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RESEARCH TOPIC

This bulletin addresses the topic of correctional industry programs. These programs are common across the United States and Europe, and research suggests that they may hold promise for helping accomplish correctional goals. However, correctional industry programs have not been adequately evaluated in the literature.

RESEARCH ISSUES

This study is a descriptive analysis of the Kentucky Correctional Industries (KCI) Program. The specific issues addressed include: (a) the characteristics of inmates who participated in KCI between 1996 and 1998, (b) the work performance of these inmates as evaluated by KCI supervisory staff, as well as (c) the return to prison rate for these inmates over a one-year follow-up period and factors associated with return to prison.

RESEARCH FINDINGS

KCI participants were predominately white, middle-age males who had completed 11 to 12 years of education and been employed prior to incarceration. Most had not been incarcerated in the Kentucky Department of Corrections previously and were serving time for sex crimes or violent offenses. Very few KCI employees resigned or were terminated from their prison jobs, and the vast majority received either average or above average work performance ratings from their supervisors. During the follow-up period, only 13.5 percent of the sample was returned to prison, and this rate compares favorably with both the national rate and the rate for the overall Kentucky prison population. Most recidivism did not involve new criminal activity, and the likelihood of recidivism was greatest relatively early on in the follow-up period. Although the likelihood of recidivism was not predicted by any demographic or work performance measures, it was significantly greater among KCI participants with prior records of incarceration.

A DESCRIPTIVE STUDY OF THE KENTUCKY CORRECTIONAL INDUSTRIES PROGRAM¹

Irina R. Soderstrom & Kevin I. Minor

Department of Correctional and Juvenile Justice Studies
Eastern Kentucky University

Thomas C. Castellano

Center for the Study of Crime, Delinquency and Corrections
Southern Illinois University

Heather Figaro

Criminal Justice Graduate Program
Eastern Kentucky University

INTRODUCTION

The need to provide work experiences for prison inmates has been stressed for many years.² One type of work that has commonly been made available is participation in prison-based industry programs. A 1995 Bureau of Justice Statistics survey of all state and federal adult correctional facilities in the U.S. revealed that 94 percent of such facilities had work programs, and roughly one-third employed inmates in prison industry.³ A 1999 survey of U.S. prison systems further highlights the value correctional systems place on industry programs. A total of 49 jurisdictions, including the Federal Bureau of Prisons, reported budgeting over \$1.5 billion for prison industry ventures. Over 72,000 males and 5,000 females were participating in industry programs at the time of the survey, with over 400,000 inmates being eligible for participation. The reported sales figure for products from industry programs was over \$1.6 billion.⁴ Prison industry is also popular in Europe; most European prison systems maintain very active industry programs.⁵

Besides the rather obvious goals of making a profit and saving the government money, two other goals of prison work programs have traditionally been emphasized.⁶ The first goal focuses on reducing idleness and misbehavior among inmates during the period of incarceration, while the second emphasizes inmates becoming more productive and law-abiding citizens upon release. There is widespread belief that prison industry can promote both these goals. Commenting on the views of chief government figures in prisons and prison industries from eight European countries, Smartt observes "almost everyone involved has faith in the rehabilitative effects of industrial work and vocational training. [However] there is virtually no evidence that

either one affects recidivism or inmate employment after release....There is a large gap in European research knowledge."⁷ The gap Smartt mentions is not confined to Europe. There is a paucity of knowledge about U. S. prison industry programs as well. It is uncertain whether these programs are effective in producing either safe and orderly prison environments or reformed offenders.

This bulletin provides a descriptive analysis of the Kentucky Correctional Industries (KCI) Program. As demonstrated below, past studies suggest only tentatively that prison industry programs may be effective in serving a number of key correctional functions. As such, additional research on these programs is warranted. The KCI program has not been researched previously, and this bulletin is the initial step in an on-going empirical evaluation of the program.

LITERATURE REVIEW

A number of studies suggest that participation in prison industry programs is associated with fewer disciplinary infractions and improved institutional adjustment.⁸ However, it is not clear whether these outcomes can be attributed directly to industry programs or whether inmates who are less likely to have infractions in the first place are the ones most likely to participate (or be chosen by officials to participate) in programming. Further, there is evidence from a study by Maguire that industry participation is more strongly related to fewer disciplinary problems among inmates having relatively high infraction rates prior to program participation than among inmates with lower baseline rates.⁹ This raises the possibility that industry may differentially affect subgroups of inmates, and this possibility has not been adequately explored.

