtained vocational certification in addition to CORCAN participation would be associated with improved post-release correctional outcomes. To examine this, the CORCAN-employed group was selected as a subset and broken down into two groups: 1) those who participated in CORCAN work assignments only (n = 855), and 2) those who participated in both CORCAN work assignments and who obtained vocational certification (n = 977).

With regard to conditional release outcomes, results revealed no significant differences between the groups on the proportion of sentence served before first release. There were,

however, significant differences on the type of first release. A greater proportion of CORCAN-employed offenders who also received vocational certification were granted day parole as their first release than offenders employed by CORCAN but who did not have a vocational certificate. (see Table 13).

Table 13

Type of Release Granted by Study Group (Additive effects of Vocational Certification)

	CORCAN Only (n = 661)		CORCAN and Vocational (n = 770)		*V*
	%	*n*	%	*n*	
Release Type					0.1*
Day Parole	55.7	368	64.6	497	
Full Parole	3.0	20	3.5	27	
Stat Release	38.0	251	29.7	229	
End of Sentence	2.3	15	1.3	10	
Other[b]	1.1	7	0.9	7	

Note. [b] Includes: Deceased, Court Order Other Jurisdiction, Court Order Freedom, Transfer to Foreign Country, and Long Term Supervision.
*p < .05. *p < .01. ***p < .001. *n.s.* = Not significant.

Analysis was conducted to determine the number of offenders within the two groups (i.e., those who were only CORCAN-employed and those who were CORCAN-employed and received vocational certification) who attained a job within 90 days post-release. Results revealed that a significantly greater proportion of offenders who were CORCAN-employed and received vocational certification (55.4%) attained a job within 90 days of release than offenders who were only CORCAN-employed (38.3%), (χ^2 (1), = 38.2, p < .001, φ = .17). There were no significant differences between the two groups on the proportion of that 90 day period during which the offenders were employed. Additional analyses examined job maintenance patterns over a 90 day period; however, no significant differences were found between the groups on the number who maintained their first job post-release for 90 days or more.

Survival analyses were conducted to examine the relationship between the two study groups and job attainment, job maintenance, any revocation, and revocation with a new offence differed between the two groups of offenders (see Appendix C for results). For job attainment, results revealed that even after controlling for other covariates (i.e., criminogenic need, age at release, employment need, time institutionally employed), CORCAN-employed offenders who

also received vocational certification were 1.54 times more likely to attain a job than offenders who were CORCAN-employed only. There was no significant difference between the two groups in predicting job maintenance. In predicting any revocation, results indicated no significant differences between the study groups after statistically controlling other covariates (i.e., criminal history risk, criminogenic need, age at release, community employment). Similarly, in predicting revocation with a new offence, results revealed no significant differences between the study groups after controlling for the other covariates.

Discussion

The purpose of the present study was to examine the profile and outcomes of federal offenders who participated in CSC's institutional employment programming. Of primary interest was to assess whether there would be a relationship between CORCAN participation and positive institutional and post-release outcomes.

Institutional Outcomes

In examining rates of institutional charges and admissions to segregation, CSC-employed offenders appeared to have the highest rates overall, while CORCAN-employed offenders had the lowest rates overall (particularly for admissions to segregation). It is important to note that this may be a reflection of the criminogenic profile differences between these two groups, as CORCAN-employed offenders were generally lower on risk and need ratings. A limitation of the type of analysis that was used to examine rates is that is unable to control for pre-existing differences between groups. Furthermore, although the CORCAN-employed group had the lowest rates *overall*, they were not necessarily more likely to have lower rates post- their first employment start date. In fact, for serious institutional charges and admissions to segregation, they had higher rates post- their employment start date. Interestingly, however, higher rates of charges post- the employment start date appeared to be the pattern for the other two groups as well. Higher rates later on during an offender's sentence is perhaps not unexpected given an offender may become more accustomed to the institutional environment and may be more willing to act out, although future research is needed to substantiate this speculation. A potentially anomalous finding was that the non-employed group had an exceptionally low rate of minor institutional charges pre- the interpolated employment start date and this increased quite significantly post- the interpolated employment start date. Again, this may be a result of profile differences between the study groups that were not accounted for in the analysis. Furthermore, there may have been outliers in the non-employed group who drove the rates higher post- the interpolated employment start date. Future research that controls for potentially confounding variables is needed to tease apart the relationship between institutional employment participation and rates of charges and admissions to segregation.

