

2012 Iowa Board of Parole Risk Assessment Validation

Iowa Department of Human Rights
Division of Criminal and Juvenile Justice Planning
Statistical Analysis Center

March 20, 2012

Cheryl Davidson, Analyst and principal author



A Division of the Iowa Department of Human Rights

This evaluation has been supported by funding through the Iowa Board of Parole. Points of view in this document are those of the authors and do not necessarily represent the official position or policies of the Iowa Board of Parole or the State of Iowa. Special thanks to staff from the Iowa Board of Parole and Department of Corrections for providing data and consultation.

Table of Contents

Introduction	1
Study Cohort	2
Data Sources	4
Data Methodology	5
<i>Recidivism</i>	5
<i>Board of Parole (BOP) Risk Assessment Scores</i>	6
Description of the Instrument	6
Risk Score Methodology	8
<i>Level of Service Inventory Revised (LSI-R) Risk Assessment Scores</i>	10
Validation Methodology	12
Validation Results	13
Discussion.....	14
Conclusion.....	15
Appendix A: Characteristics of Offenders with a Current BOP Assessment.....	16
Appendix B: BOP Validation Results	20
Appendix C: LSI-R Validation Results	26
Appendix D: Dr. Daryl Fischer’s Commentary.....	29

Introduction

In December 2011, the Iowa Board of Parole (BOP) provided funding to the Iowa Division of Criminal and Juvenile Justice Planning (CJJP) to validate its risk assessment instrument. Due to budget constraints and increasing pressures to reduce correctional costs, the BOP expressed interest in increasing prison releases while continuing to ensure public safety. CJJP was asked to conduct a validation study to determine whether the BOP risk assessment tool continues to be a valid predictor of inmate post-release behavior.

The BOP risk assessment instrument, designed by Dr. Daryl Fischer, has been used by the BOP with modifications since the 1980s. The tool attempts to predict an offender's likelihood of recidivism based on criminal history. The risk assessment is based on: 1) convictions for all offenses except simple misdemeanors that are classified as non-violent or non-property, and 2) revocations of a supervision status (probation, parole, and work release). Each offense and release violation is scored according to the seriousness of the incident, the amount of time between the incidents, and the number of resulting convictions. Misbehavior while in prison may also be considered, and risk scores may be updated when offenders commit new offenses while incarcerated. Earlier validation studies, the most recent having been completed by CJJP in 2003, have found the instrument to be an adequate predictor of recidivism.¹

The purpose of this study is to revalidate the statistical assessment tool and examine whether it continues to be an accurate predictor of offender recidivism. Recidivism was defined in the study as a return to Iowa prison or a new Iowa conviction. The study cohort, comprised of offenders with valid BOP risk scores who were released from prison and work release in FY2007 (July 1, 2006 to June 30, 2007), was tracked from the time of release through November 30, 2010. This allowed for 41 months (about 3.5 years) to 53 months (about 4.5 years) of tracking after an offender's release from prison or work release, with an average of 1,429 days or 3.9 years.

The study explores the following:

- Whether the BOP risk assessment accurately predicts both general recidivism, violent recidivism, and the time to reoffend.
- Whether the sub-scores on the BOP risk assessment, including the Career Criminal Score (CCS), Career Violence Score (CVS), and Violence Prediction Score (VPS), accurately predict felony recidivism and violent recidivism, respectively.
- A comparison of the predictive abilities of the BOP risk assessment and the Level of Service Inventory Revised (LSI-R) risk assessment, a dynamic statistical tool used by the Iowa Department of Corrections (DOC) to determine offenders' criminogenic and service needs. This comparison provides the opportunity to identify which, if either, tool was a better predictor of recidivism within the study cohort, permitting a comparison of the strengths and weaknesses of each tool for certain types of offenders.

¹ Stageberg, P., Huff, D., Adkins, G., and Wilson, B. (2003). "Iowa Board of Parole Risk Assessment Validation." Iowa Department of Human Rights, Division of Criminal and Juvenile Justice Planning, p.1-20.

Study Cohort

The cohort included all offenders released from prison and work release in FY2007 who had an opportunity to recidivate and who had a BOP risk score that was determined to be current at the time of release. According to ICON, the information system of the Iowa Department of Corrections, there were 4,044 releases from prison and work release in FY2007, of whom 3,892 had the opportunity to recidivate. The final cohort with risk scores included 2,843 releases. It should be noted that offenders were included in the dataset multiple times if they had more than one release from prison or work release in FY2007 and also had a current risk score at each release (n=6 offenders).

