Correctional Industries

preparing inmates for re-entry:

Recidivism & post-release employment

Final report

May 10, 2006

Cindy J. Smith, Ph.D.

Jennifer Bechtel, M.S.

Angie Patrick, M.S.

Richard R. Smith

Laura Wilson-Gentry, D.P.A.

This project was supported by Grant No. 2004-DD-BX-1001 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. Points of view in this document are those of the author and do not necessarily represent the official position or policies of the US Department of Justice.

Acknowledgements

This project began in 2000 as a potential solution to the dearth of policy research needed by the advocates for and against correctional industries. The seeds were planted at the National Correctional Industries Association (NCIA) headquarters under the direction of Gwyn Smith-Ingley, Executive Director. Our gratitude extends to her and her staff for the tireless support and advocacy for this research. Additionally, the NCIA's Research Advisory Board was instrumental in the design and strategy of the research. Although each member contributed significantly, Derral Cheatwood, Ph.D. was particularly instrumental in developing the ideas of the Board into a draft research plan. This plan was supported and advanced in the respective disciplines by each of the Board members; Patrick Henry, Ph.D., Representative Ray Allen (R-Tx), Jeffrey Merrill, Jeri Houchins, Thomas Petersik, Ph.D., and Tim Mann, Ph.D. In addition, Barbara Auerbach provided wisdom based on her many years of consulting in the field of correctional industries.

Particularly critical to the study were the directors of the various departments of correction, correctional industries and research departments, who provided literally reams of data and automated data files. They opened their offices to the research team for months and donated countless hours to the project. Without their support, this project could not have been accomplished. Although we would like to personally thank each of these devoted employees, it was determined best to allow the states to remain anonymous. In addition to the state employees and private industry personnel, we would like to thank Fevzi Altun, M.S. and Ozgur Nikbay, M.S. for their research

assistance in coding data. A special thanks to Kimberly S. Craig, M.A., who worked on all of the preliminary stages of this research.

In addition to the research team, this study benefited from the wisdom of two advisory groups. First, the research offices within the participating states offered their advice and expertise on the practical implementation and appropriate use of the data. Again, we would like to thank them personally, but confidentiality prevents this. Second, a multidisciplinary team was created to benefit the research by providing a wide array of input into the process and findings. A special thank you to the following individuals who represented their disciplines in the design, analysis, and interpretation of the data; Gerry Gaes, Corrections, Edward Little, Re-entry, Jean Marie Lyon, Psychology, Thomas Petersik, Economics, David Stevens, Labor Economics, and Laura Wilson-Gentry, Public Policy.

Finally, this project could not have been possible without the support of the National Institute of Justice (Grant No. 2004-DD-BX-1001) and their coordination with the Bureau of Justice Assistance (Grant No. 2001-RE-CS-001). We are particularly indebted to Christopher Innes, Ph.D. and Edward Zedlewsky, Ph.D. for taking a personal interest in this project. Additionally, Marilyn Moses, our grant monitor, has spent considerable time advocating for the project.

While this report could not have happened without everyone's support, the authors take full responsibility for its contents.

Table of Contents

Table of Tables

Table of Figures

Executive Summary[1]{ TC "Executive Summary" \f C \l "1" }{ TC "Executive Summary" \f C \l "1" }

Introduction

This report summarizes the first national review of the recidivism and post-release employment effects of the Prison Industries Enhancement Certification Program (PIECP) engaging state prison inmates in private sector jobs since 1979. With the exception of the PIECP program, US jail and prison inmates are prohibited by law from producing goods for sale in open markets based on the Ashurst-Sumners Act of 1935. The original legislation authorizing PIECP in 1979 expected it to result in work experience and training in marketable job skills, while more recent interest not targeted in the original legislation emphasizes income and work experience in order to reduce recidivism.

Since 1979, the Bureau of Justice Assistance has funded various agencies to ensure state compliance with the legislative mandate of the Ashurst-Summers Act without the benefit of a national evaluation. Since 1995, funding to the National Correctional Industries Association, the grant recipient to provide training, technical assistance and monitor the PIECP program, has grown from a few hundred thousand to $1.6 million per year, while the program has grown from 1,724 inmates employed in more than 80 industries to 5,103 inmates employed in over 200 industries across 36 states, and the inmates earned approximately $276.5 million and returned $162.3 million to the economy in the form of room and board, taxes, family support and victims' compensation.

[1] References are intentionally deleted from the executive summary and may be found in the full report.

It has been hypothesized that joint venture industries between inmates/Departments of Correction and the private sector are a promising type of re-entry preparedness in the work experience area and reduces idleness during the prison stay according to the legislation. According to the Bureau of Justice Statistics, PIECP enjoys benefits to a wide variety of stakeholders, including corrections administrators, victims, inmates, private sector, and the public.

Methods

The research design for this study is a quasi-experimental design using matched samples with a test group of PIECP participants and two control groups of those who work in traditional industries (TI) and those involved in other than work (OTW) activities using quantitative analysis of data collected from agency records. The inmates were matched using six criteria. Exact matches were made on *race*: minority and white; *gender*: male and female; *crime type*: person and all other; and category matches on *age*: 5 criteria categories; *time served*: 7 criteria categories; and *number of disciplinary reports*: 10 criteria categories. Other characteristics that prior research has indicated may impact the outcomes (i.e., individual effects, family effects) were examined briefly.

A cluster sampling strategy was used for site selection. This strategy insures a sufficiently large sample by selecting states that have large numbers of PIECP workers within the confines of other criteria. The selection process included all major U.S. geographic regions, rural and urban populations, gender representation to ensure results can be determined based on gender, and each of the models of PIECP (discussed later in this report). Additionally, each state had PIECP certification prior to 1996. This strategy resulted in a selection of five states.

The data were collected from record reviews of outcomes for three matched samples, each of approximately 2200 inmates (n=6464), released from 46 prisons across 5 PIECP states between 1996 and 2001. It examines whether sampled inmates participating in PIECP return to prison less frequently (e.g., recidivism effects) or enter more successful employment (e.g., employment effects) than otherwise similar inmates who either participated only in traditional prison industries (TI) or were involved in other than work (OTW) activities while in prison.

The research responds to the following two questions:

1. Does PIECP participation increase post release employment as compared to traditional industries (TI) work or other than work (OTW) activities?

2. Does PIECP participation reduce recidivism as compared to traditional industries work or other than work?

Both of the research questions are most appropriately answered using survival analysis. The key to both questions is to accurately measure the follow-up time period. Employment effects will be measured by time to obtaining employment (i.e., reported earnings in a given quarter) and the time to loss of employment (i.e., no earnings reported for a quarter). Recidivism will be measured by the time it takes from release to first recidivism (i.e., arrest, conviction, and incarceration).

Key Findings

The primary findings of this research are that inmates who worked in open-market jobs in PIECP were found to be significantly more successful in post-release employment. That is to say, they became tax-paying citizens quicker and remain in that status longer than TI and OTW releasees. Additionally, TI releasees were more

successful post-release in obtaining employment more quickly than OTW releasees. Finally, PIECP releasees had slower and reduced recidivism, as measured by arrest, conviction and incarceration, than TI and OTW releasees. Success was defined using seven criteria found in the following table. A brief discussion of each of these seven follows the table.

Table 1: Success

Measure of success	**Finding**
1) proportion of time employed during the follow-up period	Average proportion of time is 50%
2) time to first employment after release	PIECP participants obtain employment significantly faster than TI & OTW. TI participants obtain employment significantly faster than OTW.
3) duration of first employment	PIECP participants retain the 1st employment significantly longer
4) wage rate during the follow-up period	PIECP participants earn more wages and higher wages
5) time from release to first arrest	PIECP participants are arrested at a slower rate than other groups.
6) Time from release to first conviction	PIECP participants are convicted at a slower rate than other groups.
7) time from release to first incarceration	PIECP participants are incarcerated at a slower rate than other groups

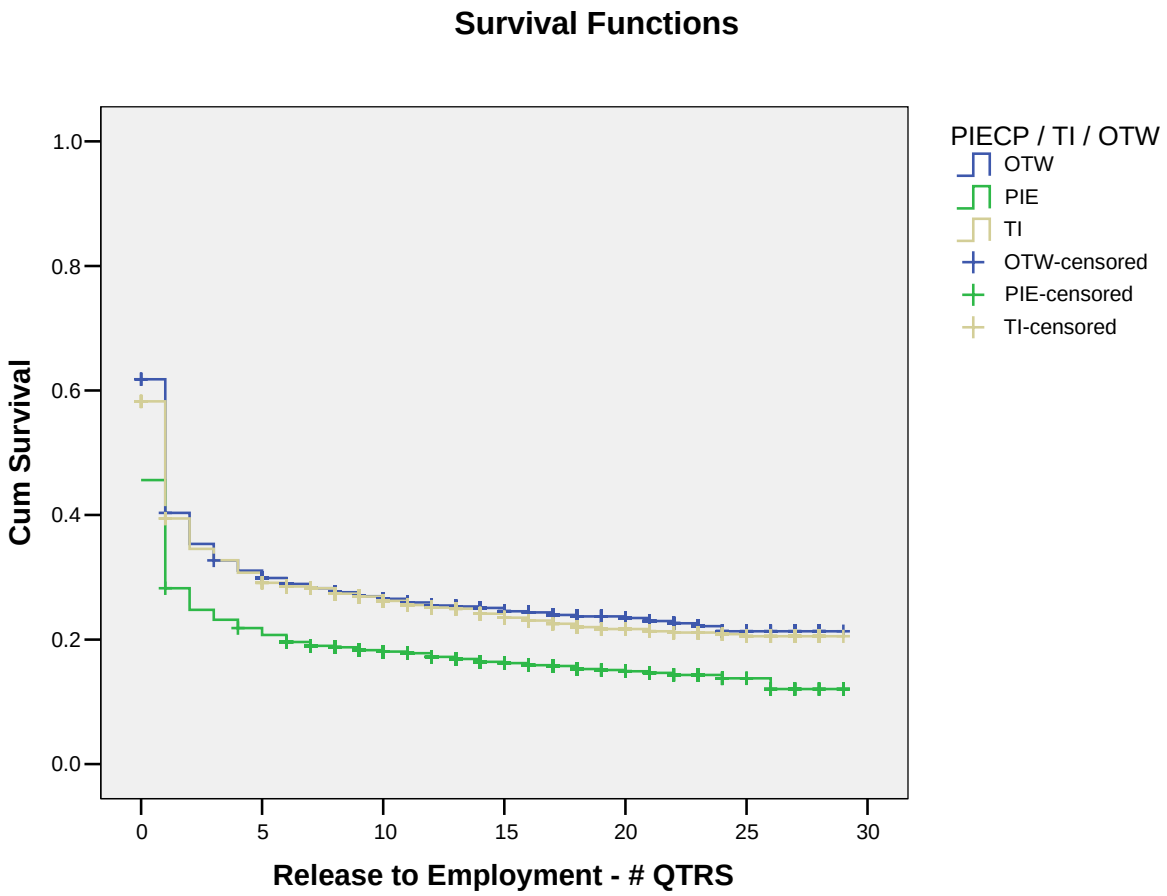
1) Proportion of time post release the releasee worked

Approximately 26 percent (n=1695) of the total sample (n=6464) had no reported earnings during the follow-up period (e.g., the time from release from prison until the end of data collection). The reasons for no reported earnings are unknown, but could include failure to report or record earnings, work in industries in which wages may traditionally not be reported (i.e., agriculture or illegal employment), or employment in other states. And, of course, the data include those who did not work and had no earnings. There is no way of knowing what proportion of this 26 percent is explained by each of these without an individual follow-up. The range of the follow-up period for this measure is a minimum of 6 calendar quarters to a maximum of 31 quarters for the sample. Overall, the average follow-up period for the entire sample is 16.1 quarters (standard deviation 6.4 quarters). Those who had no employment during the follow-up period had an average of 15.7 quarters (standard deviation 6.4 quarters), while those with employment during the follow-up period had an average of 16.3 quarters (standard deviation 6.4 quarters, which is statistically significantly different ($t=3.0$, $p=.003$). This means the group who did not have reported earnings post release were released later in the release window and had less follow-up time. If additional follow-up were conducted at a later time, it is possible this difference would disappear. It is also possible that more recent releasees are less likely to obtain employment. On average, the releasees worked 50 percent of the total time available post release.

2) Length of time to employment

The amount of time that lapsed between release and employment included a comparison of PIECP, TI and OTW to each other to determine who obtained employment faster. Based on the survival analysis, PIECP participants obtained post release employment significantly faster than either TI or OTW and TI releasees obtained employment faster than OTW releasees. The steepest slope indicates that comparably more releasees than other groups have found employment. Approximately 24 and 25 percent of the TI and OTW releasees did not have reported earnings, whereas less than 17 percent of the PIECP's did not have earnings over the course of follow-up.

Figure 1: Survival function - release to employment



First, approximately 55 percent of the PIECP and 40 percent of the TI and OTW obtained employment within the first quarter upon release. Conversely, approximately 45 percent PIECP and 60 percent of the TI and OTW releasees ended the first quarter without experiencing the terminal event (i.e., not obtaining employment). Once the releasee obtains employment, he or she is dropped from further analysis shown in the survival curve. Second, survival analysis provides the amount of time that passes before the curve associated with change in status becomes flattened. By the end of the

fifth quarter approximately 20 percent PIECP and 30 percent TI and OTW releasees have not become employed. An additional five percentage point decline occurs over the next six years indicating that few releasees obtain employment after the first five quarters. Finally, this analysis shows which group obtained employment faster. TI and OTW survival curves, while they appear similar in this graph, are significantly different, indicating that it took OTW releasees longer to obtain employment than TI releasees. The PIECP line drops faster and remains below the other two, which shows that releasees participating in PIECP obtained employment faster than those who do not have the PIECP experience.

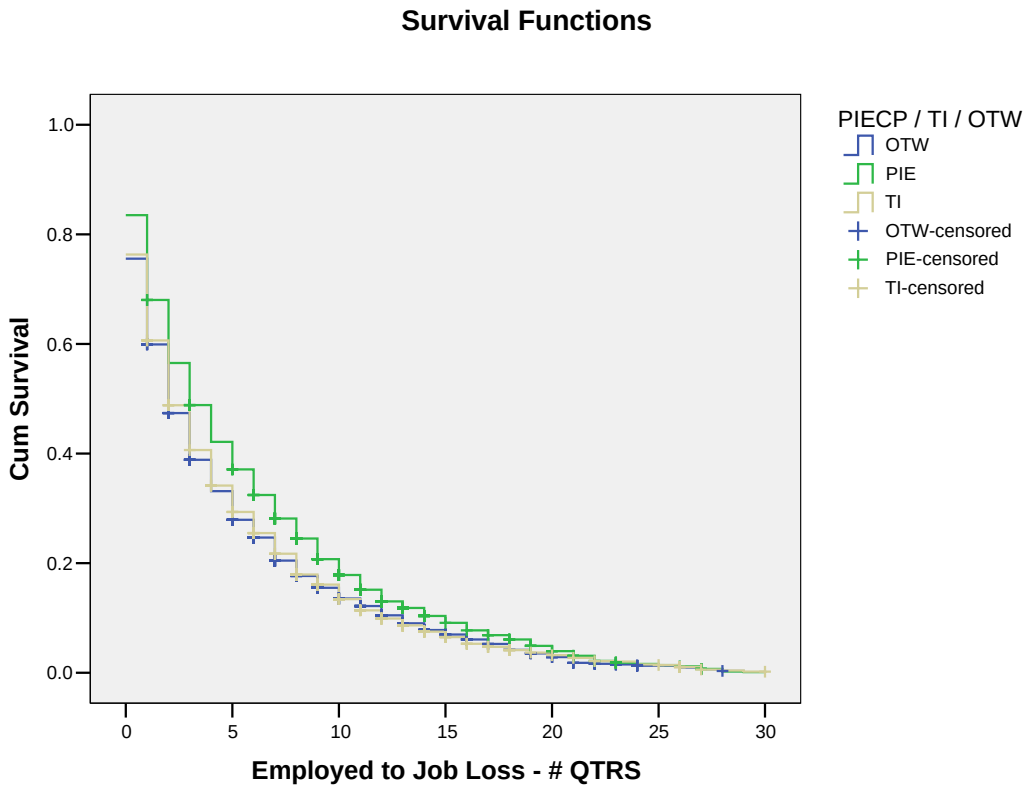
3) Duration of employment

Post-release employment is the length of the time between first employment and the first full quarter without reported earnings or employment. A sequence of jobs or multiple jobs in one quarter (i.e., changing employment, working two jobs), is not counted as a loss of employment. Unemployment within a quarter remains counted as employment so long as there are reported earning within the quarter, and the releasee may be unemployed for large parts of the quarter. Hypothetically, a person only needs to work some part of one day in a quarter to be considered employed for that quarter.