With regard to type of conditional release first granted, 61% of CORCAN-employed

offenders were granted day parole in comparison to 41% of CSC-employed and 51% of non-employed offenders. Thus, CORCAN participation appeared to be positively associated with being granted discretionary release. Again, it is important to note that this may be a reflection of profile differences between the study groups and not necessarily due to actual participation in CORCAN employment. Future research may want to predict the likelihood of obtaining discretionary release while controlling for other factors such as risk and need.

Community Outcomes

Analyses of post-release employment outcomes revealed interesting results. Consistent with a previous study that examined outcomes associated with CSC's institutional employment programming (Taylor et al., 2008), results demonstrated a significant link between CORCAN participation and community job attainment. More specifically, CORCAN-employed offenders were 1.09 times more likely to attain a job than CSC-employed offenders and 1.37 times more likely to attain a job than non-employed offenders. Furthermore, having obtained vocational certification *in addition* to CORCAN employment was associated with an increased likelihood of job attainment in the community. These results provide evidence that CORCAN contributes to the enhanced ability to obtain employment in the community post-release. Interestingly, however, involvement in CORCAN employment was *not* found to be associated with the length of time that offenders retained their first job post-release (i.e., job maintenance) once controlling for key risk factors. It is important to note that this analysis looked only at the retention of an offender's first job and did not examine why he/she left their first job. It is possible that some offenders may have actually left their initial job on release for a better employment opportunity.

Analyses of post-release correctional outcomes revealed that CORCAN-employed offenders were *not* less likely to be revoked for any reason or revoked with a new offence while on conditional release than CSC-employed or non-employed offenders. It is important to note, however, that results revealed that offenders who were employed in the community were 2.86 times less likely to both have any revocation or a revocation with a new offence than those who were not employed in the community. This is a particularly interesting finding given that the overall survival model for job attainment found that offenders in the CORCAN-employed group were more likely to attain a job in the community than offenders who were in the CSC-employed and non-employed groups. Thus, although institutional CORCAN participation contributed to an

increased likelihood of finding a job in the community, and offenders who were employed in the community were less likely to be reconvicted, CORCAN participation was not directly linked to reductions in recidivism. Although speculative, this indirect link may be a result of a number of different factors. For instance, it is possible that there are group differences related to recidivism that have not been adequately captured in the present study. Perhaps higher new offence rates in the CORCAN-employed group are limited to those participants who did not obtain employment post-release. Furthermore, it is possible that factors related to acquiring and maintaining employment in the community (e.g., location of job, type and quality of job, employment support, and family support) modify or impact characteristics related to recidivism (e.g., risk, need, criminal attitude). Thus, although institutional employment programming may provide offenders with the advantage of becoming employed in the community, it is the participation in community employment itself (regardless of having participated in institutional employment or not) that has the greatest impact on recidivism.

More recently, Bushway and Apel (2012) attempted to address this type of disconnect between participation in work programs and lack of positive correctional outcomes such as reductions in recidivism. They suggest several plausible reasons, including that offenders have well-documented employment problems that may impede them from holding onto a job. Thus, having a job may still do very little to improve the actual longer term "employability" of offenders. The National Employability Skills Program (NESP) was designed to address some of the problems associated with offenders having problems finding and retaining employment. A preliminary evaluation found that this program showed promise in helping to improve related employment skills (Latendresse & Cortoni, 2005).