Offenders who did not have an opportunity to recidivate were not included in the study. Situations that rendered an offender “unable” to recidivate included: death that occurred within three years after release (n=20), offenders who expired their sentences and were then committed to the Cherokee Mental Health Institute (n=6), and parolees to a detainer by INS or U.S. Marshall (n=111). Twelve offenders who discharged their sentences and returned to prison on technical violations were also excluded, as they had returned to prison on outstanding offenses that occurred prior to the release tracking period.

A decision was made to include offenders who were paroled from prison to a detainer in Iowa or in another state in the study cohort, as these groups had recidivism rates that were comparable to other parolees and expired sentence discharges. However, recidivism data were verified to ensure that these detainees committed technical violations or new conviction offenses *after* their FY2007 prison release. A few (n=3) were eliminated because they had returned to prison on outstanding “old” charges that would falsely appear as “recidivism.”

Out of 3,892 FY2007 releases who were determined to have the opportunity to recidivate, about three-quarters (n=2,843) had a current risk score at release. There were no records of any risk assessment having been done through the end of FY2007 for 77 cases. The remaining 972 cases had risk assessments that were not current at release (outdated risk assessments that had occurred prior to the start of their supervision status or later risk assessments in FY2007 that reflected subsequent criminal activities). These cases were excluded from the cohort.

Table 1 provides a summary description of the demographic and correctional characteristics, by sex, of the study cohort consisting of the FY2007 releases who had opportunities to recidivate and current risk scores at release.

Table 1: Description of Study Cohort Members by Sex

Study Cohort with Current BOP scores	Male (n=2455)		Female (n=388)		Total (n=2843)	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Age (years)	34.6	10.3	36.4	9.4	34.8	10.2

Race/Ethnicity	N	%	N	%	N	%
Caucasian	1793	73.0%	284	73.2%	2077	73.1%
African American	495	20.2%	82	21.1%	577	20.3%
Hispanic	113	4.6%	11	2.8%	124	4.4%
Other	54	2.2%	11	2.8%	65	2.3%
Study Supervision Status						
	N	%	N	%	N	%
Prison	1866	76.0%	316	81.4%	2182	76.7%
Work Release	589	24.0%	72	18.6%	661	23.3%
Admission Reason						
	N	%	N	%	N	%
New Admission	2143	87.3%	342	88.1%	2485	87.4%
Return	312	12.7%	46	11.9%	358	12.6%
Release Type						
	N	%	N	%	N	%
Supervised (Paroled, Released to Special Sentence)	1673	68.1%	330	85.1%	2003	70.5%
Unsupervised (Expired Sentence, Paroled with Immediate Discharge)	782	31.9%	58	14.9%	840	29.5%
Class of Most Serious Conviction for Current Supervision Status						
	N	%	N	%	N	%
Felony	1799	73.3%	292	75.3%	2091	73.5%
Misdemeanor	560	22.8%	87	22.4%	647	22.8%
Other (Enhanced, Special Sentence)	96	3.9%	9	2.3%	105	3.7%
Type of Most Serious Conviction for Current Supervision Status						
	N	%	N	%	N	%
Drug	756	30.8%	139	35.8%	895	31.5%
Public Order	377	15.4%	43	11.1%	420	14.8%
Property	702	28.6%	165	42.5%	867	30.5%
Violent	607	24.7%	37	9.5%	644	22.7%
Other	13	0.5%	4	1.0%	17	0.6%

Data Sources

Courts data were obtained electronically from the Iowa Court Information System (ICIS) through the Iowa Justice Data Warehouse (IJDW), a central depository of criminal justice data. Corrections data were obtained from the Iowa Corrections Offender Network (ICON) using the ICON ad hoc database and IJDW. BOP risk scores were obtained from ICON, the BOP’s electronic database IParole, and paper records at the BOP office and State Records Center. Table 2 provides a list of variables examined and data sources.