Although the present study does not provide data on disciplinary infractions, it does examine industry work performance as well as recidivism across offender subgroups. Advocates of the rehabilitative ideal have long contended that successful work experiences among prisoners can help promote successful reintegration into the community. The present study explores this proposition by studying the post-release records of persons who were employed by the KCI Program during their period of incarceration.

Empirical results are ambiguous about the extent to which prison industry furthers the goal of reducing offender recidivism. At a general level, some criminologists have contended that the employment-recidivism link is tenuous and have supported this contention by noting that research on a variety of correctional employment programs has identified few successes.¹⁰ Conversely, other reviews of the research have concluded that the vocational and economic achievements of individuals are inversely related to levels of criminality.¹¹

At a more specific level, there is evidence that prison industry programs are associated with relatively low rates of recidivism. A good deal of this evidence comes from in-house studies conducted by correctional agencies. For instance, Anderson compared the recidivism (i.e., re-incarceration) of Ohio inmates who had participated meaningfully in prison industry while incarcerated to that of a group of released inmates who

either did not participate in industry programming or participated for less than 90 days. He reported a 24.6 percent recidivism rate for the industry group and a 29.9 percent rate for the comparison group. Anderson further reported that offenders holding high skill industry jobs showed a 50 percent reduction in recidivism.¹²

Likewise, the New York State Department of Correctional Services studied return to prison rates for 249 male inmates who successfully completed an industrial training program, 56 participants who were removed from the program for disciplinary infractions, and the general male inmate population released from prison. Successful participants had lower return to prison rates a year after release and five years after release than both unsuccessful participants and the general parolee population.¹³

Saylor and Gaes presented data on post-release outcomes for over 7,000 federal inmates released between 1983 and 1987. They compared inmates having prison industry work experience to: (a) inmates with a combination of such experience and vocational training, (b) those with only vocational or apprenticeship training, and (c) those without any industry or training experience. Groups were matched by gender, security level, and a variety of criminal, educational, and employment history measures. Inmates who worked through industry or other training programs were less likely to recidivate (i.e., be rearrested or have conditional release revoked) during their first year back in the community than inmates without such experiences.¹⁴

Motiuk and Belcourt analyzed the relationship between participation in Canada's prison industry program (CORCAN) and post-release outcome. Their sample included 277 inmates who had six months or more of uninterrupted participation in CORCAN and at least a one-year follow-up period (mean = 1.6 years). Recidivism was measured by re-admission to federal custody and new convictions. Re-admission to federal custody for CORCAN participants (39.5%) was comparable to re-admission for the general inmate population (37.1%). Additional analyses by Motiuk and Belcourt revealed that slightly more than half of the industry participants were classified as "very good" or "fair" risks on an instrument designed to measure an inmate's prospects for avoiding recidivism. Inmates classified as "very poor" risks recidivated at higher rates. Because the authors did not report risk levels for the general population, we do not know how the aggregate risk level posed by CORCAN inmates compared with that posed by the general population. Most studies suggest, however, that inmates who participate in prison work programs tend to be lower risk than inmates in general.¹⁵

Flanagan, Thornberry, Maguire, and McGarrell tried to control for the selection bias that can confound a study when primarily lower risk inmates are placed in industry programs. These researchers studied two large samples of inmates who had worked in New York State prison industry programs for at least six continuous months. They selected a comparison group of inmates who were confined in the same facilities during the same time period, but who were not employed in prison industry. Their major findings included:

1. Industry participants were older, serving longer sentences, and

had served more time in prison. They were more likely to have been employed prior to arrest, were less likely to have been pre-prison drug users, and were more likely to be Black or Hispanic than non-participants. These differences existed despite sophisticated matching schemes that were employed. Industry participants and non-participants did not differ in terms of crime of commitment, prior criminal record, and age at first arrest.

2. Various re-arrest and readmission to prison measures indicated no significant differences in recidivism rates between industry participants and non-participants.

3. When offender characteristics were controlled, the recidivism rates of the groups were virtually the same.¹⁶

These generally negative findings were reinforced in a reanalysis of the dataset. Findings from the reanalysis indicated that 29 percent of the industry participants and 34 percent of the non-participants were arrested on a felony charge following release. When differences between these groups were statistically controlled on other characteristics associated with recidivism, however, the recidivism rates of participants and non-participants were virtually identical.¹⁷

Finally, in a recent analysis of previous studies of correctional industry programs, Wilson, Gallagher, Cogeshall, and MacKenzie concluded that "these findings are promising but are insufficient to draw any strong conclusions regarding the effects of correctional work programs on future offending rates for prison inmates."¹⁸ There is a need for continued research in this area, particularly research that examines how various offender characteristics might mediate the association between industry programming and recidivism.