Although the present study did not find a direct link between CORCAN participation and a decreased likelihood of recidivism, results provide evidence that CORCAN contributes to enhanced ability to obtain employment in the community, and community employment, in turn, is associated with a reduced likelihood of reoffending and readmission to federal custody. This is consistent with the literature suggesting community employment is associated with post-release success (Brews, Luong, & Nafekh, 2010; Didenko, Luong, & Carré, 2010; Gillis & Nafekh, 2005; Taylor et al., 2008).

Summary of Findings

A summary of the overall study findings is presented in Table 14. This table details the various institutional and post-release outcomes that participation in various institutional employment activities was and was not associated with.

Table 14

Overall Study Findings

CORCAN participation *was:* • associated with a greater likelihood of receiving day parole in comparison to those who were CSC-employed and non-employed. • associated with improved overall job attainment in the community in comparison to those who were CSC-employed and non-employed after controlling for other factors related to outcomes. • associated with reductions in recidivism for Aboriginal offenders after controlling for other factors related to outcomes.
CORCAN participation *was not:* • related to initial job maintenance after controlling for other factors related to outcomes. • related to reductions in recidivism for non-aboriginal offenders.
Vocational certification in addition to CORCAN participation *was*: • associated with a greater likelihood of receiving day parole in comparison to those who were CORCAN-employed only. • associated with improved overall job attainment in the community in comparison to those who were CORCAN-employed only after controlling for other factors related to outcomes.
Vocational certification in addition to CORCAN participation *was not*: • related to job maintenance. • related to reductions in recidivism after controlling for other factors related to outcomes.
CEC servicing in the community *was:* • related to improved job attainment in the community after controlling for other factors related to outcomes.
Employment in the community in general *was:* • related to reductions in recidivism after controlling for other factors related to outcomes.

CORCAN Key Performance Indicators

A key objective of this study was to assess the outcomes of CORCAN participants so that key performance indicators could be identified that would provide benchmarks for the ongoing assessment of the effectiveness of CORCAN in carrying out its mandate of providing employment and employability skills training to incarcerated offenders in support of their safe

reintegration into the community. These proposed indicators listed below in Table 15 would measure CORCAN results related to: providing training that contributed to job attainment in the community and linking CORCAN participation to reductions in institutional charges while incarcerated and to reductions in recidivism on release. The results of these indicators could compare CORCAN participant outcomes over set time periods. All these indicators are currently available through electronic records in OMS. Further analyses comparing the results of offenders involved in CORCAN to offenders who did not participate in employment training or participated in alternative employment training would involve a research methodology.

Table 15

Proposed Performance Indicators for CORCAN

1) Rate of (minor and serious) institutional incidents and admissions to segregation involving CORCAN-employed offenders.
2) Ratio of CORCAN-employed offenders released at first parole eligibility date versus statutory release date.
3) Ratio of CORCAN-employed offenders who obtain community employment post-release within a specified time period (e.g., 90 days).
4) Number of days to start a first job in the community for CORCAN-employed offenders.
5) Percentage of CORCAN-employed offenders who are revoked (any on conditional release and for a new offence) within a specified time period.

Limitations and Future Research

There are a number of limitations of the present study that should be noted. For example, some of the outcome variables chosen may not fairly reflect the impact of job training. For instance, one of the outcomes examined was the time to first employment following release. It is possible that offenders who have acquired specific on-the-job experience and/or have enhanced their job skills via a specific type of vocational certificate may have held out for a higher quality job suited to their skill set despite potentially being able to obtain another type of job more quickly. Future research should therefore examine the linkage between the type of employment experience/certification acquired in the institution and the type of employment attained in the community. For instance, it would be useful to examine whether the type(s) of jobs an offender obtained in the community corresponded to the type(s) of CORCAN business line and/or vocational certification that he/she participated in while in the institution.