Table 2: Study Variables and Data Sources

<u>Study Variables</u>	<u>Sources</u>
Offender Demographics and Background	
ICON number	ICON
Name	ICON
Date of birth	ICON
Race	ICON
Sex	ICON
Highest level of education	ICON
Supervision Status	ICON
Most serious conviction at supervision status	ICON
Supervision start date	ICON
Supervision end date	ICON
Entrance reason	ICON
Exit reason	ICON
BOP Risk Scores	
Total (Composite) score	ICON, IParole
Sub-scores (CCS, CVS, VPS)	IParole, BOP records
Offender Outcomes	
Return to prison (all)	ICON
Return to prison (new conviction)	ICON
Return to prison (technical violation)	ICON
New conviction (all)	ICIS
New conviction (violent)	ICIS
New conviction (felony)	ICIS
New conviction (indictable)	ICIS

Data Methodology

Recidivism

Offender recidivism tracking began on the date of the FY2007 release. The recidivism tracking period ended on November 30, 2010, or 41 months (about 3.5 years) to 53 months (about 4.5 years) after offender's release from prison or work release, depending on the time of their FY2007 release. The average tracking period for the cohort was 1,429 days or 3.9 years. This study included two indicators of recidivism: 1) returns to an Iowa prison for any reason, including technical violations or new convictions and 2) new Iowa convictions for a simple misdemeanor or greater. In assessing the BOP risk assessment instrument, the following recidivism measures were examined:

- Any return to Iowa prison
- Return to Iowa prison on technical violation of parole
- Return to Iowa prison on new conviction
- Any new Iowa conviction (simple misdemeanor or greater)
- New Iowa indictable conviction
- New Iowa violent conviction
- New Iowa felony conviction

Prison returns data were obtained from Iowa Corrections Offender Network (ICON) through the Iowa Justice Data Warehouse (IJDW). An offender was identified as having returned to prison if the start date of his or her return occurred anytime after the initial FY2007 release through November 30, 2010 and the new offense occurred after the initial FY2007 release. For the purposes of this study only the first prison return was examined. If the return was due to a new conviction, only the most serious new conviction was examined. A prison return was identified as a "technical violation" if no new convictions (identified by the court cause number(s) and offense date(s)) were listed for the prison return supervision status, the offense date of the prison return conviction cause number(s) listed happened prior to the start of the study supervision status, and a revocation occurred immediately prior to the prison return supervision status.

New conviction data were obtained from the Iowa Court Information System (ICIS) through IJDW. Scheduled and non-scheduled violations, civil penalties, contempt, violations of parole and probation, and unknown conviction classes were excluded from the analysis of new convictions. The outcome was determined to be a conviction that resulted in a disposition of "guilty." An offender was identified as having a new conviction if the adjudication date of the conviction occurred through November 30, 2010 and the offense date that led to the new conviction had occurred either on the same day as or after the initial FY2007 release.

Cohort members were initially matched to court records by first name, last name, and date of birth. Some offenders had new convictions but were not identified through the initial matching criteria due to name suffixes (i.e. Jr., Sr. III), changes in last names, nicknames, name misspellings, or errors in the reporting of date of birth in the records. In attempt to identify and correct these mismatches, the initial list of conviction cause (case) numbers obtained from ICIS (court) was matched to convictions reported

in ICON (corrections) to identify any new convictions that were missed in the initial query. Offenders identified in this process were then individually looked up in ICIS through IJDW to retrieve the missing new conviction records. In addition, all offenders with name suffixes or hyphenations were individually looked up in ICIS to identify any new convictions that were initially missed, offenders shown in the initial query as not having convictions were looked up individually in ICON and ICIS to identify records missed through name changes or misspellings, and dates of birth of offenders were reviewed to identify missing records due to birth date errors. Despite these exhaustive efforts to identify offenders' new convictions; it is nevertheless likely that a small number of new convictions were not identified.

For the purposes of this study, only the first, most serious new conviction (if offenders had multiple convictions adjudicated on the same date) was examined. Focusing the recidivism analysis on the *first* new conviction or prison return is considered appropriate for the validation of the BOP's risk instrument. Because the instrument is based on criminal history, risk scores would presumably be valid until the offender received a new conviction or revocation. The score would become obsolete after an offender's first recidivist event, as subsequent criminal activity could change the score.