Among those in the sample with one year or more of follow-up (n=6464) and three years or more of follow-up (n=4530), PIECP releasees are more likely to be continuously employed than either TI or OTW. Of the 2333 available PIECP participants, 48.6 percent of them were employed for one year or more continuously and 13.7 percent of them were employed for three years or more continuously, whereas 40.4 percent and 38.5 percent of the TI and OTW releasees respectively were

continuously employed for one year and approximately 10 percent of both TI and OTW groups were continuously employed for over three years. Because the follow-up period varies across the 5.5 years of post-release, some releasees were released less than 2 years. Therefore, the survival analysis provides a better description of the findings than the periodic time series analysis. Based on the survival analysis, PIECP participants retained employment significantly longer. The least steep slope is best because it indicates that comparably more releasees have retained employment. Between 3.8 and 5.3 percent of the releasees remained employed at the end of the follow-up period.

Figure 2: Survival function - employment duration



First, PIECP releasees retain employment longer than TI or OTW releasees for the first five years of follow-up where the line merges at approximately 20 quarters. TI and OTW releasees exhibit little difference. Nevertheless, over 50 percent of all three groups had a full quarter of unemployment by the end of the third quarter after release.

4) Wage rate

Approximately 55% of the releasees earned at an hourly rate less than the Federal minimum wage during the post release follow-up period based on a calculation that assumes full time work during each quarter in which wages are reported. It is possible that the sample were either under-employed (i.e., working part time or working intermittent) or under-paid. PIECP releasees earn significantly more than OTW releasees and are employed significantly more quarters post-release than TI and OTW.

5) Industry groupings (NAICS) in prison versus free world

One measure of whether the programs administered provide inmates with usable employment hard skills is to determine if the releasee obtains employment in the same or similar position held during incarceration. NAICS groupings, albeit general, are the best available measure. Of the 6464 releasees, 18,035 NAIC codes were collected, of which approximately 10% (n=1719) had a post release employment in the same NAICS grouping as he or she held while in prison. PIECP and TI workers held the same grouping position approximately 12 percent and 8 percent respectively of the reported NAICS grouping positions.

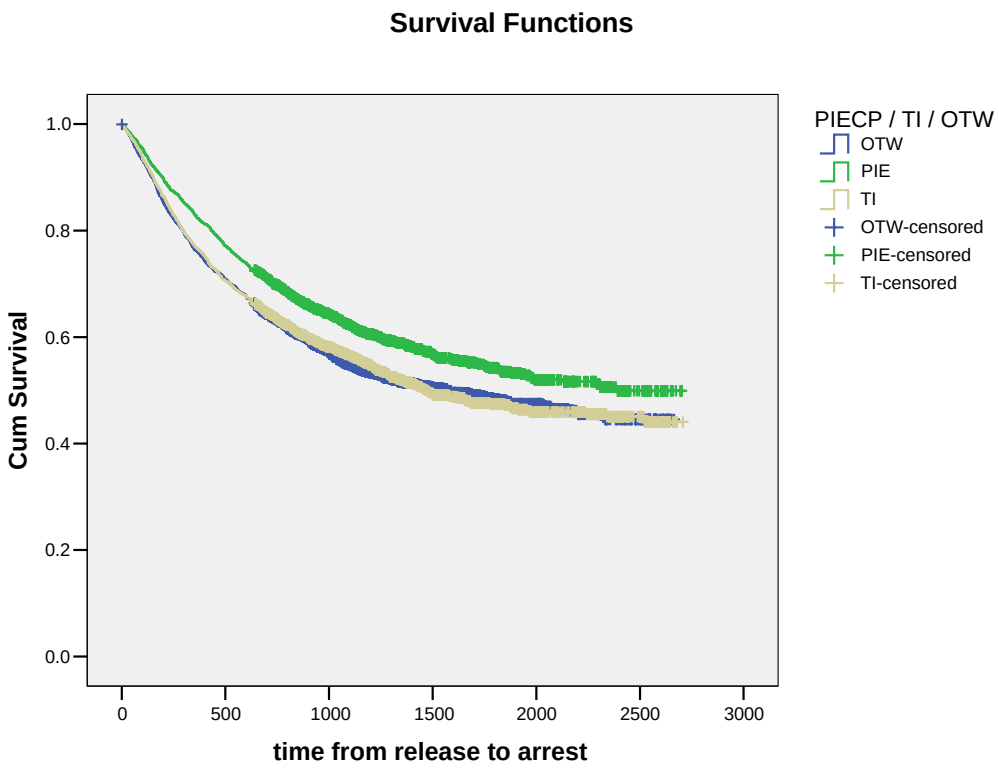
6) Arrest

This matched sample of releasees have relatively low recidivism rates. The average amount of time from release to first arrest is approximately 993 days,

suggesting that many (80 percent) of the releasees were arrest free at the end of the first year. The range of time between the time released and the time arrested is 1-2,519 days. Almost 59 percent of those in PIECP successfully reentered society, whereas approximately 53 percent of the TI & OTW were not arrested during the follow-up period. The rate of success at the end of the first year is high for all three groups, 82.5 percent of PIECP, and 76.8 percent of TI and 76.2 percent OTW did not get arrested in the first year post release.

Based on the survival analysis, PIECP participants stayed crime free significantly longer than TI and OTW participants. However, TI participants were not significantly different than OTW participants. The slowest dropping survival curve is best because it indicates that comparably more releasees have remained arrest free. Between 52.6 and 59.7 percent of the releasees remained arrest free at the end of the follow-up period.

Figure 3: Survival function - arrest



First, PIECP releasees stay arrest free longer than TI or OTW releasees during the follow-up period. TI and OTW releasees exhibit little difference. Nevertheless, approximately 70 to 80 percent of the releasees were arrest free at the end of the first year. The percent of those who are arrest free post-release continues to decline until about the fourth year. This indicates that this sample of inmates is slightly different than the general prison population.

6) Conviction

Between 73.6 and 77.9 percent of the releasees remained conviction free at the end of the follow-up period. The survival analysis describes a significant difference between

PIECP and TI, and between PIECP and OTW, but not between TI and OTW. PIECP releasees stay conviction free longer than TI or OTW releasees during the follow-up period. TI and OTW releasees exhibit little difference. Nevertheless, approximately 90 percent of the releasees were conviction free at the end of the first year. The percent of those who are conviction free post-release also continues to decline until about the fourth year, following the similar trend to arrests. Finally, the survival curve mirrors arrests except with fewer convictions.

7) Incarceration

Between 89 and 93 percent of the releasees remained incarceration free at the end of the follow-up period. Mirroring arrests and convictions, PIECP participants are incarceration free for significantly longer periods of time post release.

Policy Recommendations & Future Research

The research results found in this report suggest that work plays an integral part in successful re-entry upon release in terms of employment and recidivism. Based on the employment survival analysis, employment assistance should be focused during the first year after release to assist those who obtain work more readily and additional research should be focused on the 20 to 30 percent who do not obtain employment for the remaining follow-up period to determine the causes.

Additionally, the state and federal coiffeurs benefited from the taxes paid and the room and board collected. This suggests that increased efforts should be expended to increase private industry partnerships and PIECP jobs. This increase should be carefully monitored to ensure the program continues to enjoy success as a wider pool of inmates is included.

Additionally, because this research is the first national level study of this topic, it opens a plethora of ideas for future research and the topic of industry within the prison walls has been the focus of many legislatures recently. To prepare a more focused approach, the two most urgent issues are offered. First, the research should examine similar questions related to the various subpopulations within these data, such as custody level, gender, and various subcategories of those who were employed and not employed at varying points of time. Second, it is important to know the percent of the general prison population that matches PIECP participants. The sample is based on those who are selected to work in PIECP and those who are most likely to be selected if positions were available. Even in the preliminary stages of reporting results, this raised concerns about the generalizability of the findings. As discussed within the report, the findings are generalizable to all PIECP releasees, but to a more limited number of TI and OTW releasees. Further investigation should be made to determine an approximate proportion of inmates to which this sample represents. For example, are 50 percent of the current inmates similar to those who are selected for PIECP?

Abstract{ TC "**Abstract**" \f C \l "1" **}**

This project conducted the first national empirical assessment of post release employment and recidivism effects based on legislative intent for inmates participating in Prison Industries Enhancement Certification Program (PIECP) as compared to participants in traditional industries (TI) and those involved in other than work (OTW) activities. Since 1979, the Bureau of Justice Assistance has funded various agencies to ensure state compliance with the legislative mandate of the Ashurst-Summers Act without the benefit of a national evaluation. Since 1995, funding to the National Correctional Industries Association, the grant recipient to provide training, technical assistance and monitor the PIECP program, has grown from a few hundred thousand to $1.6 million per year, while the program has grown from 1,724 inmates employed in more than 80 industries to 5,103 inmates employed in over 200 industries across 36 states, and the inmates earned approximately $276.5 million and returned $162.3 million to the economy in the form of room and board, taxes, family support and victims' compensation. It is hypothesized that joint venture industries between inmates/Departments of Correction and the private sector are a promising type of re-entry preparedness in the work experience area and reduces idleness during the prison stay according to the legislation.

A records review of outcomes for three matched samples, each of approximately 2200 inmates (n=6464), released from 46 prisons across 5 PIECP states between 1996 and 2001 examines whether PIECP participants return to prison less frequently or enter more successful employment than otherwise similar inmates participating in traditional prison industries (TI) or other than work (OTW) activities while in prison.

The primary findings of this research are that inmates who worked in open-market jobs in PIECP were found to be significantly more successful in post-release employment. That is to say, they became tax-paying citizens quicker and remain in that status longer than TI and OTW releasees. Additionally, TI releasees were more successful post-release in obtaining employment more quickly than TI releasees. Finally, PIECP releasees had slower and reduced recidivism, as measured by arrest, conviction and incarceration, than TI and OTW releasees.

The research results found in this report suggest that work plays an integral part in successful re-entry upon release in terms of employment and recidivism. Additionally, the state and federal coiffeurs benefited from the taxes paid and the room and board collected. This suggests that increased efforts should be expended to increase private industry partnerships and PIECP jobs. This increase should be carefully monitored to be sure the program continues to enjoy success as a wider pool of inmates is included.

Introduction{ TC "**Introduction**" \f C \l "1" **}**[2]

This report summarizes the first national review of the recidivism and post-release employment effects of the Prison Industries Enhancement Certification Program (PIECP) engaging state prison inmates in private sector jobs since 1979. The report is based on results from a records review of outcomes for three matched samples, each of approximately 2200 inmates (n=6464), released from 46 prisons across 5 PIECP states between 1996 and 2001. It examines whether sampled inmates participating in PIECP return to the criminal justice system less frequently (e.g., recidivism effects) or enter more successful employment (e.g., employment effects) than otherwise similar inmates who either participated only in traditional prison industries (TI) or were involved in other than work (OTW) activities while in prison. The results suggest that PIECP participants who worked in open-market jobs in PIECP were found to be significantly more successful in post-release employment. That is to say, they became tax-paying citizens quicker and remain in that status longer than TI and OTW releasees. Additionally, TI releasees were more successful post-release in obtaining employment more quickly than TI releasees. Finally, PIECP releasees had slower and reduced recidivism, as measured by arrest, conviction and incarceration, than TI and OTW releasees.

Background{ TC "Background" \f C \l "2" }

Wages. With the exception of the PIECP program, US jail and prison inmates are prohibited by law from producing goods for sale in open markets ("Ashurst-Sumners Act," 1935). As a result, the vast majority of US jail and prison inmates either work in

[2] Some of the introduction and much of the methods sections were quoted from the feasibility study where the purpose was to develop the methods for the current study. The relevant sections were quoted without quotation marks or citation for the ease of the reader. For a full review of the feasibility study, see Smith, 2002.

traditional prison industries or in institutional maintenance, earning usually less than $1 per hour (TI), or are involved in education, vocational education, training, counseling, or other preparatory programs, or are idle (OTW). Since 1979, however, the PIECP program has utilized about 65,000 thousand inmates working in open-market production (Petersik, 2003).

Local and state inmates voluntarily participating in federally approved PIECP programs earn locally prevailing market wages (e.g., currently $5.15 per hour or more) and incur deductions for taxes, board and room, crime victims' compensation, and family support, with the sum of such deductions not to exceed 80 percent of gross wages. According to the PIECP legislation, inmates must certify that they are voluntary participants in PIECP. Therefore, the first criterion for program participation is to volunteer. Next, the eligibility criteria vary by state, institution, and industry. While there are general criteria that seem to fit *most* of the sites and industries, it is not consistent. The following is a general summary across the Departments of Correction criteria:

- Disciplinary report free for 6 months
- Minimum and medium security levels
- Enrolled in a high school or GED program or completion
- Sentence of at least 6 months remaining
- No major medical problems prohibiting work

Again, the criteria for hiring an inmate vary across industries. The following is a general summary of the industry criteria:

- Submit an application and be interviewed

- Prefer prior work experience, but some employers prefer to hire those who have never worked before
- "Fit" with the current work force

The criteria vary across sites. For example, screening tests are conducted to determine if the inmate possesses or can develop necessary skills. Others rely on vocational education teacher recommendations. Some employers take into account other inmate recommendations, while others take a *very* cautious view of these recommendations. Some employers seek correctional staff and education personnel recommendations, while others prefer not to have this input. One employer maintains a file of applications in date order and takes the next applicant when a vacancy occurs. These hiring criteria are similar to those found in the free world of business.

Models. Federally sanctioned PIECP programs may be approved for state-level correctional systems or for local correction programs. PIECP programs may be *employer* model establishments, in which private sector firms, often but not always, are located inside correctional institutions, manage the PIECP inmate population and produce goods for sale in open markets; or the PIECP *customer* model may be used, in which departments of correction operate the PIECP production facilities and manage PIECP workers, and deliver resultant output to private firms for sale in open markets; or the PIECP program may be *manpower* model, in which the inmates are supervised by the private company but they are considered to be employed by the department of correction. Federal inmates are not current participants in PIECP.

In the original legislation, PIECP was expected to result in work experience and training in marketable job skills; more recent interest not targeted in the original

legislation emphasizes income and work experience in order to reduce recidivism (Atkinson, 2002; Macguire, Flanagan, & Thornberry, 1988; Saylor & Gaes, 1997).