Another analysis examined job maintenance looking only at the length of the first job obtained in the community. This analysis does not provide context for why the first job ended. This would have penalized offenders who had multiple short-term jobs with a high percentage of their time being gainfully employed. Future research could therefore investigate the trajectories of obtaining community employment, including the number and length of jobs obtained post-release, as well as qualitative reasons for job ending (e.g., successful completion, termination, improved job opportunities elsewhere).

It is important to note that the current study was quite broad in scope and, as a result, there are several avenues of research that merit further investigation. For instance, we did not address the particulars behind how and why employment and employability programs may be successful. It would be advantageous to examine intermediate outcomes that may mediate the relationship between participation in employment programs and community outcomes (e.g., motivation and commitment to work, gain in specific types of skills targeted by the program, community supports available upon release). In addition, the present study did not examine the characteristics of offenders who were successful or unsuccessful in finding a job in the community. This could help to determine who is most likely to benefit from employment interventions and who should be targeted for additional service given their harder-to-employ status. Alternatively, it would be useful to determine whether there are offenders who cannot benefit from employment interventions and should instead be directed towards sheltered workshops or financial aid provided through social welfare. This avenue of research may also help to explain the disconnect between CORCAN participation and reductions in recidivism that was found in the present study.

A final limitation is that the current study did not examine the effects of or control for participation in other correctional programs. It would be prudent for future research to examine the contribution of correctional programs in addition to institutional employment participation on community outcomes such as job attainment and reductions in recidivism.

Despite these limitations, the current study has both replicated and extended prior research in the area. Building on the previous work of Taylor et al. (2008), the current study examined CORCAN participation over a five year time period and used rate-based and survival analysis to control for different follow-up periods among the groups. In addition, the current study provided a more specific focus on the effects of CORCAN work assignments by directly

comparing the different types of employment programs without overlap among the groups (i.e., the CORCAN-employed group did not also include those offenders who were CSC-employed). The additional effects of having obtained vocational certification were also investigated. Finally, the present study used the findings to identify key indicators of success that can be used for performance measurement purposes to help measure the impact of CORCAN participation over time.

Conclusion

The results presented in the current study suggest that participation in employment programming such as CORCAN contributes to offender institutional adjustment and demonstrates rehabilitative value in support of offender reintegration by helping offenders find employment after release. Furthermore, there is some evidence to suggest that this may be particularly true for Aboriginal offenders. In addition, the findings have further highlighted the importance of community employment in reducing the likelihood of reoffending and readmission to federal custody.

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Appendices

Appendix A: Community Job Attainment Outcomes

Women Offenders

Proportional-hazards Model Predicting Community Job Attainment (Women Offenders)

Covariate	χ^2	Hazard Ratio
Study Group	$1.04^{n.s.}$	-
CSC-employed vs. CORCAN	$0.32^{n.s.}$	1.11
Non-Employed vs. CORCAN	$0.02^{n.s.}$	0.97

Note. The overall model was not significant (χ^2 (2) = 1.04, $p > .05$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Aboriginal Offenders

Proportional-hazards Model Predicting Community Job Attainment (Aboriginal Offenders)

Covariate	χ^2	Hazard Ratio
Criminogenic Need	23.48***	-
Medium vs. Low	$1.95^{n.s.}$	0.77
High vs. Low	12.55**	0.53
Age at Release (in years)	12.75**	0.99
Employment Need	49.82***	0.53
Time Institutionally Employed (in weeks)	8.64**	1.00
Study Group	6.5*	-
CSC-employed vs. CORCAN	6.52*	0.75
Non-Employed vs. CORCAN	$2.63^{n.s.}$	0.79

Note. The overall model was significant (χ^2 (7) = 104.53, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

By Region

Proportional-hazards Regression Model Predicting Community Job Attainment (Atlantic Region)