Please note that new arrests, which were included as a measure of recidivism in the 2003 risk validation study, were not included in the current study due to time constraints in collecting the data. In-state and out-of-state arrest data are available in the criminal history records through the Computerized Criminal Histories (CCH) database maintained by the Iowa Department of Criminal Investigation (DCI) and the Interstate Identification Index (III) maintained by the Federal Bureau of Investigation (FBI), respectively. However, obtaining these records would have required individual look-ups for each offender in the cohort. III records are not accessible through the Iowa Justice Data Warehouse (IJDW), CJP's central repository of data. CCH records are accessible, but Iowa's criminal history record system only identifies new arrests that lead to conviction and does not include arrests that resulted in dismissal or acquittal.

Board of Parole (BOP) Risk Assessment Scores

Description of the Instrument

In Iowa, the BOP is statutorily mandated under Code of Iowa §904A.4(8) to conduct risk assessments. The risk assessment is one among many factors that the BOP considers when making decisions on the timing and type of release. Risk scores are reviewed by the Board in conjunction with other factors, such as prior involvement in the criminal justice system, time served, discharge date, intervention programs completed, behavior and disciplinary action while in prison, family support, employment, and the recommendations of judges, attorneys, the DOC, and any victims. The BOP has authority to release a prisoner when there is reasonable probability that the person can be released without detriment to the community or individual and that the release is in the best interest of society and the offender (Code of Iowa §906.4(1)). The use of the risk assessment allows the Board to hasten the release of low risk offenders who do not pose a significant threat to public safety, while delaying the release of high risk offenders who do pose a threat.

BOP risk assessment scores are conducted for offenders prior to a release from prison, except in cases where the offender has discharged due to expiration of sentence prior to a Board review or offenders

who are incarcerated at an OWI facility or halfway house. Risk assessments are typically not conducted in work release unless specifically requested by the Board. A statistical research analyst employed by the BOP researches and gathers information about the offender’s criminal history from Iowa rapsheets obtained from the Iowa Department of Public Safety, presentence investigation reports, prison reception reports, and, if necessary, requests out-of-state criminal rapsheets from the Federal Bureau of Investigation. The information is entered into a computer that automatically computes the risk assessment score. The statistical research analyst typically conducts BOP risk assessments one month prior to the Board’s review of an offender. Assessments are updated upon request from the Board of Parole or before a Board review if an offender’s criminal record has changed or the offender is a new commitment.

The BOP risk assessment instrument, which has been used by BOP since the early 1980s, was designed by Dr. Daryl Fischer during his employment in Iowa’s original Statistical Analysis Center. The premise of the tool is to predict an offender’s likelihood of recidivism based on criminal history. In its original design, the intent was to create a risk assessment instrument that would have a “backward-looking” orientation to ensure criminal justice for previous wrongdoing, yet also have a “forward-looking” perspective to practically, effectively, and fairly manage offender populations and predict future criminal behavior. The approach based the presumption of future behavior on past offenses.

The risk assessment is based on: 1) convictions for all offenses except simple misdemeanors that are classified as non-violent or non-property, and 2) revocations of a supervision status (probation, parole, and work release). Each offense is scored according to the seriousness of the incident, the amount of time between offenses, and the number of convictions, if applicable. Misbehavior while in prison may also be considered, and risk scores may be updated if offenders have committed new offenses while incarcerated (e.g., escape, assault, possession of contraband, and interference with correctional workers).

Composite scores range from 2 to 9, with the lowest scores indicating lower risks of recidivating and the higher scores indicating higher risks. A non-empirical modification in 1999 that eliminated the lowest score of 1 was noted in the 2003 validation study. A given risk score requires a certain number of votes by Board members in order for the offender to be released. Table 3 shows the number of votes required for release at each risk score.

Table 3: Risk Scores and Number of Board Votes Required for Release

	BOP Risk Scores	Number of Board Votes Required for Release
Low Risk	2-6	3 votes
Medium Risk	7-8	4 votes
High Risk	9	5 votes (all board members)

The earlier validation of the BOP risk assessment conducted by CJP in 2003 demonstrated that the BOP risk assessment instrument was an adequate predictor of recidivism; however, the researchers recommended that the Board pay special attention to offenders with a score of four, due to that group's having higher recidivism than those scoring five and six.