Statement of the problem{ TC "Statement of the problem" \f C \l "2" }

PIECP has been operational since 1979 to the present with growth in the number of inmates employed at any given time, the number of free world business partnerships, the number of states participating, and the amount of funds returned to state coiffeurs without the benefit of an evaluation to determine its effectiveness. During this time, the Bureau of Justice Assistance has been funding various agencies to monitor the states to ensure compliance with the legislative mandate of the Ashurst-Summers Act. Since 1995, the Bureau of Justice Assistance has funded the National Correctional Industries Association (NCIA) to provide training and technical assistance and to monitor the PIECP program. During this time, the funding available to monitor the program has grown from a few hundred thousand to $1.6 million per year (National Correctional Industries Association, 2005). Over the same time period, the program has grown from 1,724 inmates employed in 86 cost accounting centers to 5,103 inmates employed in 201 cost accounting centers in the PIECP program across 36 states at the end of the first quarter in 2005 (National Correctional Industries Association, 2005). Over the same 10 year span, the inmates, having earned approximately $276.5 million have returned $162.3 million to the economy. During 8 of these 10 years, the wages earned by PIECP participants were examined. PIECP employees earned $231.6 million in gross wages with $126.9 million returned to the economy in the form of $21.5 million invested in victim programs; $60.5 million returned to the states for prison room and board costs;

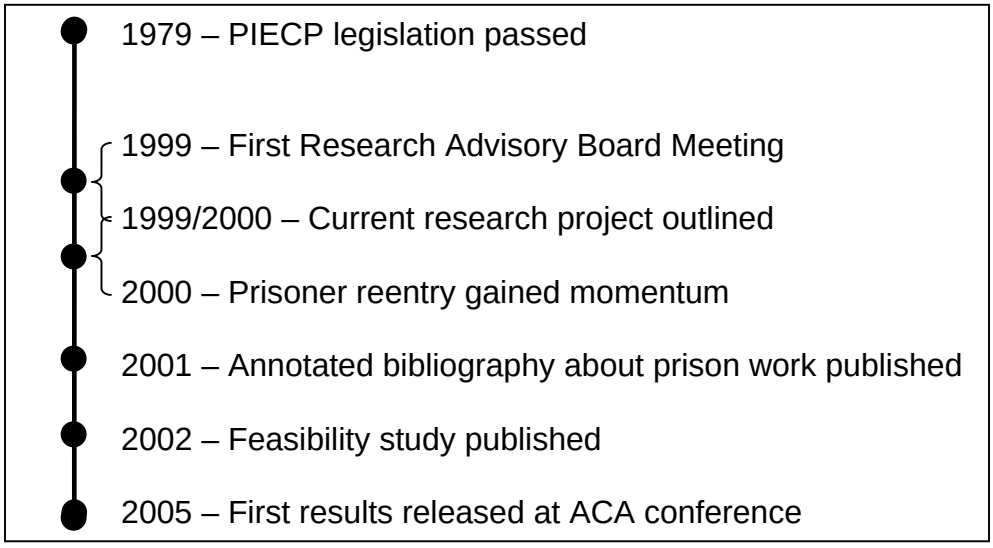
$13.5 million spent on family support; and $31.4 million paid in taxes (National Correctional Industries Association, 2002).

Yet, no national evaluation has been conducted. One reason the program has continued to be funded is because it is hypothesized that joint venture industries between inmates/Departments of Correction and the private sector are a promising type of re-entry preparedness in the work experience area and reduce idleness during the prison stay in accordance with the legislation. This project will address this void in evaluation results and in the general literature. The purpose of this study is to test the effects of PIECP according to its legislative intent and related research questions. [3]

Over the life course of this research project, re-entry gained momentum based on a visible increase in the number of publications available on the National Criminal Justice Reference Service website (See Figure 1: Timeline). While this study can address some re-entry issues, different data are needed to measure some of the more important concepts, such as the time and type of services offered to individuals upon reentry.

[3] This project addresses a small part of the 1st subsection of the guidelines. Dr. Petersik and his colleagues completed a study examining the economic impact identified in subsection 2 (Petersik, Nayak, & Foreman, 2003). Future research should address the additional subsections. Legislative intent taken from current guidelines is as follows: (1) To provide a cost-efficient means to address inmate idleness and to provide inmates with work experience and training in marketable job skills. (2) Through inmate wage deductions, to increase advantages to the public by providing the departments of correction with a means of collecting taxes and partially recovering inmate room and board cost, by providing crime victims with a greater opportunity to obtain compensation, as well as promoting inmate family support. (3) Through PIECP participation, to prevent unfair competition between prisoner-made goods and private sector goods. (4) To prevent the exploitation of prisoner labor.

Figure 1: Timeline



The research responds to the following questions[4]:

1. Does PIECP participation increase post release employment as compared to traditional industries (TI) work or other than work (OTW) activities?

The legislative intent states "to provide inmates with work experience and training in marketable job skills." (Federal Register, 1999, April 17, p. 17007). Marketable job skills include both hard (i.e., sheet metal welding) and soft skills (i.e., arriving at work on time everyday). Therefore, the soft skill outcome measures include whether a person obtained employment after release and, once they found employment, how long did they remain employed. The hard skills outcome measure includes did they obtain employment after release that used the similar skills they learned while participating in

[4] Originally there were three research questions. However, during the interview process of the feasibility study we discovered that disciplinary reports are a criteria to be hired (Smith, 2002). Therefore, disciplinary reports should be used in the matching process rather than as an outcome to ensure a more closely matched sample.

PIECP. In other words, did working in PIECP increase post-release employment over the two control groups?

2. Does PIECP participation reduce recidivism as compared to traditional industries work (TI) or other than work (OTW)?

The legislative intent does not address recidivism. However, unemployment is directly linked and a predictor of criminal activity (Saylor & Gaes, 1997). And, the U.S. Congress conceded as early as 1930 that the hope for rehabilitation of inmates is found in learning the soft and hard skills of work (*Congressional Record*, Report No. 529. 71st Congress, 2d session, April 21, 1930. as cited in Saylor & Gaes, 1997). Additionally, this research question is included to better understand the rehabilitative effects of PIECP. An ultimate desire of those involved in criminal justice is that the offending stop. If PIECP offers that effect on all or a segment of its participants, this information should be known.

Definition of terms{ TC "Definition of terms" \f C \l "2" }

Cost Accounting Center – Each private industry partnership under one certificate holder is called a cost accounting center. Usually the state is the certificate holder; however, a county might hold the certificate.

Other than work (OTW) – Those in the other than work group may be involved in other prison activities, just not industry work. For example, they may be enrolled in education programs or drug treatment. It is important to remember that people in the OTW group are not necessarily sitting idle in their cells, although that may be the case. Also, OTW tasks (i.e., laundry) may be the same task being performed by the TI people.

The difference being that the task is classified by one state as TI and by the other state as OTW.

OTW is further divided into two categories; 1) those who choose not to work while in prison, and 2) those who are in mandatory work states that choose the jobs with the least requirement of effort and time (i.e., two hours of mopping in the dorm area vs. an eight hour work day). Mandatory work states require an inmate to work or attend school. Inmates who are unable to work, due to physical, mental, or behavioral limitations are not included in this study (i.e., gang segregation inmates are not eligible for participation in programming). This control group isolates most of the PIECP effects. The hard and soft skills learned in this situation are limited. Some of the inmates do earn a minimal wage similar to TI (i.e., $.25/hour).

Prison Industry Enhancement Certification Program (PIECP) – The test group includes those inmates who participated in PIECP and were released during the release window. Inmates who participated in PIECP during previous incarcerations to this release window would not be considered PIECP for this study unless they were also in PIECP in this window. The records were insufficient to determine participation in PIECP during prior incarcerations. It is possible that the inmate may have participated in TI or OTW during this incarceration, but not necessarily. The PIECP includes a relationship of one or more private sector companies where inmates produce a product or provide a service for the company at the prevailing wage (i.e., minimum wage or above). The work ranges from labor intensive routine tasks (i.e., assembly line) to highly skilled craftsmanship (i.e., sheet metal welding).

The causal characteristics of PIECP are (at a minimum[5]) three-fold. First, the inmate who works in PIECP will have experienced the soft skills (i.e., going to work regularly, getting to work on time, positive attitude at work) and hard skills (i.e., learning a trade or skill, such as welding). Additionally, it includes the benefits of reduced idleness and also of prevailing wage (minimum wage or higher). Under the employer and manpower models, the inmate has regular contact and is supervised by a free world worker which may change the environment from a correctional environment to an employment environment during the workday.

Release Window – Inmates who were released between January 1, 1996 and June 30, 2001 are the sample for this study. An inmate may have been released prior or post this window, but to be included in the sample, they must have been released during this time frame also. In other words, all PIECP participants who were released during the release window are the test group of this study.

Traditional Industries (TI) – Traditional Industries is divided into two inmate worker categories. The first is similar to PIECP in terms of work, except the inmate is not paid a prevailing wage and the production is not sold in open markets. For example, he or she may be paid nothing or a minimal amount such as $.25/hour up to approximately $1.25/ hour. Traditional Industries include various types of work (i.e., sewing prison uniforms, making mattresses) and, in fact, the work may be exactly the same as PIECP, but is sold within the state to government entities or other limited

[5] This is a simplistic characteristic of PIECP. Future studies should include data collection and analysis of the more complex characteristics. For example, PIECP may include an array of soft skills, such as greater urgency in work, less wasted time, and increased customer responsiveness. Additionally, PIECP may include less tolerance of error, higher quality craftsmanship, and better raw material controls. Finally, free world employers may perceive PIECP employment to be prior employment/work experience which allows the inmate to develop a continuous employment history.

markets. The second type of work is classified as institutional maintenance (i.e., semi-skilled maintenance, office support staff). TI includes whatever the host state considers a traditional industry within that state. For example, in one state laundry may be considered traditional industries where as in another state laundry may be considered other than work. This lack of distinction in actual labor makes these groups very similar and confounds the analysis. (See limitations for more details).

This control group isolates part of the PIECP effect. TI includes learning soft skills and hard skills (although *some* skills may be substantially less helpful for employment upon release), as well as some of the benefits. In fact, the main differences between PIECP and TI are the substantial amount of money and all the benefits that follow (i.e., the increased ability to pay child support and restitution prior to release) and for many the opportunity to work in a free world employment environment. An inmate on the waiting list for a PIECP job may be working in a TI, learning similar employment soft and hard skills. In addition, some PIECP and TI jobs are split. For example, in an optical factory making eye glass lenses an inmate may work in PIECP half the day and in TI the other half of the day. In that case a person will be considered a PIECP person even though they are working in TI at the same time. When comparing the outcomes of those in PIECP to those in TI, there may not be a detectable difference if the rehabilitating factor is the soft and hard skills.

In addition, some correctional industries in prisons may have service operations. Federal law does not require these operations to be classified as PIECP, although some institutions choose to designate them as such. In these non-PIECP service operations, inmates may provide a service for the private sector in interstate commercial markets

(i.e., furniture refurbishing), but no products are manufactured. Salaries can be set at below Federal minimum wage because the operations are not statutorily mandated to comply with such requirements.

Limitations{ TC "Limitations" \f C \l "2" }

As a result of the similarities that exist between PIECP and TI work, as well as TI and OTW activities, the strength of the analysis may be blurred. Some of the tasks performed by TI and OTW employees may be exactly the same (i.e., laundry). The only difference being that the TI group completes their task in an industry setting where making a profit is emphasized. In the same respect, those in PIECP and TI may be completing similar tasks (i.e., split wage industries), the difference being that PIECP people are earning the prevailing wage during the time they are working in PIECP. The result of the similarities among the groups holds the research results to a much higher standard, requiring a much larger outcome difference between the groups to achieve statistical significance.

In addition to the blurring of the work or training experienced by the workers, there is the possibility and often the reality that PIECP releasees have the benefit of an additive effect. For example, some industries require that inmates complete a vocational education program where the skills necessary for the PIECP job are taught and mastered. These OTW workers have the benefit of the training and the benefit of the PIECP experience when they are released. Additionally, some PIECP employers hire from an eligible pool of workers who are employed in TI. This philosophy provides an additive effect for the worker upon release. Based on the data available, it was not possible to determine which inmates experienced this additive effect. Therefore, the

findings that PIECP releasees are more successful may be a result of the additive effect.

Further, because the research relies on matched samples of inmates sharing specific characteristics, findings can be generalized only to inmates sharing those characteristics. Therefore, the sample is certainly generalizable to the PIECP population. The findings for the TI and OTW groups are not representative of all TIs or OTWs in prison. In other words, the findings are only generalizable to those inmates in the general population who are most likely to be hired to work in PIECP. This study will provide some limited insight into the characteristics of who is included in this group.

"Creaming" may be an issue in the study. PIECP has been accused of choosing only the “best” inmates, those most likely to succeed regardless of in-prison programming. This issue is directly addressed by deliberately choosing matched samples so that both PIECP participants, TI and OTW share similar characteristics. Because the goal of this study is to evaluate the legislative intent of PIECP, the comparison groups of TI and OTW that were selected represent those that are most likely to be hired by PIECP. Caution is urged not to generalize this study to all TIs or OTWs because the pool of TIs and OTWs that match PIECP are not representative of the entire prison population. It excludes those who are not eligible to be chosen to work, including those with severe medical conditions, moderate to severe disciplinary problems, and those who are unavailable due to protective custody or other separation policies. However, samples were selected from all security level facilities because industries exist in all levels. The exact comparison population is unknown.

Significance of the study{ TC "Significance of the study" \f C \l "2" }

This study is the first national evaluation since the program began in 1979 that has a sizeable sample that allows examination of the issues globally. In many states, industries are one of the few government agencies that is self funding. In particular, PIECP returns a large sum of money to the state. A Bureau of Justice Assistance Program Brief lists a variety of stakeholders that benefit from the PIECP program (Bureau of Justice Assistance, 2004).

- "The corrections administrator. The program is a cost effective way to occupy a portion of the ever growing prison population" (Bureau of Justice Assistance, 2004, p. 3).
- "The crime victim. The program provides a means of partial repayment for harm sustained" (Bureau of Justice Assistance, 2004, p. 3).
- "The inmate. The program offers a chance to work, meet financial obligations, increase job skills and increase the likelihood of meaningful employment upon release from incarceration" (Bureau of Justice Assistance, 2004, p. 3).
- "The private sector. The program provides a stable and readily available workforce. In addition, many correctional agencies provide manufacturing space to private-sector companies involved in the program" (Bureau of Justice Assistance, 2004. p. 3).
- "The public. Because of inmate worker contributions to room and board, family support, victim compensation and taxes, the program provides a

way to reduce the escalating costs of crime" (Bureau of Justice Assistance, 2004, p. 3).

The remainder of this report will outline the methods used and the results obtained from the research. Policy recommendations are offered for practitioner implementation and recommendations for future research are offered to guide the next steps in the research process.

Methods{ TC "Methods" \f C \l "1" }

Introduction{ TC "Introduction" \f C \l "2" }

The goal of this project was to empirically assess post release employment and recidivism outcomes for inmates participating in PIECP. The research constitutes a first step in measuring the legislative intent of PIECP and the post-legislation interest of various stakeholders wanting to know if PIECP is an effective re-entry tool. These two concepts motivate this research and, as a result, dictate the research methods and the following two questions asked.

Research questions and hypotheses{ TC "Research questions and hypotheses" \f C \l "2" }

1. Does PIECP participation increase post release employment as compared to TI and activities of OTW?

Hypothesis: PIECP participation increases post release employment significantly more than TI and OTW. The difference between PIECP and TI experiences, which includes the amount of pay, may be quite small and found only with sufficient sample sizes

(Saylor & Gaes, 1997). However, the difference between PIECP and OTW includes pay, soft and hard skills and should be more easily detectable.

2. Does PIECP participation reduce recidivism as compared to TI and OTW?

Hypothesis: PIECP participation reduces recidivism significantly more than TI and OTW.