PROGRAM OVERVIEW

KCI is a self-supporting division of the Kentucky Department of Corrections (DOC) that receives no funding from the state. The DOC and KCI work together to furnish the buildings for industry operations and pay the associated utility and maintenance costs. KCI furnishes all the necessary materials and equipment. Approximately 92 percent of KCI's total business dealings are conducted with state agencies, and the remainder is conducted with local government entities such as public school systems.

KCI has 23 operations located in 10 of the state's adult institutions. Of the state's total adult inmate population (which was between 14,000 and 15,000 in 1998) approximately 800 inmates are KCI employees. Examples of the types of work performed by these employees include: metal fabrication, data processing, printing, office seating, as well as wood, fabric, sign, and mattress manufacturing. Inmate work is supervised by KCI personnel. Each plant has an operations manager, and supervisors report to the manager. KCI has a total staff of 78 persons.

KCI's goal is to train inmates in marketable skills so that, upon exiting the prison system (either on parole or through serving out their sentences), they are in a better position to: (a) obtain employment in the free world labor market and (b) not reenter the system for new criminal behavior or technical violations of com-

munity supervision rules. Toward this end, KCI officials post job vacancies as these become available at various facilities. Inmates apply, interview, and have their institutional records assessed. The assessment includes examination of their existing job skills, career goals, and potential for productive work. If they are hired, they must complete a probationary/training period, and if this is successfully completed, the job becomes permanent. Inmates begin at 25 cents per hour and can receive raises to 85 cents per hour; the average wage in the program is 55 cents per hour. Inmates work five days per week and, if needed, are available for overtime on weekends. On average, inmates work six hours per day, although this varies by institution.

OBJECTIVES AND DELIMITATIONS OF THE PRESENT STUDY

This study has three objectives. The first is to describe the characteristics of inmates employed by KCI, which is important for knowing to whom and what groups the findings might potentially generalize. The second objective is to describe inmate work performance as evaluated by their KCI supervisors. Favorable outcomes would not be anticipated if the program performance of the sample was generally sub-average. The final objective is to describe the recidivism outcomes associated with the program and to examine variables associated with recidivism.

In terms of delimitations, the current study is restricted to a descriptive, single group analysis using one main outcome variable - return to prison. Such a study is a prerequisite for a more rigorous impact evaluation of KCI's effect on recidivism and other outcomes. An understanding of the characteristics of inmate workers, their work performance as rated by KCI supervisors, and the factors associated with recidivism will provide a foundation for ultimately determining the impacts of KCI.

METHOD

Sample

The sample consisted of all Kentucky inmates who had worked for KCI at least six consecutive months between June 1, 1996 and June 30, 1998 and who were released from prison at least 12 months prior to data collection. A total of 126 inmates met the criteria for sample inclusion.

A number of data constraints made these criteria necessary. First, because inmate records of KCI participation are retained only temporarily, the study was limited to inmates employed by KCI during 1996, 1997, and 1998. Further, the desire for a one-year follow-up period on each inmate precluded study of inmates who worked for KCI after June 30, 1998; subjects must either have been paroled or completed their sentences prior to that date. A final data collection constraint pertains to the length of exposure to the KCI program. According to KCI officials, a person cannot be expected to gain much of value unless s/he is continually employed by KCI for at least six months. This is also consistent with the approach followed in other studies mentioned earlier.

Interestingly, no women inmates were eligible for sample inclusion because the 35 females who worked for KCI during the study period had not yet been released from prison. They were

generally serving long or life sentences, commonly for homicide convictions. Thus, the sample was comprised entirely of males.

Data Collection

Archival records furnished by KCI and by the Kentucky DOC served as data sources.¹⁹ Various categories of data were collected, and these are described below.

Inmate Characteristics. Demographic information was collected from an automated database maintained by the DOC. Efforts were made to obtain complete information on all subjects for age, gender, race, education level, and occupation.