In addition to the composite score, ranging from 2 to 9, the BOP risk instrument also consists of three independent sub-scores: the Career Criminal Score (CCS), Career Violence Score (CVS), and Violence Prediction Score (VPS). According to a 1993 overview of the risk assessment model, CCS is computed based on the severity of and duration ("street time") between all criminal events; CVS considers the severity of and duration ("street time") between all incidents of violent criminal events; and VPS is the weighted sum of the total CCS and CVS scores, with the latter receiving seven times the weight. The CCS and VPS are factored into the calculation of the final composite score.

Risk Score Methodology

BOP risk assessment scores were initially collected from ICON, which is continually updated with the offender's most recent BOP assessment. Due to some records being overwritten in ICON (due to subsequent incarcerations) and other records being out-of-date, the BOP provided a list of cohort members' last total risk assessment score through FY2007 from the IParole database. Risk scores and assessment dates from the ICON and IParole systems were then crosschecked to ensure accuracy. Risk assessment sub-scores for all cohort members were collected using the IParole database and paper records at the BOP office and the State Records Center.

Attempts were made to identify BOP risk assessment scores that were current at the time of the offenders' FY2007 release from prison or work release. The BOP assessment is based on criminal history, and, as noted by the BOP statistical analyst, earlier assessments would not change unless there was a *new conviction or revocation of a supervision status*. This criterion was used to determine whether or not a given score was current at release. Revocations and new convictions occurring between supervision dates and risk assessment dates were identified using corrections records obtained from ICON Ad Hoc.

All BOP assessments from an earlier supervision that occurred *before* the offenders' entrance to the study supervision status were determined "not current" at release (n= 924). ICON records showed that offenders with earlier assessments had subsequent conviction(s) or revocation(s) that occurred sometime between their assessment date and their supervision entrance which may have changed their risk scores. Among those with earlier risk scores, 192 were work releases who were revoked to work release from parole (rather than being released from prison immediately to work release). Unless specifically requested, risk scores are typically not calculated for work releases, and any previous risk scores offenders had in a prior supervision were assumed to have been outdated due to the offenders' having been revoked to work release (in addition to possibly having a new conviction). Work releases who had immediately come from prison and had risk assessments during their earlier prison stay were included in the cohort provided that they did not have any new convictions from the time of their assessment to their release from work release.

A small number of offenders had assessments through FY2007 that had occurred *after* their release dates (n=40). In 20 of these cases, the risk scores were included in the cohort because they would have been applicable at the time of offenders' release (offenders did not have subsequent convictions or revocations). For all but one of these cases, the later assessment occurred within two months of their release. The remaining 20 scores may have reflected later criminal activity and were therefore excluded from the cohort.

BOP assessments that occurred during the study supervision status (or for work releases, in prison immediately prior to the start of work release) were also verified using ICON records to ensure that offenders did not have new convictions or revocations after their score assessment date and prior to release. In some cases, BOP risk assessments were not conducted near the time of their release. For instance, the risk assessments for some offenders who had been incarcerated in prison for extended periods of time, including those who had eventually been discharged due to the expiration of their sentences, may have occurred several years or more prior to their release. However, if they did not have new convictions or revocations while on prison, their risk scores were assumed not to have changed over the course of their prison stays. A small number of offenders did have new convictions (such as assault, controlled substance violations, and interference with correctional worker, trespass, theft, and domestic abuse) or revocations while under supervision between the time of their assessment and their FY2007 release date (n=28) and were excluded from the cohort due to having a new criminal event that could have affected their risk score.

Out of 3,892 FY2007 releases who were determined to have the opportunity to recidivate, about three-quarters (n=2,843) had a current risk score at release. There were no records of any risk assessment having been done through the end of FY2007 for 77 cases. The remaining 972 cases, explained above, had risk assessments that were not current at release (outdated risk assessments that had occurred prior to the start of their supervision status or later risk assessments in FY2007 that reflected subsequent criminal activities). These cases were excluded from the cohort.