Some inmates in each of the groups (PIECP, TI, OTW) may share some characteristics, a feature which is expected to blur or weaken the statistical differences. First, there are confounding issues when comparing the differences between the inmate groups. The criteria for selection into the PIECP sample group include those who were paid a PIECP wage regardless of how long. Inmates who worked for a short time may not acquire some of the soft and hard skills associated with having worked, thereby masking the differences between the groups of PIECP, TI, and OTW. Second, some inmates participate in vocational education programs and also learn some hard skills and some soft skills. This will mask the differences between the groups as well. Therefore, we must expect some smaller differences in this early effort of PIECP evaluation. (See limitations for further discussion of these blurring factors).

Research design{ TC "Research design" \f C \l "2" }

The research design for this study is a quasi-experimental design using matched samples[6] with a test group of PIECP participants and two control groups of TI and OTW using quantitative analysis of data collected from agency records. Other characteristics that prior research has indicated may impact the outcomes (i.e., individual effects, family effects) will be examined briefly.

[6] This design is found extensively in the literature over a period of years (Petersilia & Turner, 1986; Turner & Smith, 1994).

Site and sample selection{ TC "Site and sample selection" \f C \l "2" }

A cluster sampling strategy was used for site selection. This strategy insures a sufficiently large sample by selecting states that have large numbers of PIECP workers within the confines of other criteria.[7] A ranking according to the number of PIECP workers was created. The selection process from the top ranking states included all major U.S. geographic regions, rural and urban populations, gender representation to ensure results can be determined based on gender, and each of the models of PIECP (discussed previously in this report). Additionally, each state had PIECP certification prior to 1996. This strategy excluded states with low numbers of industry workers. This strategy resulted in a selection of five states.[8]

Sample selection included the following steps:

- A survey was administered to all PIECP certificate holders eligible for the study (n=36), those with certification prior to 1996, to determine the willingness and availability of data with an affirmative response.
- To ensure a sufficient sample size to detect the differences and to be as nationally representative as possible, a list of relevant factors was developed to ensure sufficient numbers of inmates that worked in PIECP have been released, including number of workers, certification date, region, PIECP model and rural versus urban characteristics.

[7] A sixth state was selected to ensure a large enough sample size. However, after the study began the state was forced to drop out as a result of budget cuts in that state. A different state was not selected to replace them because there was already a sufficient sample size and other matching criteria were represented.

[8] The five states are not identified in this study. Aside from providing anonymity to those who participated, it prevents comparison between states because this is a national program. Instead, comparisons are made across groupings of individuals. The authors recognize that state, regional, and institutional differences exist and, where appropriate, control variables can be used.

- The states were ranked according to the number of workers employed during a mid year between the years under examination. (This year is withheld to prevent identification of the states involved in the study.
- States were selected beginning with the largest number of PIECP workers. For example, state one was selected. It represented the eastern and rural portion of the U.S. State two was selected from the next in the list, representing west and urban. If state three was also western and urban, it was skipped and the next state was selected.

Generalizability is limited by this research design. The first two options of sample selection allow generalizability of the results to all PIECP workers and the respective control groups. However, using a purposive cluster sample of states and a matched sample for the test and control groups results in less than perfect confidence in the generalizability to the national PIECP program. In the strictest definition of research methods, we are able to generalize only to the five states involved and then only to the participants in the sample. However, realistically, the generalizability falls somewhere between these two opposites. This study informs the stakeholders of the impacts of PIECP on a much larger scale than is currently known.

Models of industries. There are three models of operating a PIECP program, 1) employer, 2) manpower, and 3) customer. The sample includes all three models. Each model possesses its own set of risks and rewards. It has been suggested that the customer model poses the least risk for the company and the greatest risk for the departments of correction; whereas the manpower and employer model present equal risk for both parties (Sexton, 1995). The various models pose different challenges in

data collection for the future. For example, to examine the length of service, it would be necessary to obtain the cooperation of the employer (i.e., private industry, correctional institution).

The Sample. The resultant sample selection included all inmates in the five states who worked in PIECP (n=2333) and were released between January 1996 and June 2001, which permits at least 2 year follow-up and a maximum of 7.5 years. The next step was to answer the question: To whom should we compare? There are two options. First, a random sample of all inmates could be selected and compared to PIECP participants. But, surely PIECP participants would do better because they represent a specific type of inmate as discussed in the creaming section of this report. The selection criteria to be eligible for PIECP separate these inmates from others. For example, a typical PIECP participant would be disciplinary report free for six months prior to obtaining a PIECP job and remain report free during employment.

The second option was to use matched samples from those eligible to work in PIECP. Matching occurs in at least two ways (e.g., propensity scoring, variable by variable). This study used a variable by variable matching, but retrospectively calculated a sub-sample of propensity scoring, finding that the results were similar. The selected control groups (e.g., TI, OTW) are comparable or matched to PIECP participants. Therefore, the PIECP sample is representative of PIECP. The TI and OTW control groups are NOT representative of all TIs or all OTWs. They are representative of those who match inmates who were hired into the PIECP program.

What does this mean in practice? The study results do not address overall TI or OTW success or failure. It only discusses success or failure for the type of inmate who

is matched to PIECP workers. We cannot compare TI or OTW results to the general population of all TI or all OTW results found in the literature. We do not know at this time the percent of the general prison population that matches PIECP participants (See Future research section later in this report).

Matching criteria{ TC "Matching criteria" \f C \l "2" }

The inmates were matched using six criteria. Of course, ideally stratification on the PIECP eligibility criteria and the industry's final selection criteria would be used to develop the matches. However, the previously discussed variation in these criteria makes it impossible to measure in a retrospective study where data were not gathered on these measures. Exact matches were made on *race*: minority and white; *gender*: male and female; *crime type*: person and all other; and category matches on *age*: 5 criteria categories; *time served*: 7 criteria categories; and *number of disciplinary reports*: 10 criteria categories).[9]

The term, criteria category, means that the categories are created and defined by the criteria for that grouping. For example, inmates age 26 are matched with inmates 3 years older or 3 years younger than the PIECP subject, while inmates 34 are matched with inmates 5 years older or younger. A 26-year-old subject is matched to someone between the ages of 23 and 29, while a 34-year-old inmate is matched with inmates between the ages of 29 and 39. A similar technique of grouping the individuals into three or four categories and matching by category is frequently used. However, this may

[9] Female category criteria have a slightly broader tolerance than male criteria because of the limited number of females in the system in the TI and OTW categories compared to the high percentage of females in PIECP. This disproportionate number of females working in PIECP to total females incarcerated compared males working in PIECP to the total males incarcerated is similar in all the states.

result in a person 35 being matched to a person 27 when there is a person 36 that is a closer match.

Following a variation of the propensity score process (Rosenbaum and Rubin, 1985 as cited in Saylor & Gaes 1997), a multinomial regression indicated that some categories of age, time served, and disciplinary reports predicted the category membership (PIECP, TI, OTW). These results were used to guide matching criteria categories.

The matching process began by dividing the three groups of PIECP, TI, and OTW by the strata into a grid of cells (eight stationary strata and an undetermined number of criteria strata because each age, time served and discipline ranges by a plus or minus score). Next, for each cell containing a PIECP participant, one TI and one OTW participant was randomly selected from the inmates in that cell. (Any cell void of a PIECP participant will not be represented in the study. Any cell void of a TI or OTW resulted in a twin match instead of a triplet. This is particularly pronounced in states where there exist more PIECP industries than TI. As a result of these twin sets and triplets, the n's vary across the report). This process was used in each of the states.

The matching results are as follows and are displayed in Table 1: Matching characteristics. The matching characteristics were analyzed based on the twin sets. The matching process was successful for most variables; age at intake, age at release, crime type, gender, and race. However, disciplinary reports and time incarcerated were statistically different between PIECP and TI and PIECP and OTW. Further analysis indicates that the PIECP inmates had fewer releasees who had 30 or more disciplinary actions during their incarceration than TI or OTW, skewing the data. In other words,

matching at the low number of disciplines was more accurate than matching at 30 or more. PIECP inmates were incarcerated longer at both the 25 and 75 percentile for compared to both TI and OTW releasees. Future analyses will need to control for these variables.

Table 1: Matching characteristics statistical significance n=6464

	PIECP to TI 1858 pairs	PIECP to OTW 2263 pairs	TI to OTW 1793 pairs
Age at Intake	t= -.076 p= .939	t= -.129 p=.897	T= -.166 p=.868
Age at release	t= -.908 p= .364	t= -1.633 p= .103	T= .846 p= .397
Crime type (person and other)	X^2=.000 p= 1.000	X^2=.000 p= 1.000	X^2= .000 p= 1.000
Gender	X^2=.000 p= 1.000	X^2=.000 p= 1.000	X^2=.000 p= 1.000
Number of disciplinary reports	t= 3.657 p= .000 *	t= 3.499 p=.000 *	T= .219 p= .827
Race (white and other)	X^2=.000 p= 1.000	X^2=.004 p=.950	X^2=.005 p=.945
Time incarcerated (in days)	T= -2.131 p= .033 *	t= - 3.913 * p= .000	T= 1.734 p=.083

Sample identification{ TC "Sample identification" \f C \l "2" }

How was the prison population divided to create the three strata from which the samples were selected? Any inmate in one of the five sampled states who worked in PIECP at any time and for any length of time and was released during the release window (between January 1996 and June 2001) was considered a PIECP person. PIECP individual inmates may also have worked in traditional industries or been in other

programming, but if he or she worked in PIECP even one day (which, based on review of salaries was not the case) during the release window related incarceration, he or she was considered a PIECP participant for this research.

One hypothesis is that the longer an inmate remains in a job, the more likely one is to develop positive employment skills. Unfortunately, the records determining the start date of employment were not available at the facilities and employer maintained data were unavailable. Inmates who worked in split wage facilities, a situation where the PIECP worker produces goods for a PIECP project part of the time and the same goods for traditional industries the remainder of the time were considered PIECP participants.

The division between TI workers and inmates in other than work activities is also complicated. Work defined as traditional industries varied from state to state, such that a traditional industry in one sampled state could be considered an activity other than work in another state. TI workers are often, but not always, paid for their labors, but at a very low rate, ranging from $.25 to $1.25 an hour. In addition, TI may include service industries. (See limitations for further discussion.)

Data Collection Procedures{ TC "Data Collection Procedures" \f C \l "2" }

Once selected, the prison population of a selected state was parceled among four possible groups, (1) those inmates with the defined matching characteristics who participated in PIECP at least one day and were released between January of 1996 and June of 2001, (2) those also with the defined matching characteristics not defined as PIECP participants but defined as TI participants during the same period, (3) inmates during the defined time period and with the appropriate matching characteristics who

were neither PIECP nor TI and not excluded from consideration because of administrative segregation, illness or incapacity, and (4) all other inmates not meeting the matching characteristics.

First, research staff requested PIECP automated records and established the PIECP participant sample. All PIECP workers released during the release window were identified. This was a challenge because most states do not maintain records in an automated format of who is employed and when they began or ended that employment. For example, in one state, the inmate automated records indicated the inmate was working in a particular program, but the note was in a text field that was not searchable. Therefore, the PIECP participants were identified through the accounting office where deductions were collected from their checks. Then the records could be manually verified by examining the text field.

After setting the PIECP sample, matching TI and OTW samples were selected in each state on six matching criteria. All TI workers were identified. Additionally, eligible OTW unemployed individuals were identified. Individuals in administrative segregation or so ill that they were unable to work were eliminated from the potential matches.

Next, 100 matched triplets from each state (n=1500) were randomly selected. The purpose of this sub-sample of randomly selected files was two-fold. First, some variables were not available in an automated format; differences varied by state. Additionally, corrections data are frequently incomplete. Therefore, a review of the files provided a more complete list of variables and more complete data.

The research team requested from the five sample states a total of 1500 hard copy files. This task was handled differently depending on the policy of the various

locations. Some records are housed in the institution where the inmate resides. Others are housed in a central repository. When the inmate is released, sometimes it is forwarded to a central location and other times it is not.

These data collection efforts met with some challenges, but were ultimately successful. The challenges are listed here with the intent of documenting them for future researchers' benefit.

1. In some states, the first round of data did not have the admission and release dates.
2. In some states, the first round of data did not have admission and release dates appropriate for this study. For example, an inmate who is released and then reincarcerated on a technical violation may continue with an unchanged admission date of incarceration. This means that he or she may have been in a released status for an extended period of time, reincarcerated under the same automated record and the released time does not appear. It appears that the inmate was incarcerated longer than actually occurred and admissions and release dates misstated from a research perspective.
3. Some states could not readily identify who was participating in PIECP or TI from their automated records, necessitating manual or alternative identification methods.
4. The number of disciplinary reports listed in the automated files was not accurate. This was important because it was one of the most important matching criteria and because disciplinary reports are touted to be a criterion for PIECP participation selection.

Sample Characteristics: Matching variables{ TC "Sample Characteristics: Matching variables" \f C \l "2" }

Table 2 presents a summary of the matching characteristics of the entire sample. This profile suggests that the majority of the sample is male, but a sufficient number of females are included for meaningful analysis. The sample is almost evenly split between white and minority groups. The majority of the sample entered prison for this incarceration between 18 and 40 and are released between 26 and 50, spending 1 to 5 years in prison, with zero or one disciplinary action.

Table 2: Sample characteristics (n=6464)

		N	percent	Mode	Median	Mean
Age at Intake	17 & under	38	0.6%	28 years	31 years	32 years
	18-25	1454	22.5%			
	26-30	1456	22.5%			
	31-35	1403	21.7%			
	36-40	1160	17.9%			
	41-50	788	12.2%			
	51 & older	165	2.6%			
Age at release	18-25	545	8.4%	37 years	36 years	37 years
	26-30	1097	17.0%			
	31-35	1375	21.3%			
	36-40	1553	24.0%			
	41-50	1525	23.6%			
	51 & older	369	5.7%			
Crime type	Person	3042	47.1%	Person crime	- - -	- - -
	Property	1400	21.7%			
	Drug	1882	29.1%			
	Other	140	2.2%			
Gender	Male	5202	80.5%	Male	- - -	- - -
	Female	1262	19.5%			
Number of disciplinary reports	0	2524	39.0%	0 reports	1 report	3 reports
	1	1412	21.8%			
	2	564	8.7%			
	3	353	5.5%			
	4	285	4.4%			
	5	202	3.1%			
	6 – 10	549	8.5%			
	11 – 20	334	5.2%			
	21 – 30	126	1.9%			

	31 or more	115	1.8%			
Race	White Black Hispanic Other	3738 2048 528 149	57.8% 31.7% 8.2% 2.3%	White	- - -	- - -
Time incarcerated (in days)	0 – 365 days 366 – 730 days 731 – 1095 days 1096 – 1460 days 1461 – 1825 days 1826 – 2190 days 2191 – 2555 days 2556 or more days	491 1196 880 856 854 670 476 1041	7.6% 18.5% 13.6% 13.2% 13.2% 10.4% 7.4% 16.1%	405 days	1386 days (3+ yrs)	1609 days (4+ yrs)

Sample Characteristics: Industry groupings employed by the sample{ TC "Sample Characteristics: Industry groupings employed by the sample" \f C \l "2" }

During the available pre-, during-, and post-incarceration, the types of occupations held by the sample include a wide variety of positions (See Table 3: Industry groupings of sample). Many sample members held multiple jobs (n=30,278). Based on the North American Industry Classification System, the modal industry category is professional, scientific and technical services (n=5822, 19.2% of all jobs held). This includes occupations such as janitorial services, waste management and telemarketing. The manufacturing category includes a variety of manufacturing occupations such as textile, chemical and food manufacturing (n=4892, 16.2%). The miscellaneous category includes occupations such as automotive repair and private household services (n= 2003, 6.6%)

Table 3: Industry groupings of sample

	Number of people that ever worked a job in this category
Professional, scientific and technical services	5822 people (19.2%)
Manufacturing	4892 people (16.2%)
Construction	4298 people (14.2%)
Accommodation and food services	3409 people (11.3%)
Retail trade	2520 people (8.3%)
Miscellaneous and other services	2003 people (6.6%)
Wholesale trade	1799 people (5.9%)
Health care, social assistance & education	1334 people (4.4%)
Transportation and warehousing	1033 people (3.4%)
Agriculture, forestry, fishing and hunting	935 people (3.1%)
Public administration	601 people (2.0%)
Arts, entertainment and recreation	467 people (1.5%)
Finance and insurance	415 people (1.4%)
Real estate, rental and leasing	408 people (1.3%)
Information services	167 people (0.6%)
Utilities	88 people (0.3%)
Mining	87 people (0.3%)

Sample characteristics: Descriptive statistics{ TC "Sample characteristics: Descriptive statistics" \f C \l "2" }

The second part of the research question requires profiling or developing a list of common characteristics for each group of individuals. Therefore, profiles were developed using the available data. Many variables were not available across all states or sites. Therefore, for many variables data collection was for a sub-sample to determine if the variable appeared promising enough to encourage states to collect the data for future confirmatory analysis. Some of these sub-samples will be reported in these profiles.