Work Performance Measures. KCI does not use a standard method for assessing the work performance of inmates across institutions. Consequently, the director of KCI asked work supervisors at each of the facilities having KCI operations to describe members of the sample on a number of factors including: inmate work assignments, job duties, amount of supervision needed, attitude toward authority, completion of assignments, attendance, personal hygiene/ habits, performance initiative, productivity, work quality, attained job knowledge/skills, responsibility, and interpersonal skills. Because supervisors were not instructed to employ a uniform rating scale when writing these descriptions, their responses were categorized into one of three ordinal ratings by the research team. These ratings included "below average," "average," and "above average" performance. Finally, available information was collected on job dismissals or resignations.

Recidivism and Other Data. Drawing on DOC records, data were collected on criminal history and recidivism. Recidivism was defined in terms of return to the Kentucky prison system for a new offense or other violation occurring during the 12-month follow-up period. While return to prison is a conservative measure of recidivism (as opposed to such measures as new police contacts, new arrests, or even new convictions), this was also the most obtainable and reliable source of data for the greatest number of subjects. Moreover, according to KCI officials, return to the prison system is what the KCI program is specifically meant to prevent. Other legal data that were collected included: number and types of convictions, sentence lengths, parole release dates, parole revocation dates, as well as parole and institutional custody and status measures.

Data Analysis

Given the descriptive nature of this study, the data were analyzed by computing frequencies, descriptive statistics (e.g., averages and percentages), as well as bivariate correlations and cross tabulations to explore relationships among measures. Stepwise logistic regression analyses were conducted to identify the variables predictive of recidivism. The logistic analyses describe how much more (or less) likely an inmate was to recidivate given specific background and work performance characteristics.

Only five (4.0%) of the inmates were dismissed from KCI, and only 11 (8.7%) resigned their employment. Thus, the variables predictive of dismissal/resignation could not be studied and neither could the relationship between dismissal/resignation and recidivism.

RESULTS

Inmate Characteristics

Demographics. As already mentioned, all 126 persons in the sample were male. These persons ranged in age from 23 to 73, with a median age of 41 years and a mean age of 42.2 years (SD=9.82). Only about one-third (34.1%) of the sample consisted of ethnic minorities. Many subjects had obtained education levels that surpass education levels usually found with prison samples. The mean years of education completed was 11.4 (SD=2.06), and the median was 12 years. Information was available for 104 subjects (82.5%) on occupation at the time of the holding conviction (i.e., the conviction for the instant offense). Over a third (38.5%) reported being employed as laborers, nearly 20 percent reported working as carpenters/construction workers, and 12.5 percent were working at mechanical and technical jobs. Only 2.9 percent of the inmates were not employed at the time of the holding conviction.

Criminal History and Recidivism. The period of incarceration during which KCI employment took place was the first period of incarceration in the Kentucky DOC for most (72.2%) of the sample. It is not known how many inmates were incarcerated as juveniles or how many had prior incarcerations in other jurisdictions or in local jails.

Data on the number of convictions and sentences are reported in Table 1. Table 1 reiterates that most subjects had never been incarcerated prior to the study time frame. The table further shows that the instant incarceration resulted from an average of 3.2 holding conviction charges per inmate and carried an average sentence of 15.3 years. The 33 inmates who had at least one previous incarceration had typically been serving sentences between 10 and 12 years on those prior incarcerations. The remainder of the table is interpreted in like fashion.

Table 1. Descriptive Information on Convictions and Sentences (Measured in Years)

	N	Median	Mean	St. Deviation	Range
# of Prior Incarcerations	126	0.00	0.53	1.03	0-5
# of Holding Conviction Charges	126	2.00	3.21	4.23	1-36
Holding Conviction Sentence Length (Excluding 5 Lifers)	121	10.00	15.26	15.54	3-125
Sentence Length for 1st Prior Incarceration	33	10.00	11.76	7.97	2-35
Sentence Length for 2nd Prior Incarceration	12	5.00	8.75	7.39	2-24
Sentence Length for 3rd Prior Incarceration	7	10.00	12.71	9.76	1-24

The data in Table 2 reveal that the most serious conviction charge for the largest proportion (35.7%) of KCI subjects was a sex offense, while the second largest proportion (23.8%) were incarcerated for violent offenses. Nineteen percent had been

returned to prison as parole violators.

Even though over half of the conviction offenses were either Class D (28.6%) or Class C (23.0%) felonies, close to 30 percent were Class B felonies or higher. As reported in Table 2, 27 percent of the sample had violated parole (RPV) as part of the holding conviction. Furthermore, over 21 percent had persistent felony charges included among their holding conviction charges. Collectively, these data show that most KCI subjects were incarcerated for crimes in the moderate to high seriousness range.