It should be noted that the excluded offenders did differ somewhat from those who had current risk scores on aspects of admission reason, release supervision, most serious conviction, and recidivism. Offenders who were new admissions at their entrance to supervision were much more likely to have current risk scores than those who were returning to supervision after a revocation. Those returning to supervision may have had an earlier risk assessment that was not updated at release. Also, offenders who were released on supervision were more likely to have current scores than those who were released unsupervised (the vast majority being those who discharged their sentences). It is logical that BOP would be less likely to calculate risk scores for offenders expiring their sentences due to the Board's not having an option to withhold release. Violent offenders were more likely to have a current risk score, probably a result of having an offense deemed as being a greater threat to public safety. Regardless of offense type, new admissions were more likely to have a current score than those who had returned to supervision. Interestingly, the data also showed that felons were less likely to have current risk scores than misdemeanants, which appears to be attributable to felons being more likely to be returns at entrance and unsupervised after release. New admissions and those released to supervision were more likely to be scored during the study supervision than others, regardless of

offense severity. Finally, the comparison showed that offenders *with* current risk scores at release had lower recidivism rates (both prison returns and technical violations) than those *without* such scores. The data suggest that admission reason, release supervision, and initial conviction class help to explain the higher new conviction rate among those *without* current BOP scores, while admission reason and initial conviction class help to explain their higher prison return rate. Tables showing the comparisons are provided in Appendix A.

Table 4 presents the BOP composite scores and sub-scores for the final study cohort.

Table 4: BOP Risk Scores at Release among Cohort Members

Final Cohort	Cases with a current BOP score at release	
	N	%
2	512	18.0%
3	89	3.1%
4	151	5.3%
5	390	13.7%
6	392	13.8%
7	173	6.1%
8	427	15.0%
9	709	25.0%
Total	2843	100%
	Mean	Median
BOP Composite score	6.1	6.0
CCS sub-score	49.5	41.8
CVS sub-score	12.5	8.2
VPS sub-score	17.1	13.0

Level of Service Inventory Revised (LSI-R) Risk Assessment Scores

The LSI-R (Level of Service Inventory-Revised) is a dynamic risk assessment instrument that examines various life and criminality factors to assess offenders' criminogenic needs, such as criminal history, education, employment, finances, family, living situation, recreation, social situation, drug problems, and attitudes. The LSI-R score was developed in Canada, but has since been validated on diverse populations and found to be a valid predictor of recidivism.² The LSI-R was validated on a sample of Iowa offenders on community supervision (probationers and parolees) in 2006 and was found

² See for example Schlager, M.D. and Smourd, D.J. (2007). "Validity of the Level of Service Inventory-Revised among African American and Hispanic Male Offenders." *Criminal Justice and Behavior*, 34(4), p.545-554.

to be a valid predictor of recidivism.³ Another study using Iowa data showed that changes in LSI scores over time were associated with recidivism; a decrease in LSI-R scores over time was associated with lower risk of recidivism.⁴ This study provided the opportunity to validate the LSI-R against the BOP risk assessment and compare the results within the same cohort of offenders. Unlike earlier validations of the LSI-R, the cohort examined here specifically includes parolees rather than a broader cohort of all those under community supervision.

LSI-R assessments are typically conducted at prison entrance and at the start of probation or parole. After consultation with the Department of Corrections, the inclusion criterion for LSI-R risk scores at release was identified as any score that had been submitted within 180 days *after* release from prison and work release. LSI-R scores within one year *before* release were included if offenders did not have a score within 180 days following release.

Level of risk was coded using the Iowa Department of Corrections' categorization of LSI-R scores: low risk (score 0-13), low/moderate risk (score 14-23), moderate risk (24-33), moderate/high risk (34-40), and high risk (41+). The actual LSI-R scores for offenders at release ranged from 6 to 49. The analysis of LSI-R scores consisted of a subset of the cohort and included offenders who had a current BOP score at release and *also* had a LSI-R score within the time parameters mentioned above. Out of the 2,843 releases with a BOP score, about 86% (n=2,438) also had a LSI-R score at release. Table 5 presents LSI-R scores for the study cohort.

Table 5: LSI Scores at Release among Cohort Members

Subset Cohort	Cases with a current BOP score and also a LSI-R score at release	
	N	%
LSI-R Composite Score		
Low (0-13)	52	2.1%
Low/Moderate (14-23)	536	22.0%
Moderate (24-33)	1103	45.2%
Moderate/High (34-40)	598	24.4%
High (41+)	149	6.1%
Total	2438	100%
	Mean	Median
LSI-R Score	29.2	29.0

³ Lowenkamp, C.T. and Bechtel, K. (2007). "Predictive Validity of the LSI-R on a Sample of Offenders Drawn from the Records of the Iowa Department of Corrections Data Management System." *Federal Probation*, 71(3), p.25-29