The assistance of an expert group was used to help guide the analysis of these data. The expert group included an economist, psychologist, criminologist and

specialists in re-entry, labor, public policy, and prison industries. Based on the literature and their expertise, it was decided to develop the profiles based on the following categories; 1) prior work experience, 2) prior criminal history, 3) family differences, and 4) individual differences (See Table 4).

Table 4: Sample profile

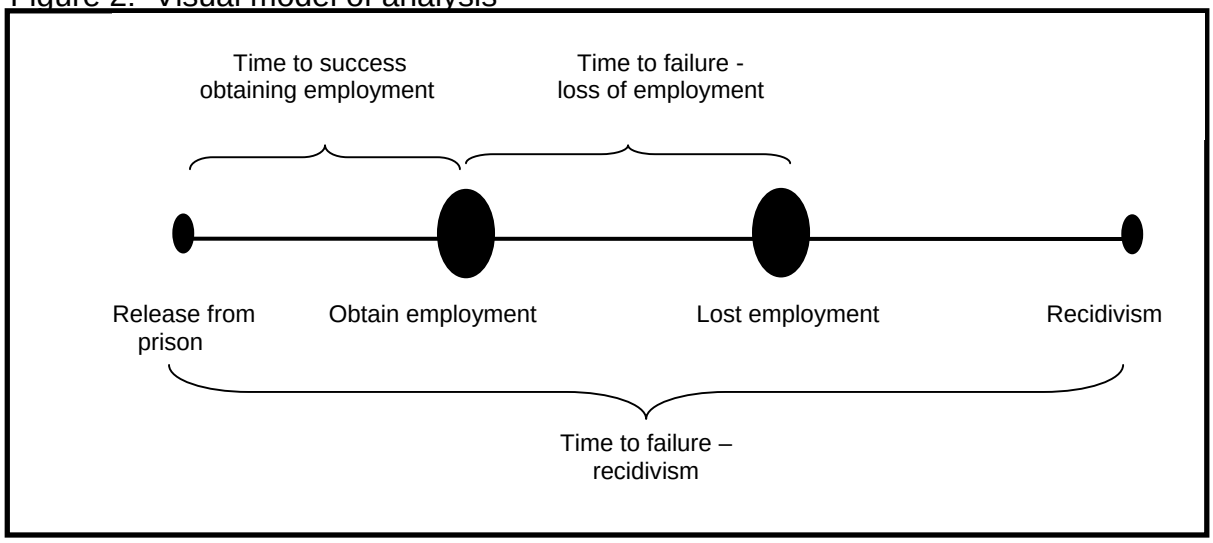
	PIECP		TI		OTW	
	%	n*	%	n	%	n
Prior work experience						
▪ Employed before the current incarceration (n=6464 people)	44.7%	1044	46.3%	862	44.8%	1015
▪ Total pre incarceration wages are less than $20234 (n=6464 people)	87.1%	2032	88.1%	1642	90.4%	2051
Prior criminal history						
▪ Arrested as a juvenile (n= 6372 people)	12.2%	280	14.5%	268	13.1%	294
▪ 6 or fewer prior arrests (n=6372 people)	75.0%	1718	67.3%	1241	70.5%	1577
▪ 4 or fewer prior convictions (n=6372 people)	71.9%	1648	63.8%	1177	64.2%	1437
▪ 1 or fewer prior incarcerations (n=6372 people)	79.8%	1830	67.7%	1248	72.0%	1613
Family differences						
▪ Marital status is single (n=6464 people)	24.0%	560	29.0%	541	33.6%	762
▪ Emergency contact is parents (n=4924 people)	44.2%	794	41.5%	573	41.9%	734
Individual differences						
▪ Birth state is the same as incarceration state (n= 6464 people)	45.3%	1057	53.3%	993	56.0%	1271
▪ Release type is a conditional release (n=5082 people)	83.0%	1445	80.3%	1301	82.2%	1416

* The n value is different for some variables as a result of missing values and missing variables across states.

Analysis technique{ TC "Analysis technique" \f C \l "2" }

Both of the research questions are most appropriately answered using similar analysis techniques. The key to both questions is to accurately measure the follow-up time period (See Figure 2: Visual model of analysis). Employment effects will be measured by time to obtaining employment (i.e., reported earnings in a given quarter) and the time to loss of employment (i.e., no earnings reported for a quarter). Recidivism will be measured by the time it takes from release to first recidivism (i.e., arrest, conviction, and incarceration). Therefore, the analysis techniques are discussed in detail under the first research question and only the changes in terminology are mentioned under the second research question.

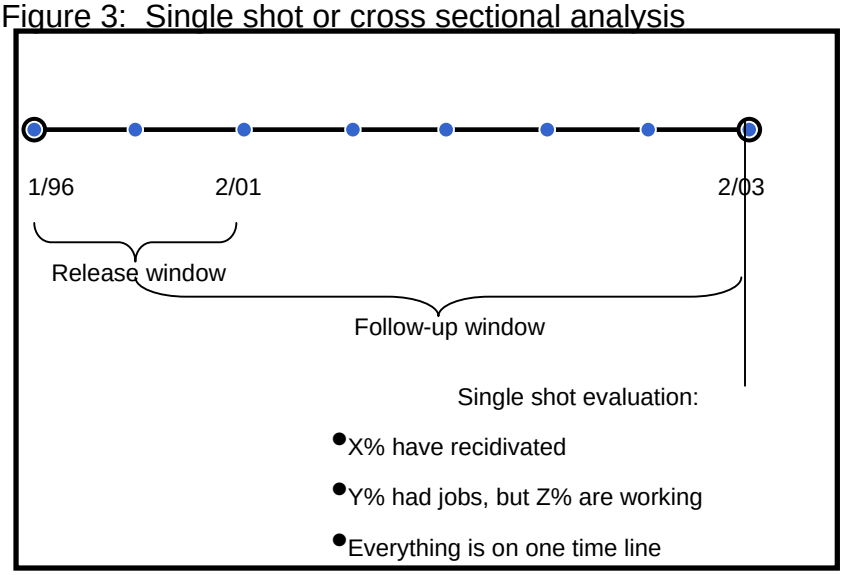
Figure 2: Visual model of analysis



Traditionally recidivism research is analyzed with a single shot or cross-sectional analysis (See Figure 3). In the single shot or cross sectional analysis a follow-up is identified at six months, one year, or three years (Maltz, 1984). For example, as of February of 2003, 88.3 percent had jobs previously but only 21.9 percent were working

on that date. Therefore, it appears that only 21.9 percent were successful. It ignores the fact that 88.3 percent had jobs but had lost them for unknown reasons. The release window for these data is 5.5 years long. Therefore, individuals have the possibility of being followed-up from release until early 2003 or a range of approximately 2 to 7.5 years.

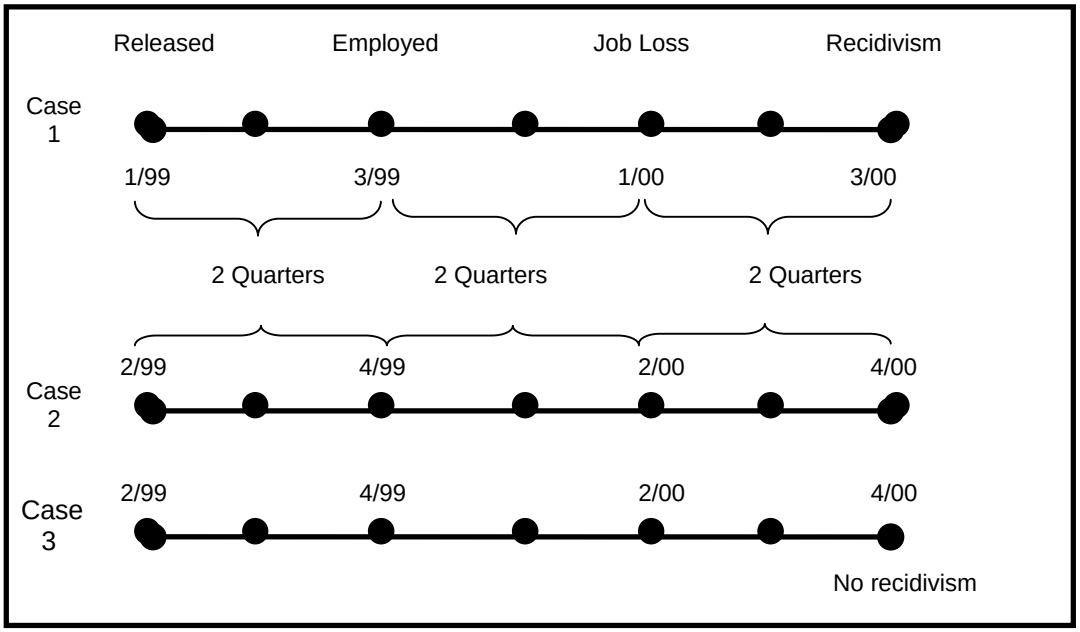
Figure 3: Single shot or cross sectional analysis



A more appropriate analysis technique to answer the research questions on recidivism success is survival analysis. Survival analysis is used to compare groups who receive different treatment and where some of each group do not demonstrate a reoccurrence of the original problem while others do (Illinois Criminal Justice Information Authority, 1986b; Statistical Package for Social Sciences, 1999; Stollmack & Harris, 1974). For example, inmates are provided the opportunity to learn hard and soft employment skills (e.g., TI or PIECP) or not (e.g., OTW) while incarcerated. Some recidivate, while others do not. Some obtain post release employment, while others do not. Survival analysis measures failure rates between groups receiving different treatments by measuring the time between release and employment or recidivism and

comparing the groups. Survival analysis is advantageous over fixed period analysis because it provides details (proportion) about failure at any given point of analysis compared to a proportion at the end of a given point. The follow-up period for the subjects can vary without affecting the findings. Survival analysis was borrowed from medical research and has been used in recidivism research since the mid 1970's (Illinois Criminal Justice Information Authority, 1986a, 1986b; Stollmack & Harris, 1974) (See Figure 4: KM survival analysis example).

Figure 4: KM survival analysis example



Notice that each case in survival analysis is tracked from the time of release until the event occurs. In Figure 4, the first case is released in January of 1999, whereas the second case is released in February of 1999 and the third case is released in February of 1999. Notice that they obtained employment during different months also and lost their jobs in different months. In survival analysis, it is not important the month of the year that the event occurs or does not occur. Each case begins on the date of release

and is followed in each unit of follow-up time period. In this way, we can calculate the number of quarters an individual takes from release to any event for all releasees, regardless of the date of release and compare the number who have experienced the event to the total number of those who have not yet experienced the event. In addition survival analysis takes into account those individuals who never experienced the event (i.e. censored). Once an individual experiences the event, he or she is dropped from further analysis.

Key findings and discussion{ TC "Key findings and discussion" \f C \l "1" }

The primary findings of this research are that state prison inmates who worked in open-market jobs in the PIECP were found to be significantly more successful in post-release employment and in reducing recidivism than either inmates working in TI or involved in OTW. Results for TI and OTW, while significantly different than PIECP inmates by most measures, did not significantly differ from each other. However, TI did differ significantly from OTW in obtaining employment more quickly upon release. Throughout the analysis TI and OTW releasees had very similar results. On the contrary, the findings for the PIECP releasees stood alone. Based on quarterly survival rates the slope of the survival curve indicated that the PIECP releasees were employed significantly more quickly after release from prison than either TI or OTW and remained employed significantly longer. In addition, the slope of the survival curve for recidivism indicated that the PIECP participants recidivated significantly more slowly and less frequently as measured by any of the three measures; arrest, conviction or incarceration. The details of these findings follow.

Research Question 1: ***Does PIECP participation increase post release employment as compared to TI work and OTW?{ TC "****Research Question 1:* ***Does PIECP participation increase post release employment as compared to TI work and OTW?" \f C \l "2" }***

This research question is answered through a variety of measures. Based on a panel of experts' and states' guidance, measures for success include the following criteria: 1) proportion of time employed during the follow-up period (e.g., the time from release from prison until the end of data collection)[10], 2) time to first employment after release, 3) duration of first employment, 4) wage rate during the follow-up period, and 5) occupations within prisons versus free world occupations. Details of each analysis are described in the following section.

1) Proportion of time post release the releasee worked{ TC "1) Proportion of time post release the releasee worked" \f C \l "2" }

The general descriptive data relative to the post-release employment measures are presented in Table 5: Post-release employment descriptive measures. Approximately 26 percent (n=1695) of the total sample (n=6464) had no reported earnings during the follow-up period (e.g., the time from release from prison until the end of data collection). The reasons for no reported earnings are unknown, but could include failure to report or record earnings, work in industries in which wages may traditionally not be reported (i.e., agriculture or illegal employment), or employment in other states. And, of course, the data include those who did not work and had no earnings. There is no way of knowing what proportion of this 26 percent is explained by

[10] Ideally, this variable would first calculate the available "street time" and then determine the proportion of available time. However, the data were not available at this time to calculate the amount of time each individual may have been unavailable for work (i.e., incarcerated).

each of these without an individual follow-up. The range of the follow-up period for this measure is a minimum of 6 calendar quarters to a maximum of 31 quarters for the sample. Overall, the average follow-up period for the entire sample is 16.1 quarters (standard deviation 6.4 quarters). Those who had no employment during the follow-up period had an average of 15.7 quarters (standard deviation 6.4 quarters), while those with employment during the follow-up period had an average of 16.3 quarters (standard deviation 6.4 quarters, which is statistically significantly different (t=3.0, p=.003). This means the group who did not have reported earnings post release were released later in the release window and had less follow-up time. If additional follow-up were conducted at a later time, it is possible this difference would disappear. It is also possible that more recent releasees are less likely to obtain employment. This should be examined in future research. Also, notice that more than half (58.0%) of those who did not have reported earnings post release had no reported earnings at any time during the study timeframe.

Table 5: Post release employment descriptive measures (n=6464)

Characteristic	n or mean	% or s.d.
No reported earnings pre-, during-, post-incarceration	812	12.6%
No reported earnings during follow-up	1695	21.9%
Range of follow-up period	6-31 quarters	
Average follow-up period	16.1 quarters	(6.4)
Average follow-up period - with reported earnings (n=5064)	16.3 quarters	(6.4)
Average follow-up period - no reported earnings (n=1400)	15.7 quarters	(6.4)
Average proportion of time post release the releasee worked	.5	(. 3)

On average, the releasees worked 50 percent of the total time available post release. Holzer, Raphael and Stoll (2003) found that ex-offenders face significant barriers in the labor market, such as lack of skills, limited work experience, substance abuse issues, and other health-related problems. Additionally, many states limit employment for ex-offenders in certain areas: professional fields, public employment and in health care fields (Hirsch et al., 2001; Western, Kling, & Weiman, 2001).