Table 2 also indicates that roughly half (49.2%) of the inmates were released into the follow-up period as a result of being paroled. The other half (50.0%) served out their sentences.

The key outcome variable in this study is shown at the bottom of Table 2. It can be seen that 13.5 percent of the sample were returned to prison during the one-year follow-up time frame. By comparison, the typical return to prison rate for the Kentucky DOC (i.e., KCI inmates and non-KCI inmates combined) has been around 30 percent. The DOC has tracked recidivism for a number of years and defines it as return to one of the state's institutions within two years of release. The use of a two-year follow-up period (versus the one-year interval employed in the present study) functions to artificially inflate the overall DOC rate if it is compared with the KCI rate. Thus, the comparable difference would not be as great as 16.5 points.

Table 2. Most Serious Conviction Charge and Type of Release for the Holding Conviction, and Recidivism Rate for Follow-Up Period (N=126)

	Frequency	Percent
Most Serious Holding Conviction Charge		
Drug Offense	15	11.9
Property Offense	7	5.6
Sex Offense	45	35.7
Violent Offense	30	23.8
Other Offense (e.g., DUI, escape, crim. mischief)	5	4.0
Returned Parole Violator (RPV) with Warrant	24	19.0
Felony Class of Most Serious Conviction Charge		
X	2	1.6
A	12	9.5
B	23	18.3
C	29	23.0
D	36	28.6
Unknown	24	19.0
Holding Conviction Charges Included an RPV		
No	92	73.0
Yes	34	27.0
Holding Conviction Charges Included a Persistent Felony Charge		
No	99	78.6
Yes	27	21.4
Type of Release		
Paroled	62	49.2
Administrative Release/Served Out	63	50.0
Shock Probated	1	.8
Re-Incarcerated During Follow-Up Period		
No	109	86.5
Yes	17	13.5

Data on reasons for return to prison (not presented in tabular form) revealed that all 17 recidivists were returned to prison for parole violations. With the exception of two parole violators for whom data were unavailable, a clear pattern of reasons for parole revocation was detected. Only three violators were

revoked as a result of new criminal offenses. The remaining persons had parole revoked either for failing mandated drug/alcohol treatment programs, for absconding from parole supervision, or for a combination of these two reasons.

The time to failure for recidivists (i.e., the interval between prison release and the violation) ranged from 16 to 358 days. The average time to failure was 189.7 days (SD=97.94).

Work Performance

Table 3 reports program supervisors' ratings of KCI inmates. These data show that most KCI inmates were rated by their supervisors as: requiring a below average level of supervision (74.6% of inmates), having above average attitudes toward authority (87.3%), and performing an above average quality of work (71.8%). Over two-thirds of the sample received average ratings in the areas of attendance, performance initiative, attaining job knowledge/skills, and demonstrating responsibility. The only area in which more than 10 percent of the inmates received negative ratings was in the area of interpersonal skills.

Table 3. Frequencies and (Percentages) for KCI Performance Ratings by Program Supervisors (N=118)

Rated Item	Below Ave.	Average	Above Ave.
Amount of Required Supervision	88 (74.6%)	28 (23.7%)	2 (1.7%)
Attitude Toward Authority	0 (0.0%)	15 (12.7%)	103 (87.3%)
Completion of Work Assignments	2 (1.7%)	64 (54.2%)	52 (44.1%)
Attendance	3 (2.5%)	101(85.6%)	14 (11.9%)
Personal Hygiene/Habits	5 (4.3%)	56 (47.9%)	56 (47.9%)
Performance Initiative	4 (3.4%)	84 (71.8%)	29 (24.8%)
Productivity	3 (2.6%)	45 (38.5%)	69 (59.0%)
Work Quality	0 (0.0%)	33 (28.2%)	84 (71.8%)
Attained Job Knowledge/Skills	5 (4.6%)	84 (77.1%)	20 (18.3%)
Demonstrated Responsibility	9 (7.8%)	83 (72.2%)	23 (20.0%)
Interpersonal Skills	16 (13.9%)	27 (23.5%)	72 (62.6%)

Recidivism

Recidivism and Demographics. Bivariate tests were performed to examine the relationship between recidivism and a number of demographic variables including ethnicity, age, years of education, and pre-prison occupations. None of these tests yielded statistically significant findings.