Covariate	χ^2	Hazard Ratio
Criminal History Risk	2.98$^{n.s.}$	-
Medium vs. Low	0.13$^{n.s.}$	0.96
High vs. Low	2.55$^{n.s.}$	0.79
Criminogenic Need	18.69***	-
Medium vs. Low	5.35*	0.76
High vs. Low	17.9***	0.54
Age at Release (in years)	25.56***	0.98
Employment Need	20.50***	0.67
Time Institutionally Employed (in weeks)	1.96$^{n.s.}$	1.00
Study Group	23.11***	-
CSC-employed vs. CORCAN	19.40***	0.65
Non-Employed vs. CORCAN	10.80**	0.68

Note. The overall model was significant (χ^2 (9) = 119.93, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Proportional-hazards Regression Model Predicting Community Job Attainment (Quebec Region)

Covariate	χ^2	Hazard Ratio
Criminal History Risk	28.95***	-
Medium vs. Low	9.03**	0.76
High vs. Low	27.21***	0.57
Criminogenic Need	34.08***	-
Medium vs. Low	0.68$^{n.s.}$	0.91
High vs. Low	14.69***	0.63
Age at Release (in years)	86.14***	0.98
Time Institutionally Employed (in weeks)	0.62$^{n.s.}$	1.00
Study Group	26.47***	-
CSC-employed vs. CORCAN	10.96**	1.50
Non-Employed vs. CORCAN	0.16$^{n.s.}$	0.94

Note. The overall model was significant (χ^2 (8) = 259.81, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Proportional-hazards Regression Model Predicting Community Job Attainment (Ontario Region)

Covariate	χ^2	Hazard Ratio
Criminal History Risk	6.32*	-
Medium vs. Low	2.18$^{n.s.}$	0.88
High vs. Low	6.07*	0.77
Criminogenic Need	27.27***	-
Medium vs. Low	4.79*	0.82
High vs. Low	23.19***	0.59
Age at Release (in years)	147.35***	0.97
Employment Need	65.20***	0.60
Time Institutionally Employed (in weeks)	0.93$^{n.s.}$	1.00
Study Group	19.12***	-
CSC-employed vs. CORCAN	7.86**	0.77
Non-Employed vs. CORCAN	18.63***	0.63

Note. The overall model was significant (χ^2 (9) = 318.96, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Proportional-hazards Regression Model Predicting Community Job Attainment (Prairie Region)

Covariate	χ^2	Hazard Ratio
Criminal History Risk	11.89**	-
Medium vs. Low	6.21*	0.82
High vs. Low	11.67**	0.73
Criminogenic Need	35.74***	-
Medium vs. Low	4.15*	0.84
High vs. Low	28.57***	0.57
Age at Release (in years)	39.65***	0.98
Employment Need	96.53***	0.55
Study Group	8.01*	-
CSC-employed vs. CORCAN	0.07$^{n.s.}$	0.98
Non-Employed vs. CORCAN	5.91*	0.80

Note. The overall model was significant (χ^2 (8) = 320.33, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Proportional-hazards Regression Model Predicting Community Job Attainment (Pacific Region)

Covariate	χ^2	Hazard Ratio
Criminogenic Need	28.98***	-
Medium vs. Low	10.71**	0.62
High vs. Low	28.50***	0.45
Age at Release (in years)	32.53***	0.97
Employment Need	14.02**	0.66
Time Institutionally Employed (in weeks)	7.09**	1.00
Study Group	9.11*	-
CSC-employed vs. CORCAN	8.71**	0.64
Non-Employed vs. CORCAN	6.18*	0.65

Note. The overall model was significant (χ^2 (7) = 99.54, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