However, the lack of ability for many former prisoners to maintain employment for significant lengths of time may not be a unique attribute to that population. Hard-to-place welfare recipients share many characteristics with prisoners seeking re-entry.[11] One researcher noted that hard-to-place welfare recipients were characterized by low basic skills, substance abuse issues, domestic violence, chronic health problems and developmental delay concerns (Kramer, 1998). Interestingly, Kramer (1998) also includes criminal history as one of the conditions that defines a welfare recipient as hard-to-place.

Another reason for the lack of labor market engagement for ex-offenders is that ex-offenders spatially concentrate in inner-cities, generally poor employment markets with stiff competition and a ready alternative labor supply (Holzer & Stoll, 2002; Western et al., 2001). Baltimore "accounts for more than half of the prison population in Maryland" (Western, Kling & Weiman, 2001, pg. 6). Similarly, Baltimore accounts for more than half the TANF recipients in that state as well. In the end, welfare recipients without criminal histories compete with ex-offenders seeking re-entry for the limited supply of low-skill, low wage employment in the immediate area.

[11] Welfare is defined as recipient of Temporary Assistance to Needy Families (TANF)—the main cash assistance program.

2) Length of time to employment{ TC "2) Length of time to employment" \f C \l "2" }

The second measure of success for releasees was the amount of time that lapsed between release and employment. This included a comparison of PIECP, TI and OTW to each other to determine who obtained employment faster. Based on the survival analysis, PIECP participants obtained post release employment significantly faster than either TI or OTW (See Tables 6-8 and Figure 5). The survival rate is equal to the proportion of those who begin the quarter to those who remain at the end of the quarter without experiencing employment. The steepest slope indicates that comparably more releasees than other groups have found employment (See Figure 5 – Notice that the PIECP line drops more quickly than the other two lines). Approximately 24 and 25 percent of the TI and OTW releasees did not have reported earnings, whereas less than 17 percent of the PIECP's did not have earnings over the course of follow-up (See Table 6: Case processing summary – release to employment). (In survival analysis, the total N is the sample size, the N of events is the portion of the sample who experienced the event – employment, and the censored cases are the number of cases who did not experience the event during the follow-up period).

Table 6: Case processing summary - release to employment**{ TC "**Table 6: Case processing summary - release to employment**" \f D \l "1" }**

			Censored	
Prefix	Total N	N of Events	N	Percent
OTW	2268	1705	563	24.8%
TI	1863	1415	448	24.0%
PIE	2333	1944	389	16.7%
Overall	6464	5064	1400	21.7%

Additionally, there is a significant difference[12] between the three groups (See Table 7: Overall comparisons – release to employment).

Table 7: Overall comparisons - release to employment{ TC "Table 7: Overall comparisons - release to employment" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	102.720	2	.000
Breslow (Generalized Wilcoxon)	134.455	2	.000
Tarone-Ware	124.300	2	.000

Further analysis determined that this difference is between PIECP and TI, and PIECP and OTW, and there is a difference between TI and OTW as well. (See Table 8: Comparison of TI & OTW only).

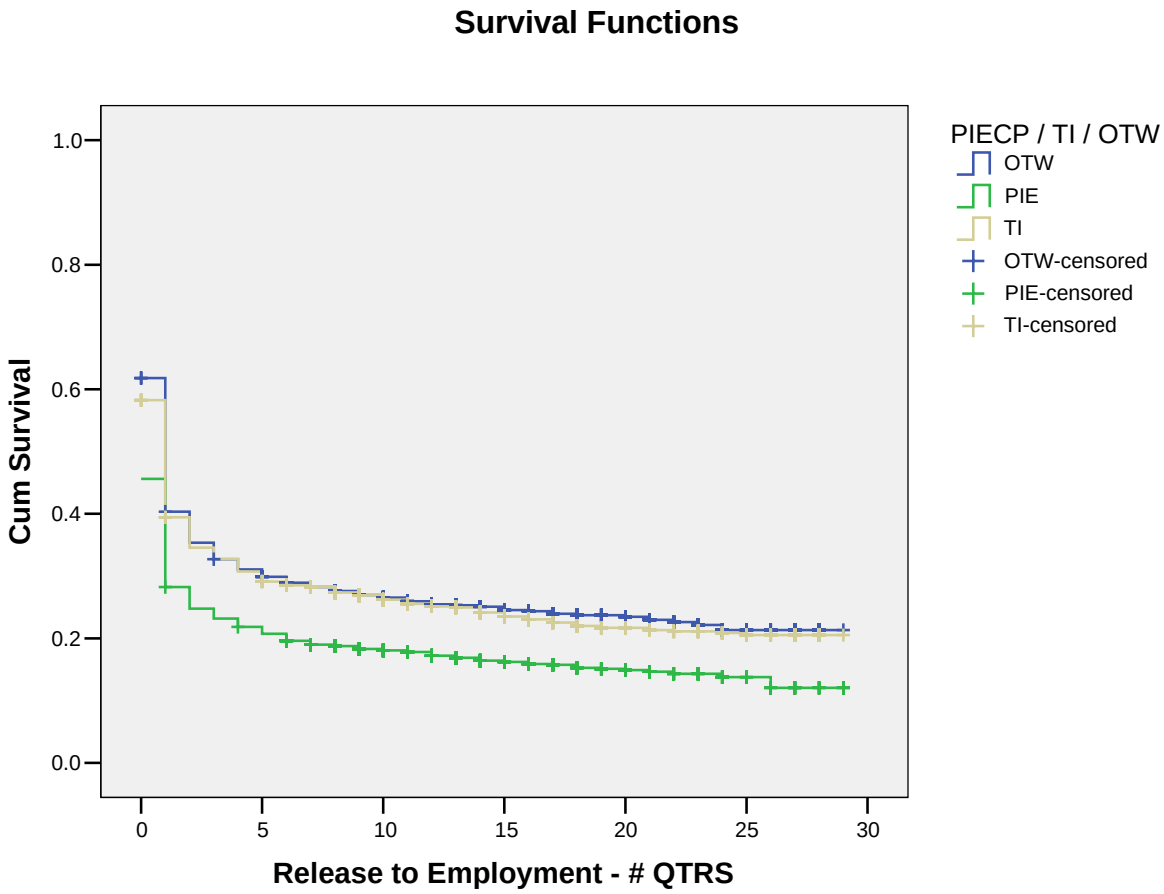
Table 8: Comparison of TI & OTW only{ TC "Table 8: Comparison of TI & OTW only" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	5.884	1	.015
Breslow (Generalized Wilcoxon)	6.745	1	.009
Tarone-Ware	6.560	1	.010

Finally, examining the survival curve provides insight into several issues relative to the time it takes for a releasee to obtain employment (See Figure 5: Survival function - Release to employment).

[12] Three tests of equality across the groups are available for KM survival analysis. "Log Rank. A test for comparing the equality of survival distributions. All time points are weighted equally in this test. Breslow. A test for comparing the equality of survival distributions. Time points are weighted by the number of cases at risk at each time point. Tarone-Ware. A test for comparing the equality of survival distributions. Time points are weighted by the square root of the number of cases at risk at each time point." (Statistical Package for Social Sciences, 2005)

Figure 5: Survival function - release to employment



First, approximately 55 percent of the PIECP and 40 percent of the TI and OTW obtained employment within the first quarter upon release. Conversely, approximately 45 percent PIECP and 60 percent of the TI and OTW releasees ended the first quarter without experiencing the terminal event (i.e., not obtaining employment). Once the releasee obtains employment, he or she is dropped from further analysis shown in the survival curve. Second, survival analysis provides the amount of time that passes

before the curve associated with change in status becomes flattened. By the end of the fifth quarter approximately 20 percent PIECP and 30 percent TI and OTW releasees have not become employed. An additional five percentage point decline occurs over the next six years indicating that few releasees obtain employment after the first five quarters. This would suggest that employment assistance should be focused during the first year after release to assist those who obtain work more readily and focused differently for the 20 to 30 percent who do not obtain employment for the remaining follow-up period. Finally, this analysis shows which group obtained employment faster. TI and OTW survival curves, while they appear similar in this graph, are significantly different, indicating that it took OTW releasees longer to obtain employment than TI releasees. The PIECP line drops faster and remains below the other two, which shows that releasees participating in PIECP obtained employment faster than those who do not have the PIECP experience.

3) Duration of employment{ TC "3) Duration of employment" \f C \l "2" }

The third measure of success relative to post-release employment is the length of the time between first employment and the first full quarter without reported earnings or employment (See Figure 2: Visual model of analysis). A sequence of jobs or multiple jobs in one quarter (i.e., changing employment, working two jobs), is not counted as a loss of employment. Unemployment within a quarter remains counted as employment so long as there are reported earning within the quarter, and the releasee may be unemployed for large parts of the quarter. Hypothetically, a person only needs to work some part of one day in a quarter to be considered employed for that quarter.

The post-release duration measures are presented in Table 9: Post-release employment duration descriptive measures. Among those in the sample with one year or more of follow-up (n=6464) and three years or more of follow-up (n=4530), PIECP releasees are more likely to be continuously employed than either TI or OTW. Of the 2333 available PIECP participants, 48.6 percent of them were employed for one year or more continuously and 13.7 percent of them were employed for three years or more continuously, whereas 40.4 percent and 38.5 percent of the TI and OTW releasees respectively were continuously employed for one year and approximately 10 percent of both TI and OTW groups were continuously employed for over three years. Because the follow-up period varies across the 5.5 years of post-release, some releasees were released less than 2 years. Therefore, the survival analysis provides a better description of the findings than the periodic time series analysis.

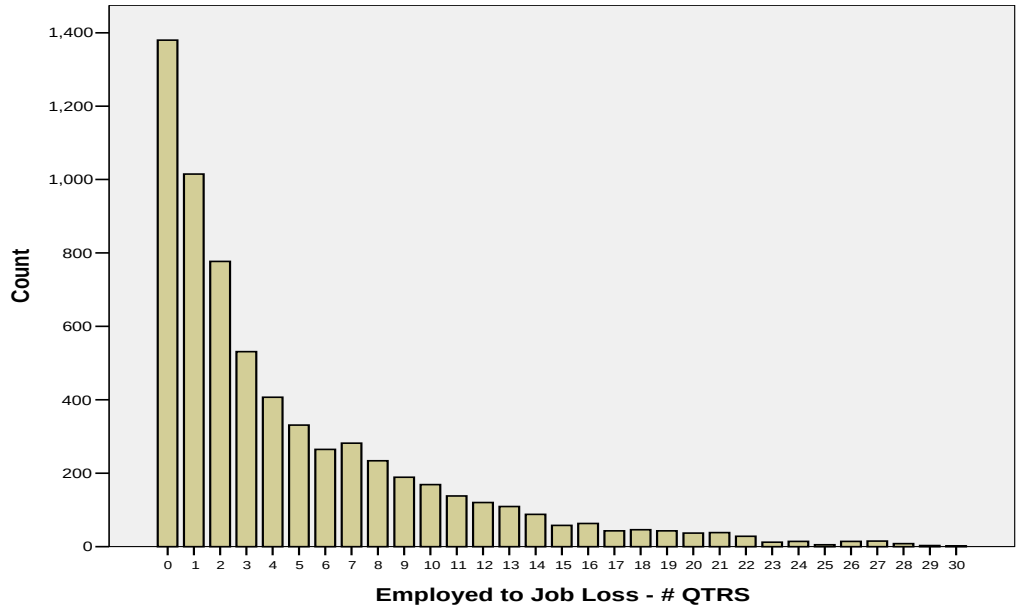
Table 9: Post-release employment duration descriptive measures (n=6464)**{ TC "**Table 9: Post-release employment duration descriptive measures (n=6464)**" \f D \l "1" }**

Range of time employed	0-30 quarters		
Characteristic	PIECP	TI	OTW
Employed continuously 1yr + (n=2761)	1135 (48.6%)	753 (40.4%)	873 (38.5%)
Employed continuously 3 yrs + (n=746)	320 (13.7%)	192 (10.3%)	234 (10.3%)

The average length of duration of employment for all three groups is best represented by the median of zero as a result of the skewed distribution caused by the

large number of releasees who do not obtain employment during the follow-up period or are employed for only one or two quarters (See Figure 6: Employment duration).

Figure 6: Employment duration



Measuring employment duration included a comparison of PIECP, TI and OTW to each other to determine who retained employment longer. Based on the survival analysis, PIECP participants retained employment significantly longer. The survival rate is equal to the proportion of those who begin the quarter employed and remain to the end of the quarter employed. The least steep slope is best because it indicates that comparably more releasees have retained employment. Between 3.8 and 5.3 percent of the releasees remained employed at the end of the follow-up period (See Table 10: Case processing summary – employment duration). In other words, the releasees did not lose employment during the follow-up period, so they were censored from the analysis during the quarter in which the individual's follow-up period ended.

Table 10: Case processing summary - employment duration{ TC "Table 10: Case processing summary - employment duration" \f D \l "1" }

prefix	Total N	N of Events	Censored	
			N	Percent
OTW	2268	2148	120	5.3%
TI	1863	1792	71	3.8%
PIE	2333	2230	103	4.4%
Overall	6464	6170	294	4.5%

Additionally, there is a significant difference between the three groups (See Table 12: Overall comparisons – employment duration).

Table 11: Overall comparisons - employment duration{ TC "Table 11: Overall comparisons - employment duration" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	45.845	2	.000
Breslow (Generalized Wilcoxon)	67.983	2	.000
Tarone-Ware	62.955	2	.000

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Further analysis demonstrates the significant difference is between PIECP and TI, and between PIECP and OTW, but not between TI and OTW (See Table 12: Comparison of TI & OTW only – employment duration).

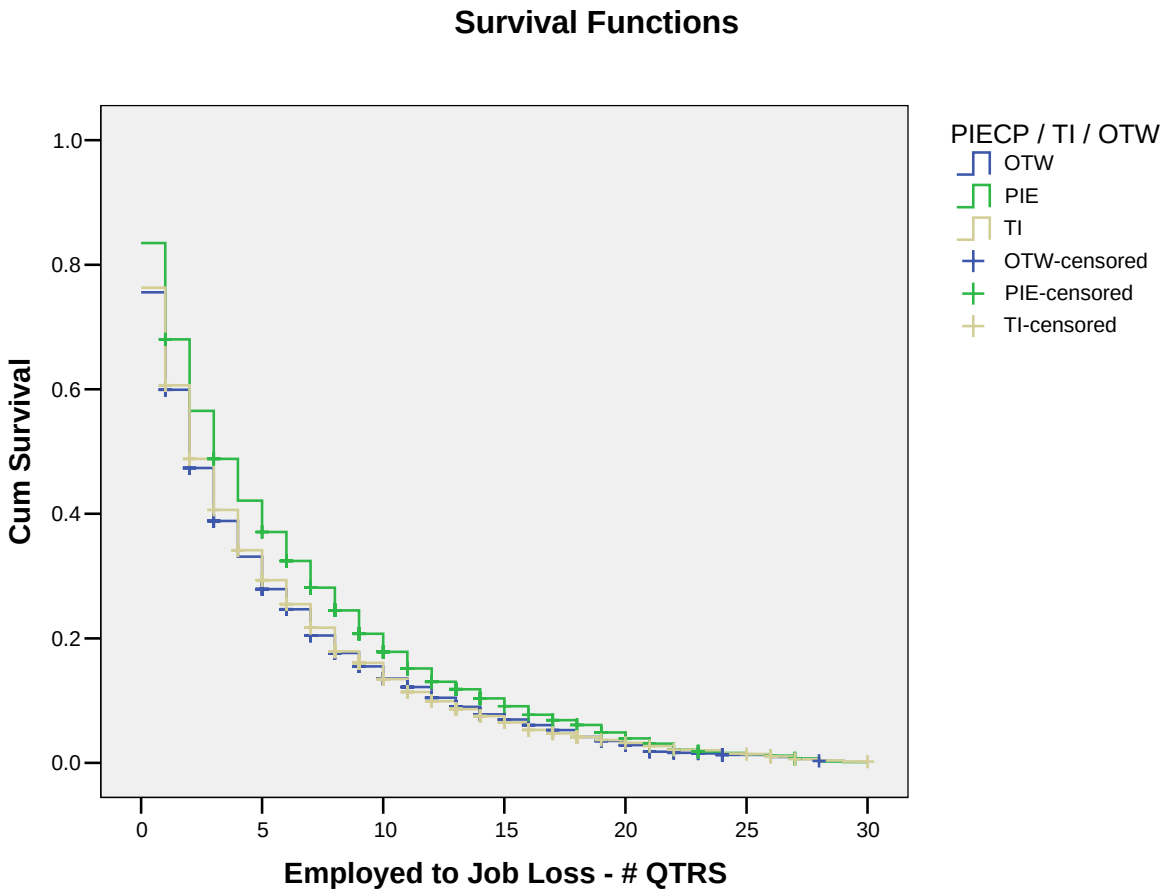
Table 12: Comparison of TI & OTW only - employment duration{ TC "Table 12: Comparison of TI & OTW only - employment duration" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	.728	1	.394
Breslow (Generalized Wilcoxon)	3.454	1	.063
Tarone-Ware	2.187	1	.139

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Finally, examining the survival curve provides insight into employment duration (See Figure 7: Survival function - employment duration).