Recidivism and Criminal History. Although there were no significant relationships between recidivism and a few of the criminal history variables reviewed earlier in Tables 1 and 2 (e.g., felony class and number of holding conviction charges), most of these variables were significantly related to recidivism. Two continuously measured criminal history variables were significantly correlated with recidivism. First, a KCI inmate was more likely to return to prison as his number of previous incarcerations increased (point-biserial correlation = .32, $p < .01$). Conversely, the likelihood of recidivism decreased as the sentence length for the first prior incarceration increased (point-biserial correlation = -.37, $p < .05$).

Table 4 presents the results of chi-square analyses for cross-tabulations between recidivism and the categorical criminal history variables. It can be seen that while the relationship between recidivism and the most serious conviction charge was not significant, some differences did exist between recidivists and

non-recidivists. The largest proportion of non-recidivists (38.5%) were sex offenders, while the largest proportion of recidivists (35.4%) were inmates who had returned to prison for parole violations (RPV in Table 4).

While only 22 percent of non-recidivists had a parole violation included among their conviction charges, the majority (58.8%) of recidivists had such a violation. Thus, recidivism was more likely among people who had recently completed serving time for parole violations. Similarly, while only 16.5 percent of non-recidivists had a persistent felony charge among their holding conviction charges, over half (52.9%) of recidivists were persistent felons. Finally, while the majority (58.3%) of non-recidivists had served out their sentences and been granted administrative release, all of the recidivists were released into the follow-up period via parole.

Table 4. Chi-Square Results of Cross-Tabulations between Recidivism and Categorical Criminal History Variables (N=126)

	% of Non-Recidivists	% of Recidivists	χ^2	df	p-value
Most Serious Holding Conviction Charge					
Drug Offense	12.8	5.9	9.81	5	.081
Property Offense	4.6	11.8			
Sex Offense	38.5	17.6			
Violent Offense	24.8	17.6			
Other Offenses	2.8	11.8			
RPV with Warrant	16.5	35.3			
Holding Conviction Charges Included an RPV					
No	78.0	41.2	10.11	1	.001
Yes	22.0	58.8			
Holding Conviction Charges Included a Persistent Felony Charge					
No	83.5	47.1	11.59	1	.001
Yes	16.5	52.9			
Type of Release					
Paroled	41.7	100.0	19.99	1	.000
Administrative	58.3	0.0			

Recidivism and Work Performance. None of the work performance measures were significantly related to recidivism. However, as is apparent from Table 3, there was limited variation across supervisors' ratings of inmate work performance (i.e., most inmates received average or above average ratings). Therefore, the prospects for valid statistical testing were limited.

Logistic Regression Model of Recidivism. To predict the likelihood of a KCI inmate being returned to prison during the follow-up period, a stepwise logistic regression model was computed. Variables for the model were ones identified in the bivariate analyses as significantly related to recidivism: number of prior incarcerations, the presence of a parole violation among the conviction charges, persistent felon status, and type of release. Basically, what the model does is to estimate the effect of any given variable (say persistent felon status) on recidivism with the effects of all remaining variables held constant simultaneously.

The idea is to estimate the independent effects (if any) of each variable in the model.

The regression of the recidivism measure on the above named variables resulted in a statistically significant overall model comprised of just one predictor, namely, the number of prior incarcerations ($\chi^2=9.54$, $df=1$, $p=.002$).²⁰ That is, the other three variables independently contributed nothing substantial to the prediction of recidivism.²¹ The final model appears in Table 5. The odds ratio in the next to last column indicates that for each additional incarceration an inmate had prior to the holding conviction, the inmate was 1.41 times more likely to recidivate during the one-year follow-up than inmates lacking prior incarcerations. The R^2_L shows the amount of variation in recidivism outcomes explained by the regression model.²² The prior incarceration variable contributed an 11 percent improvement over chance in predicting recidivism. While the model accounted for a only small proportion of variation in recidivism, it did well at classifying subjects into their actual outcome categories, correctly predicting 85.6 percent of all cases.