CEC Services

Proportional-hazards Regression Model Predicting Community Job Attainment

Covariate	χ^2	Hazard Ratio
Criminal History Risk	24.23***	-
Medium vs. Low	14.05**	0.80
High vs. Low	23.97***	0.70
Criminogenic Need	72.11***	-
Medium vs. Low	12.41**	0.79
High vs. Low	58.42***	0.55
Age at Release (in years)	157.05***	0.98
Employment Need	88.84***	0.67
Time Institutionally Employed (in weeks)	$0.99^{n.s.}$	1.00
CEC Service Received	56.06***	1.39
Study Group	28.73***	-
CSC-employed vs. CORCAN	4.55*	0.89
Non-Employed vs. CORCAN	27.25***	0.69

Note. The overall model was significant (χ^2 (10) = 590.69, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Appendix B: Recidivism Outcomes

Any Revocation

Women Offenders

Proportional-hazards Regression Model Predicting Any Revocation

Covariate	χ^2	Hazard Ratio
Criminogenic Need	29.89***	-
Medium vs. Low	21.27***	5.23
High vs. Low	29.25***	7.08
Age at Release (in years)	13.35**	0.97
Community Employment	64.62***	0.23
Study Group	0.85$^{n.s.}$	-
CSC-employed vs. CORCAN	0.01$^{n.s.}$	1.02
Non-Employed vs. CORCAN	0.55$^{n.s.}$	1.18

Note. The overall model was significant (χ^2 (6) = 119.76, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Aboriginal Offenders

Proportional-hazards Regression Model Predicting Any Revocation

Covariate	χ^2	Hazard Ratio
Criminal History Risk	8.34*	-
Medium vs. Low	5.35*	1.50
High vs. Low	7.98**	1.65
Criminogenic Need	12.68**	-
Medium vs. Low	6.55*	2.48
High vs. Low	9.64**	3.02
Age at Release (in years)	127.82***	0.96
Community Employment	132.57***	0.41
Study Group	6.26*	-
CSC-employed vs. CORCAN	5.10*	1.27
Non-Employed vs. CORCAN	0.83$^{n.s.}$	1.12

Note. The overall model was significant (χ^2 (8) = 324.18, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Appendix C: Additive Effects of Vocational Certification

Proportional-hazards Regression Model Predicting Job Attainment

Covariate	χ^2	Hazard Ratio
Criminogenic Need	45.22***	-
Medium vs. Low	15.40***	0.69
High vs. Low	45.17***	0.51
Age at Release (in years)	7.61**	0.99
Employment Need	18.16***	0.72
Time Institutionally Employed	2.48$^{n.s.}$	1.00
CORCAN + VOC vs. CORCAN only	30.23***	1.54

Note. The overall model was significant (χ^2 (6) = 122.17, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Proportional-hazards Regression Model Predicting Job Maintenance

Covariate	χ^2	Hazard Ratio
CORCAN + VOC vs. CORCAN only	0.74	1.08

Proportional-hazards Regression Model Predicting Any Revocation

Covariate	χ^2	Hazard Ratio
Criminal History Risk	5.54$^{n.s.}$	-
Medium vs. Low	3.75$^{n.s.}$	1.30
High vs. Low	5.35*	1.44
Criminogenic Need	29.41***	-
Medium vs. Low	20.52***	2.35
High vs. Low	2.41***	2.99
Age at Release (in years)	38.16***	0.97
Community Employment	103.42***	0.36
CORCAN + VOC vs. CORCAN only	1.94$^{n.s.}$	0.87

Note. The overall model was significant (χ^2 (7) = 244.61, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.

Proportional-hazards Regression Model Predicting Revocation with a New Offence

Covariate	χ^2	Hazard Ratio
Criminogenic Need	11.02**	-
Medium vs. Low	8.45**	3.61
High vs. Low	11.02**	4.36
Age at Release (in years)	13.75**	0.96
Community Employment	34.18***	0.27
CORCAN + VOC vs. CORCAN only	2.20$^{n.s.}$	0.73

Note. The overall model was significant (χ^2 (5) = 72.77, $p < .001$).
*$p < .05$. *$p < .01$. ***$p < .001$. *n.s.* = Not significant.