Figure 7: Survival function - employment duration



First, PIECP releasees retain employment longer than TI or OTW releasees for the first five years of follow-up (See Figure 7: Survival function – employment duration, where the lines merge at approximately 20 quarters). TI and OTW releasees exhibit little difference. Nevertheless, over 50 percent of all three groups had a full quarter of unemployment by the end of the third quarter after release.

Even if one gets a job, it does not mean that one will keep that job. Holzer and Wissoker's (2001) study of job retention among welfare recipients found that in 8 months, 25 percent of newly employed welfare recipients had left employment. Fourteen percent quit voluntarily; eight percent were discharged and three percent were laid off (Holzer & Wissoker, 2001). In Holzer and Wissoker's (2001) study, job loss was less related to cognitive or basic skills and more related to absenteeism, attitudes towards work in general and relationships with other workers/supervisors.

While certain skills are needed to find employment (i.e., cognitive and job search skills) very different skill sets are needed for job retention (Loprest, 2002). Calling these the "soft skills", job retention skills focus on peer mentoring, post-employment counseling, intervention with employers, and general job support (Holzer & Wissoker, 2001). Additionally, the newly employed also need support with such services as transportation and child care (Holzer & Wissoker, 2001).

4) Wage rate{ TC "4) Wage rate" \f C \l "2" }

Wages earned by the sample were examined. Approximately 55% of the releasees earned at an hourly rate less than the Federal minimum wage during the post release follow-up period based on a calculation that assumes full time work during each quarter in which wages are reported. It is possible that the sample were either under-employed (i.e., working part time or working intermittent) or under-paid.

PIECP releasees earn significantly more than OTW releasees and are employed significantly more quarters post-release than TI and OTW. There is a significant difference between PIECP and OTW based on the t test on the average amount of wages earned during follow-up (See Table 13: Wages earned post-release). PIECP

releasees earned significantly more on average than OTW releasees. Other relationships were not significantly different. Additionally, PIECP releasees are employed during significantly more quarters than TI and OTW releasees.

Table 13: Wages earned post-release{ TC "Table 13: Wages earned post-release" \f D \l "1" }

	PIECP	TI	OTW	t	Sig.
Wages earned (mean)	$44,263*		$27,136*	-2.077	.038
# quarters employed at least one day (mean)	8.7 quarters 9.1	8.2 quarters	7.8 quarters	-5.011 -4.060	.000 .000

5) Industry groupings (NAICS) in prison versus free world{ TC "5) Industry groupings (NAICS) in prison versus free world" \f C \l "2" }

One measure of whether the programs administered provide inmates with usable employment hard skills is to determine if the releasee obtains employment in the same or similar position held during incarceration. NAICS groupings, albeit general, are the best available measure. Of the 6464 releasees, 18,035 NAIC codes were collected, of which approximately 10% (n=1719) had a post release employment in the same NAICS grouping as he or she held while in prison. PIECP and TI workers held the same grouping position approximately 12 percent and 8 percent respectively of the reported NAICS grouping positions.

Research Question 2: ***Does PIECP participation reduce recidivism as compared to TI work or OTW?{*** *TC "Research Question 2:* ***Does PIECP participation reduce recidivism as compared to TI work or OTW?"*** *\f C \l "2"* ***}***

The analysis for recidivism is similar to post release employment. Recidivism is measured in the three traditional ways; new arrest, conviction, and incarceration. Technical violations were not measured as a new arrest. Survival analysis measures how long a releasee is in the free world community until he or she recidivates. The terminal event for the analysis may be an arrest, conviction or incarceration. At that time, the individual is removed from further analysis. Therefore, this measure does not take into account future free world time or additional recidivism measures. This analysis technique allows the survival curve to measure the percent of those who are still in the free world at the end of each interval for the first recidivism event. Recidivism is measured in units of days. Once again, the timeline model of analysis (See Figure 2) provides a visual model of the time from when the individual was released from prison to the time in which he or she was first arrested, convicted or incarcerated.

The three measurements are based on the recidivism definition debates over the years. One school of thought is that the number of arrests over count crime. Others think that convictions are only incidents that can be proven in court, thereby undercounting crime. And, finally, others think that measuring re-incarceration is best because prison rehabilitation efforts should be responsible for reducing prison stays.

The follow-up period began on the date of release into the community (e.g., any day between January 1, 1996 and June 30, 2001) until mid 2003. This results in a follow-up period of slightly less than two years and up to seven and one-half years.

Arrest{ TC "Arrest" \f C \l "2" }

This matched sample of releasees has relatively low recidivism rates. The average amount of time from release to first arrest is approximately 993 days, suggesting that many (80 percent) of the releasees were arrest free at the end of the first year. The range of time between the time released and the time arrested is 1-2,519 days. Almost 59 percent of those in PIECP successfully reentered society, whereas approximately 53 percent of the TI & OTW were not arrested during the follow-up period. The rate of success at the end of the first year is high for all three groups, 82.5 percent of PIECP, and 76.8 percent of TI and 76.2 percent OTW did not get arrested in the first year post release.

Table 14: Release to arrest descriptive measures**{ TC "**Table 14: Release to arrest descriptive measures**" \f D \l "1" }**

Total sample size	6464		
No post-release arrests	3526 (55.1%)		
Range from release to arrest	1-2519 days		
	PIECP	**TI**	**OTW**
No post-release arrest	1359 (59.0%)	972 (52.6%)	1176 (52.3%)
Success rate for one year (no post-release arrest during 1st year)	1900 (82.5%)	1424 (76.8%)	1714 (76.2%)

Measuring recidivism included a comparison of PIECP, TI and OTW twin matched sets to determine who stayed crime free longer. Based on the survival analysis, PIECP participants stayed crime free significantly longer than TI and OTW

participants. However, TI participants were not significantly different than OTW participants. The survival rate is equal to the proportion of those who begin the quarter arrest free post release and remain to the end of the quarter arrest free. The slowest dropping survival curve is best because it indicates that comparably more releasees have remained arrest free.

Between 52.7 and 59.6 percent of the releasees remained arrest free at the end of the follow-up period (See Table 15: Case processing summary – arrest). In other words, the releasees did not get arrested for a new crime during the follow-up period, so they were censored from the analysis during the quarter in which the individual's follow-up period ended.

Table 15: Case processing summary - arrest{ TC "Table 15: Case processing summary - arrest" \f D \l "1" }

			Censored	
prefix	Total N	N of Events	N	Percent
OTW	2232	1056	1176	52.7%
TI	1841	869	972	52.8%
PIE	2280	921	1359	59.6%
Overall	6353	2846	3507	55.2%

Additionally, there is a significant difference between the three groups (See Table 16: Overall comparisons – arrest).

Table 16: Overall comparisons - arrest{ TC "Table 16: Overall comparisons - arrest" \f D \l "1" }

	Chi-Square	Df	Sig.
Log Rank (Mantel-Cox)	29.066	2	.000
Breslow (Generalized Wilcoxon)	34.240	2	.000
Tarone-Ware	32.609	2	.000

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Further analysis indicates that the significant difference is between PIECP and TI, and between PIECP and OTW, but not between TI and OTW (See Table 17: Comparison of TI & OTW only – arrest).

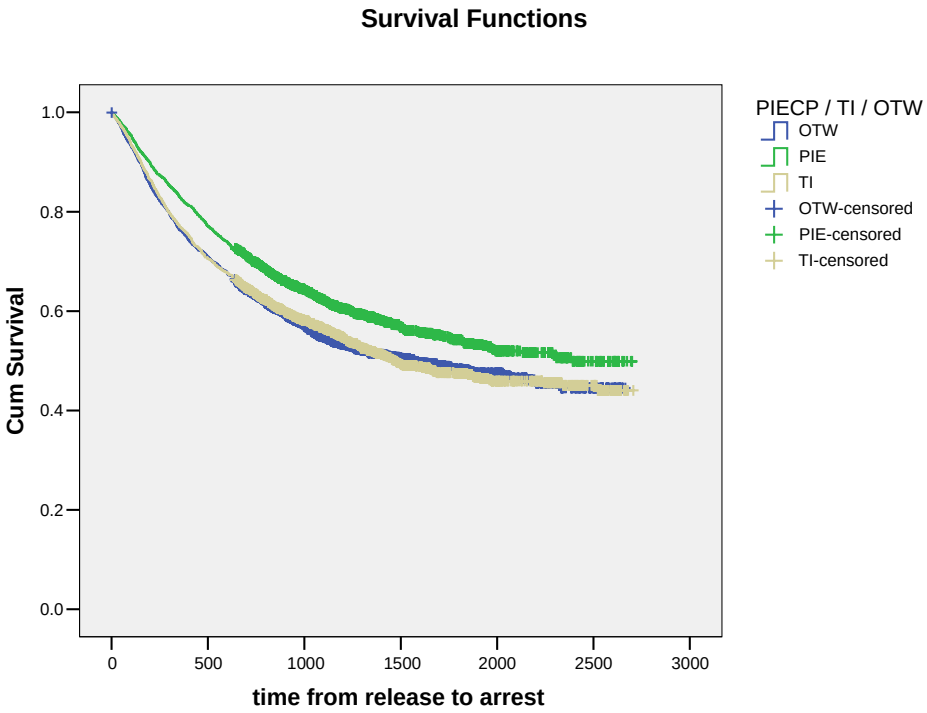
Table 17: Comparison of TI & OTW only - arrest{ TC "Table 17: Comparison of TI & OTW only - arrest" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	.212	1	.645
Breslow (Generalized Wilcoxon)	.005	1	.946
Tarone-Ware	.031	1	.861

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Finally, examining the survival curve provides insight into post release arrests (See Figure 8: Survival function – arrest)

Figure 8: Survival function - arrest



First, PIECP releasees stay arrest free longer than TI or OTW releasees during the follow-up period. TI and OTW releasees exhibit little difference. Nevertheless, approximately 70 to 80 percent of the releasees were arrest free at the end of the first year. The percent of those who are arrest free post-release continues to decline until about the fourth year. This indicates that this sample of inmates is slightly different than the general prison population. Maltz (1984) found that the ideal follow-up for inmates was three years to capture the majority of the recidivism.

Conviction{ TC "Conviction" \f C \l "2" }

Between 73.6 and 77.9 percent of the releasees remained conviction free at the end of the follow-up period (See Table 18: Case processing summary – conviction). In

other words, the releasees did not get convicted for a new crime during the follow-up period, so they were censored from the analysis during the quarter in which the individual's follow-up period ended.

Table 18: Case processing summary - conviction{ TC "Table 18: Case processing summary - conviction" \f D \l "1" }

prefix	Total N	N of Events	Censored	
			N	Percent
OTW	2241	591	1650	73.6%
TI	1846	458	1388	75.2%
PIE	2291	506	1785	77.9%
Overall	6378	1555	4823	75.6%

Additionally, there is a significant difference between the three groups (See Table 19: Overall comparisons – conviction).

Table 19: Overall comparisons - conviction{ TC "Table 19: Overall comparisons - conviction" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	9.646	2	.008
Breslow (Generalized Wilcoxon)	12.675	2	.002
Tarone-Ware	11.563	2	.003

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

The analysis describes a significant difference between PIECP and TI, and between PIECP and OTW, but not between TI and OTW (See Table 20: Comparison TI & OTW only – conviction).

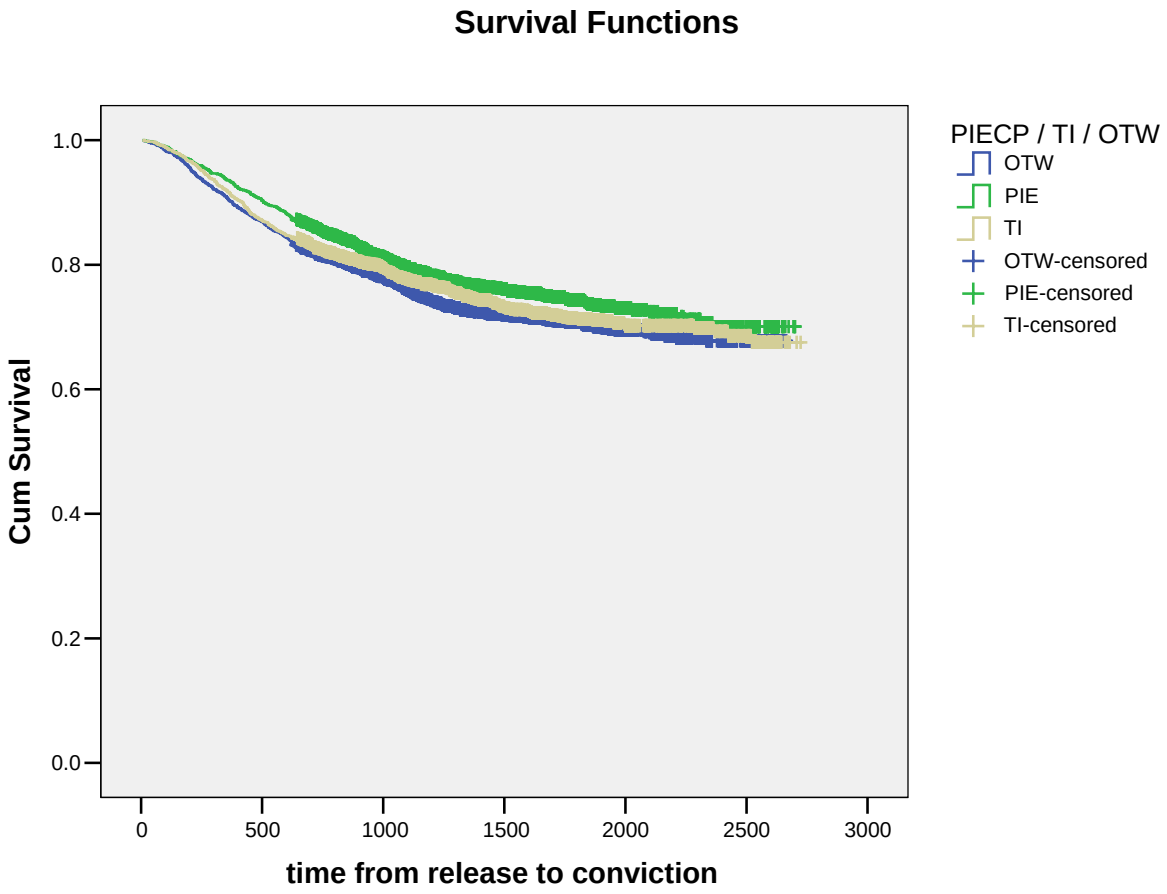
Table 20: Comparison of TI & OTW only - conviction{ TC "Table 20: Comparison of TI & OTW only - conviction" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	.058	1	.810
Breslow (Generalized Wilcoxon)	.002	1	.968
Tarone-Ware	.007	1	.933

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Finally, examining the survival curve provides insight into post release conviction (See Figure 9: Survival function – conviction).