Table 5. Stepwise Logistic Regression Results of Recidivism Variable (N=125)

Predictor	Constant	B	SE	Wald	p-value	Odds Ratio	R^2_L
Number of Prior Incarcerations	-2.36	.65	.21	9.66	.002	1.41	.11

DISCUSSION

Recall that the objectives of this study were to describe the characteristics, work performance, and recidivism of KCI employees as well as to identify factors associated with recidivism. Findings revealed that the typical KCI employee studied was a white male in his early forties with 11 to 12 years education who: (a) had worked as a laborer, carpenter, or construction worker prior to incarceration; (b) had not been incarcerated in the Kentucky DOC previously; and (c) was serving a sentence of slightly over 15 years for a crime of moderate to high seriousness. Although there was considerable variation in conviction charges, the largest proportion of the sample had been convicted of sex offenses and/or violent offenses. Less than one-quarter of the inmates were classified as persistent felons.

The vast majority of inmates received average or above average work performance ratings from their KCI supervisors. Furthermore, very few persons resigned from their jobs, and fewer still were terminated; this is consistent with the generally positive performance ratings from supervisors and implies that most inmates saw KCI employment as desirable and worth retaining.

What cannot be determined from the data at hand is whether the KCI program actually develops positive work attributes among inmates. This is one possibility. An alternative possibility is that the program screens and selects inmates who already display such attributes and then reinforces the attributes. Yet another explanation is that inmates with positive orientations toward work and higher levels of motivation are drawn toward KCI via a process of self-selection. The KCI hiring process would be expected to "cream" those inmates showing the best employment potential, particularly given the fact that KCI offers inmates

the best paying prison jobs coupled with an opportunity to acquire marketable job skills. Of course, these three possibilities are not necessary exclusive of one another; all could be true to some extent. A research design with a control group is needed to address this issue further.

The one-year recidivism rate of 13.5 percent for former KCI participants is either less than or comparable to the rates reported in other studies.²³ Also, the rate compares favorably with the rate for the overall Kentucky prison population, and this pattern is consistent with much of the literature reviewed earlier. Recently, Petersilia reported that nationally "about half of parolees fail to complete parole successfully, and their returns to prison represent about a third of incoming prisoners."²⁴ Given this, the low recidivism rate for the KCI program seems encouraging. So does the fact that few persons were returned to prison for new criminal offenses. A high proportion of parole revocations were for technical violations, and this finding is also consistent with past research.²⁵ However, in the absence of a matched control group of non-participants, there is no solid basis for drawing conclusions about how the KCI group performed in relation to other inmates.

The likelihood of recidivism was not related to any of the demographic and work performance measures. While bivariate analyses revealed significant relationships between reincarceration and a number of criminal history variables, multivariate testing showed that only the prior incarceration variable had any predictive utility. Specifically, KCI employees with a prior incarceration were significantly more likely than employees lacking prior incarcerations to be returned to prison in the year after release from prison. This reaffirms something well known in the field, namely that past offending and involvement with the system tends to be a good predictor of future offending and system involvement, although not all studies have supported this trend.²⁶

This study replicates a well-established trend for recidivism to be most probable relatively early in the period of release from prison. The mean time to failure among recidivists was just over six months. The implication is that the most intense support for parolees needs to be provided during the initial period after prison release when the likelihood of recidivism is greatest. As Petersilia notes, "developing programs to reduce parole recidivism should be a top priority," and she specifically cites employment and substance abuse programs as promising types of intervention.²⁷ It is important for promising programming efforts that are initiated in prison to have post-release counterparts in the community to promote continuity in correctional services and help insure that any gains inmates make are sustained.

This study does not allow determination of whether participation in KCI is responsible for low recidivism. It is possible that those inmates less prone to recidivism for another reason (e.g., higher education level) were employed by KCI in disproportionate numbers. Creaming and self-selection are possibilities that cannot be ruled out with the data on hand. To adequately address this issue, at minimum one would need a comparison group of non-KCI participants matched with the KCI sample on key variables known to be associated with recidivism. A key category of matching variables suggested by this study is criminal

history, including prior incarcerations. At the same time, however, not much variation in recidivism was accounted for by the variables analyzed here; the findings imply the need to identify and study additional variables. In this way, the present study can be seen as implying the need for a more rigorous evaluation of KCI's impact on recidivism.

This study confirms for the Kentucky program most of what is already known about correctional industry programs nationally. Given that inmate recidivism rates are considerably higher than desired in most areas of the country, and given the astronomical costs of continuing to build and operate prisons that are populated with recidivists, it is difficult to overstate the importance of developing correctional interventions that contribute to lowered rates of return to prison. Correctional industry programs continue to represent one possibility in this regard.

NOTES

- ¹An earlier version of this paper was presented at the annual meeting of the Academy of Criminal Justice Sciences, New Orleans, LA, March 24, 2000.
- ²E. E. Means, *Prison Industries and Rehabilitation Programs* (Miami, FL: Florida State University Press, 1959).
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- ⁵U. Smartt, "Correctional Industries in Europe." *Corrections Compendium*, Vol. 24, No. 11, 1999, pp. 1-5, 24-26.
- ⁶W. B. Cox, F. L. Bixby, and W. T. Root (Eds.), *Handbook of American Prisons and Reformatories* (New York: The Osborne Association, Inc., 1933).
- ⁷Smartt, "Correctional Industries in Europe" (p. 24).
- ⁸California Department of Corrections, *Comparison of Inmate Behavior in Prison Industry Authority and Other Job Assignments* (Sacramento, CA: California Department of Corrections, Research Division, 1998). T. J. Flanagan, and K. Maguire, "A Full Employment Policy for Prisons in the United States: Some Arguments, Estimates, and Implications." *Journal of Criminal Justice*, Vol. 21, 1993, pp. 117-130. T. J. Flanagan, T. P. Thornberry, K. E. Maguire, and E. F. McFarrell, *The Effect of Prison Industry Employment on Offender Behavior: Report of the Prison Industry Research Project* (Albany, NY: Hindelang Criminal Justice Research Center, State University of New York, 1988). K. E. Maguire, *Prison Industry: The Effect of Participation on Inmate Disciplinary Adjustment* (Albany, NY: State University of New York, unpublished doctoral dissertation, 1992). M. D. McShane and F. P. Williams III (Eds.), *Encyclopedia of American Prisons*. (New York: Garland, 1996). J. Petersilia and P. Honig, *The Prison Experience of Career Criminals* (Sana Monica, CA: Rand, 1980). W. G. Saylor and G. G. Gaes, *PREP: Training Inmates through Industrial Work Participation and Vocational and Apprenticeship Instruction* (Washington, D. C.: Federal Bureau of Prisons, 1996).
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¹⁷K. Maguire, T. Flanagan, and T. Thornberry, "Prison Labor and Recidivism." *Journal of Quantitative Criminology*, Vol. 4, No. 1, 1988, pp. 3-18.

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¹⁹Because the data collection process was unobtrusive, it was not necessary to obtain permission from the subjects themselves. However, written permission was secured from both the Kentucky Department of Corrections and KCI to conduct the research. Both agencies were assured that the data they supplied would remain confidential and would not disclose the names of individuals.

²⁰The goodness-of-fit chi-square test was not significant, suggesting that the model provides an adequate fit to the theoretical model of perfect prediction.

²¹It was expected that RPV status on the holding conviction would serve as a significant predictor in the model. However, this was not the case despite the strong bivariate association to recidivism. The exclusion of RPV status is most likely the result of redundancy with prior incarcerations.

²²S. Mernard, *Applied Logistic Regression Analysis*. (Thousand Oaks, CA: Sage, 1995).

²³Anderson, *Evaluation of the Impact of Participation in Ohio Penal Industries and Recidivism*. Motiuk and Belcourt, *Prison Work Programs and Post-Release Outcome: A Preliminary Investigation*. Compare also the 13 percent recidivism rate reported by the Utah Governor's Task Force on Correctional Industries, *The Challenge of Correctional Industries* (Salt Lake City, UT: Utah Department of Corrections, 1984) and the 12.7 rate reported by a private correctional industries program in Florida (available: <http://www.peol.com>).

²⁴J. Petersilia, "Parole and Prisoner Reentry in the United States," in M. Tonry and J. Petersilia (Eds.), *Prisons* (Chicago, IL: University of Chicago Press, 1999), pp.479-529, quoted from p. 479.

²⁵See J. Petersilia and S. Turner, "Evaluating Intensive Supervision Probation/Parole," in T. Ellsworth (Ed.), *Contemporary Community Corrections*, 2nd ed. (Prospect Heights, IL: Waveland, 1996), pp. 349-371. See also S. Turner and J. Petersilia, "Work Release: Recidivism and Corrections Costs in Washington State." *National Institute of Justice, Research in Brief*, December 1996.

²⁶See D. J. Hartmann, P. C. Friday, and K. I. Minor, "Residential Probation: A Seven-Year Follow-up Study of Halfway House Discharges." *Journal of Criminal Justice*, Vol 22, No. 6, 1994, pp. 503-515.

²⁷J. Petersilia, "Parole and Prisoner Reentry in the United States," quoted from p. 479.

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