Figure 9: Survival function - conviction



First, PIECP releasees stay conviction free longer than TI or OTW releasees during the follow-up period. TI and OTW releasees exhibit little difference. Nevertheless, approximately 90 percent of the releasees were conviction free at the end of the first year. The percent of those who are conviction free post-release also continues to decline until about the fourth year, following the similar trend to arrests.

Incarceration{ TC "Incarceration" \f C \l "2" }

Between 89 and 93 percent of the releasees remained incarceration free at the end of the follow-up period (See Table 21: Case processing summary – incarceration). In other words, the releasees did not get incarcerated for a new crime during the follow-up period, so they were censored from the analysis during the quarter in which the individual's follow-up period ended.

Table 21: Case processing summary - incarceration**{ TC "**Table 21: Case processing summary - incarceration**" \f D \l "1" }**

			Censored	
prefix	Total N	N of Events	N	Percent
OTW	2246	247	1999	89.0%
TI	1849	178	1671	90.4%
PIE	2301	161	2140	93.0%
Overall	6396	586	5810	90.8%

Additionally, there is a significant difference between the three groups (See Table 22: Overall comparisons – incarceration).

Table22: Overall comparisons - incarceration**{ TC "**Table22: Overall comparisons - incarceration**" \f D \l "1" }**

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	19.349	2	.000
Breslow (Generalized Wilcoxon)	22.143	2	.000
Tarone-Ware	21.441	2	.000

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Further analysis indicates a significant difference between PIECP and TI, and between PIECP and OTW, but not between TI and OTW (See Table 23: Comparison of TI & OTW only – incarceration).

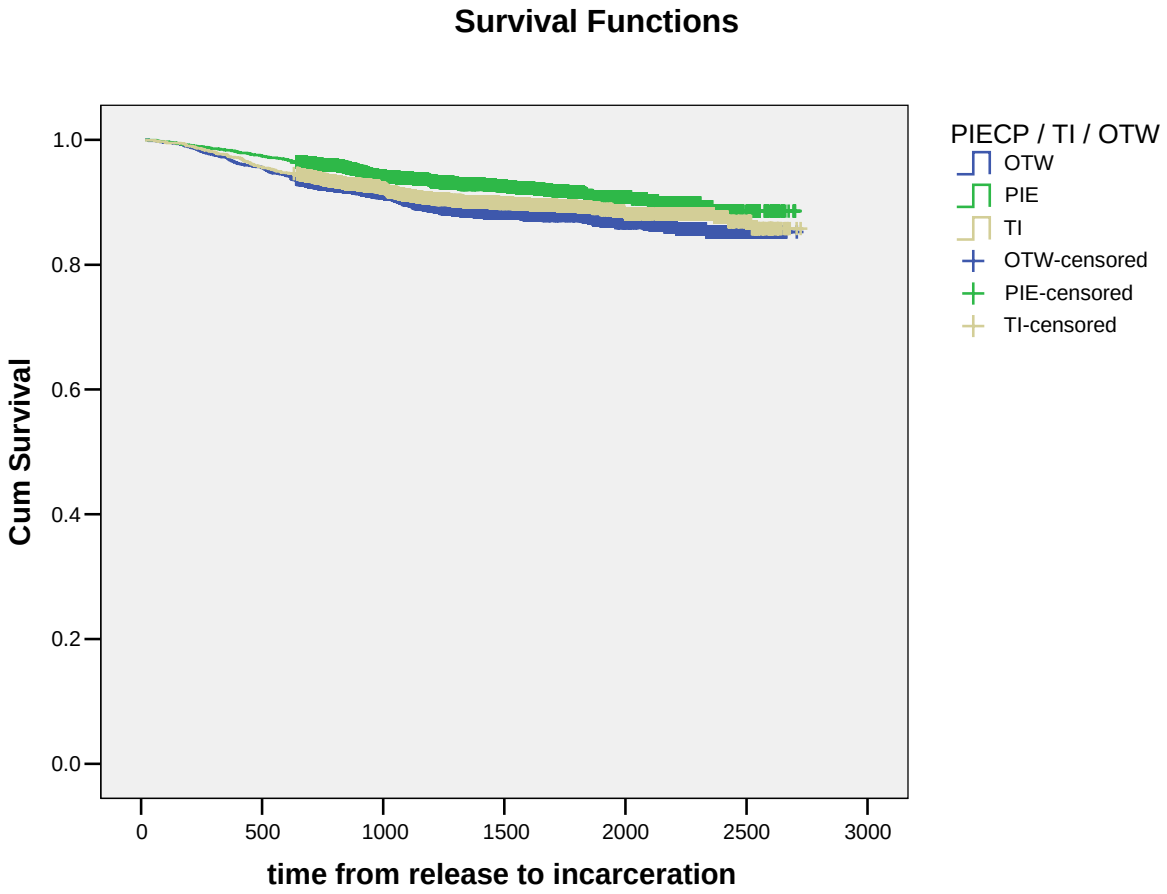
Table 23: Comparison of TI & OTW only - incarceration{ TC "Table 23: Comparison of TI & OTW only - incarceration" \f D \l "1" }

	Chi-Square	df	Sig.
Log Rank (Mantel-Cox)	1.454	1	.228
Breslow (Generalized Wilcoxon)	1.342	1	.247
Tarone-Ware	1.433	1	.231

Test of equality of survival distributions for the different levels of PIECP / TI / OTW.

Finally, examining the survival curve provides insight into post release incarceration (See Figure 10: Survival function- incarceration).

Figure 10: Survival function - incarceration



Mirroring arrests and convictions, PIECP participants are incarceration free for significantly longer periods of time post release.

Summary{ TC "Summary" \f C \l "2" }

Based on the cluster sampling across five states and 46 prisons, with a matched sample of 6464 releasees between January 1, 1996 and June 30, 2001, PIECP participants re-enter society more successfully than TI or OTW releasees. The primary

findings of this research are that inmates who worked in open-market jobs in PIECP were found to be significantly more successful in post-release employment. That is to say, they became tax-paying citizens quicker and remain in that status longer than TI and OTW releasees. Additionally, PIECP releasees were more successful post-release in obtaining employment more quickly than TI releasees. Finally, PIECP releasees had slower and reduced recidivism, as measured by arrest, conviction and incarceration, than TI and OTW releasees. Success was defined using seven criteria (See Table 24: Success).

Table 24: Success{ TC "Table 24: Success" \f D \l "1" }

Measure of success	Finding
1) proportion of time employed during the follow-up period	Average proportion of time is 50%
2) time to first employment after release	PIECP participants obtain employment significantly faster than TI & OTW. TI participants obtain employment

	significantly faster than OTW.
3) duration of first employment	PIECP participants retain the 1st employment significantly longer
4) wage rate during the follow-up period	PIECP participants earn more wages and higher wages
5) time from release to first arrest	PIECP participants are arrested at a slower rate than other groups.
6) Time from release to first conviction	PIECP participants are convicted at a slower rate than other groups.
7) time from release to first incarceration	PIECP participants are incarcerated at a slower rate than other groups

Policy Recommendations{ TC "Policy Recommendations" \f C \l "1" }

The research results found in this report suggest that work plays an integral part in successful re-entry upon release. Those who worked in PIECP, gaining exposure to employment hard and soft skills, financial benefits, and the aesthetics of a work environment did significantly better in terms of post-release employment effects and recidivism effects than otherwise similar releasees. Additionally, the state and federal coiffeurs benefited from the taxes paid and the room and board collected (Petersik, Nayak & Foreman, 2003). This would suggest that increased efforts should be expended to increase the number of private industry partnerships with the appropriate program monitoring and continued evaluation.

However, there are some indicators and cautions that should be applied to these recommendations. First, the sample is not perfectly matched (i.e., time incarcerated) and control variables in future research should be included to fine tune the results. Additionally, there are other factors that may play a role in the success of the program that are not yet included in the analysis. However, with the appropriate on-going monitoring and continued research, these factors could be targeted.

Future Research{ TC "Future Research" \f C \l "1" }

Because this research is the first national level study of this topic, it opens a plethora of ideas for future research. Additionally, the topic of industry within the prison walls has been the focus of many legislatures recently. In fact, one state found the PIECP to be unconstitutional during the course of this research. As a result, this section could continue for many pages. To prepare a more focused approach, the following discusses the most urgent two issues. This is followed by a list of research topics generated without any particular order of urgency based on questions asked at a presentation of preliminary results. Finally, a brief list of future topics is included that resulted from review of this report.

First, the original research questions included a sub-question, Under what conditions and for which inmates is PIECP more effective than TI and OTW? While this report presents some brief descriptive information about the sample characteristics, there is considerable more that could be done to enhance this information. In the report, we point out three such issues:

- Most are minimum custody, but a sufficient sample size of those in more secure environments is included to enable separate analysis in the future. Is PIECP equally effective for inmates who are classified at different security levels?
- An intentional over sampling was part of the research design to ensure results can be determined based on gender. Are the effects of PIECP the same for males and females?
- Approximately 20 to 30 percent of the sample did not obtain employment during the follow-up. Is this group at a higher risk of recidivism?

Second, we do not know at this time the percent of the general prison population that matches PIECP participants. The sample is based on those who are selected to work in PIECP and those who are most likely to be selected if positions were available. Even in the preliminary stages of reporting results, this raised concerns about the generalizability of the findings. As discussed within the report, the findings are generalizable to all PIECP releasees, but to a more limited number of TI and OTW releasees. Further investigation should be made to determine an approximate proportion of inmates to which this sample represents. For example, are 50 percent of the current inmates similar to those who are selected for PIECP?

Next, the following list offers insight into what is important to those who work in the prisons:

- What is the impact of the following on success of the sample?
    - facility involvement
    - education
    - family involvement

- post release employment, when it is a condition of parole
- absorption capacity of industry (last hired, first fired)
- James Bonta's 7 criteria for re-entry: employment, family, attitude, community involvement, drugs, personal/emotional orientation, associate interactions
- mental health
- gender (i.e., women perform childcare rather then outside employment)
- type of model (employer, manpower, customer)
- TABE scores rather then education level
- # of prior recidivism
- crime type
- sex offenders
- job status at time of recidivism

- In addition, those working in the field wanted to know:
  - For which crimes were they reincarcerated?
  - Does Maslow's hierarchy of basic needs apply?
  - What are the PIECP program best practices for the most effective PIECP programming?
  - How do states with PIECP compare to states without PIECP?

Finally, the following list of questions was generated from academic review of this publication:

- How do PIECP operations differ from TI operations? Should PIECP be the dominant work or is there a place for each?

- What is it about PIECP that lead to the results in this study? For example, was it the amount of money earned? The quality of work performed? The supervision provided? Or the type of work performed?
- What model of industry performed best?
- What implementation factors insure favorable outcomes?
- Conduct a prospective study with control groups that tracks tasks, length of time involved in each programming area and reasons for ending programming. Compare mixed group effects to pure group effects.
- Include control variables in the survival analysis.

References{ TC "References" \f C \l "1" }

Ashurst-Sumners Act, (1935).

Atkinson, R. (2002). *Prison labor It's more than breaking rocks*: Progressive Policy Institute.

Bureau of Justice Assistance. (2004). *Prison Industry Enhancement Certification Program*. Retrieved 2005, August 16, from http://www.ncjrs.org/pdffiles1/bja/203483.pdf

Federal Register. (1999, April 17). Prison Industry Enhancement Certification Program Guideline (Vol. 64, pp. 17000-17014).

Hirsch, A., Dietrich, S., Landau, R., Schneider, P., Ackelsberg, I., Bernstein-Baker, J., et al. (2001). *Every door closed: Barriers facing parents with criminal records*: Center for Law and Social Policy.

Holzer, H. J., Raphael, S., & Stoll, M. (2003). *Employment Barriers Facing Ex-Offenders.* Retrieved August 25, 2005, from www.urban.org/UploadedPDF/410855_**holzer**.pdf

Holzer, H. J., & Stoll, M. (2002). *Employer demand for welfare recipients by race*. Retrieved August 25, 2005, from http://www.urban.org/Template.cfm?Section=ByAuthor&NavMenuID=63&template=/TaggedContent/ViewPublication.cfm&PublicationID=7528

Holzer, H. J., & Wissoker, D. (2001). *How can we encourage job retention and advancement for welfare recipients*. Retrieved August 25, 2005, from http://www.urban.org/Template.cfm?Section=ByAuthor&NavMenuID=63&template=/TaggedContent/ViewPublication.cfm&PublicationID=7443

Illinois Criminal Justice Information Authority. (1986a). *The impact of prior criminal history on recidivism in Illinois*. Chicago, IL: Illinois Criminal Justice Information Authority.

Illinois Criminal Justice Information Authority. (1986b). *The pace of recidivism in Illinois*. Chicago, IL: Illinois Criminal Justice Information Authority.

Kramer, F. (1998). The hard to place: Understanding the population and strategies to serve them. *Welfare Information Network Issue Notes, 2*(5).

Loprest, P. (2002). *Who returns to welfare?* : The Urban Institute.

Macguire, K. E., Flanagan, T. J., & Thornberry, T. P. (1988). Prison labor and recidivism. *Journal of Quantitative Criminology, 4*(1), 3-18.

Maltz, M. D. (1984). *Recidivism*. New York: Academic Press.

National Correctional Industries Association. (2002). *Piece of the PIE*. Retrieved August 16, 2005, from http://www.nationalcia.org/vol1nov2002.pdf

National Correctional Industries Association (personal communication, August 30, 2005).

Petersik, T. W., Nayak, T. K., & Foreman, M. K. (2003). *Identifying beneficiaries of PIE inmate incomes: Who benefits from wage earnings of inmates working in the Prison Industry Enhancement (PIE) program*. Retrieved August 16, 2005, from http://www.nationalcia.org/researchfullrpt.pdf

Petersilia, J., & Turner, S. (1986). *Prison versus probation in California: Implications for crime and offender recidivism*. Santa Monica, CA: RAND.

Saylor, W. G., & Gaes, G. G. (1997). Training inmates through industrial work participation and vocational and apprenticeship instruction. *Corrections Management Quarterly, 1*(2), 32-43.

Sexton, G. E. (1995). Work in America's prisons: Joint ventures with the private sector. *National Institute of Justice Program Focus*, 24.

Smith, C. J. (2002). *A national evaluation of the effects of the Prison Industries Enhancement Certification Program (PIECP): Results of a feasibility study*. Retrieved August 16, 2005, from http://www.nationalcia.org/feasibility

Statistical Package for Social Sciences. (1999). *SPSS Advanced Models 10.0*. Chicago, IL: SPSS, Inc.

Statistical Package for Social Sciences. (2005). *SPSS advanced models 14.0*. Retrieved August 15, 2005, from http://www.spss.com/pdfs/SAM14SPClr.pdf

Stollmack, S., & Harris, C. M. (1974). Failure rate analysis applied to recidivism data. *Operations Research, 22*, 1192-1205.

Turner, S., & Smith, C. J. (1994). *California civil addict program: An analysis of program components, offender performance, and judicial perceptions*. Santa Monica, CA: RAND.

Western, B., Kling, J., & Weiman, D. (2001). *The labor market consequences of incarceration*.