⁴ Vose, B. (2008). *Assessing the Validity of the Level of Service Inventory-Revised: Recidivism among Iowa Parolees and Prisoners*. (Doctoral Dissertation). Retrieved from University of Ohio <http://rave.ohiolink.edu/etdc/view?acc_num=ucin1212026987>

Validation Methodology

This research was designed to validate the predictive accuracy of the risk assessment instrument itself rather than to study its use or the process used by the BOP in applying it. CJJP did not, for example, attempt to determine if inmates assessed as lower risk tended to be released earlier than those with higher risk. Similarly, there was no attempt to determine how the BOP used the risk assessment in concert with other assessments or institutional factors. The basic research question addressed here was whether the risk assessment instrument predicted recidivism.

Analysis of the data included crosstabs, Mean Cost Ratings (MCR), and Receiver Operator Characteristics (ROC), which are described in more detail below.

- **Mean Cost Rating (MCR)**, also known as Somers' D, may be interpreted as the proportional improvement over chance in the predictive efficiency of the risk instrument. This statistic can be used to assess the effectiveness of a risk assessment instrument by weighting the costs of assessing cases incorrectly at each risk level with the benefits of assessing risk correctly at each risk level (Berkson, 1947).⁵ Scores range from 0.00 to 1.00, with a zero indicating no prediction of recidivism, and a score of one indicating a perfect prediction. A negative score indicates that prediction runs in the opposite direction on a certain measure. According to Fischer, "for a device to show any utility for screening purposes, it must demonstrate a value of MCR of at least 0.250 and a value of at least 0.350 to significantly improve on existing judgments (Fischer, 1985, p.10)."⁶
- The **Receiver Operating Characteristic (ROC)** was also used as a measure of the risk assessment instrument's reliability in predicting recidivism. ROC analysis is part of a field called "Signal Detection Theory" developed during World War II for the analysis of radar images. Signal detection theory measures the ability of radar receiver operators to distinguish among enemy targets, friendly ships, or just noise. One advantage of ROC is that its interpretation may be easier for a layperson to understand than the interpretation of Pearson's Correlations.⁷ ROC measures the accuracy of the test diagnostic (in this case, the BOP risk assessment score) in predicting a stated variable (in this case, whether recidivism occurred). It graphically represents the tradeoff between false negatives (sensitivity) and false positives (specificity rates) for a selected cutoff point. An ROC is a measure of the area under the curve with values on a scale of 0.00 to 1.00, with 0.50 considered as predictive as flipping a coin, above 0.50 "fair," and 0.75 or above "good."⁸

⁵ Berkson, J. (1947). "Cost Utility as a Measure of Efficiency of a Test," *Journal of the American Statistical Association*, 42 (1947), 246-255.

⁶ Fischer, D.R. (1985). "Prediction and Incapacitation: Issues and Answers: An Overview of the Iowa Research on Recidivism and Violence Prediction." Iowa Statistical Analysis Center Office for Planning and Programming.

⁷ Stageberg, P., Huff, D., Adkins, G., and Wilson, B. (2003). "Iowa Board of Parole Risk Assessment Validation." Iowa Department of Human Rights, Division of Criminal and Juvenile Justice Planning, p.1-20.

⁸ Stahl, D. "Introduction to Measurement and Scale Development Part 5: Validity [PowerPoint Slides]."

Department of Biostatistics and Computing, Kings College London, UK. Retrieved from:
<www.kcl.ac.uk/iop/depts/.../developingmeasurementscales/lecture5.pdf>

Validation Results

Appendix B provides all the BOP risk instrument results and statistical tests for various definitions of recidivism and types of offenders. Appendix C provides LSI-R validation results and statistical tests. A brief description of the results is presented below and key findings are presented in the Discussion and the Conclusion.

BOP risk instrument

The percentages of recidivism on all measures except for technical violation prison returns were lowest for BOP risk scores ranging from 2-4, followed by scores of 5-6, and were highest for scores of 7-9.

Overall **MCR** scores for the BOP risk instrument on the various definitions of recidivism ranged from slightly below 0 (for technical violation prison returns) to 0.296 (for committing an offense that led to a prison return within one year of release). Higher MCR scores, indicating stronger predictability, were observed for violent offenders than non-violent offenders.

ROC scores ranged from 0.486 (for technical violation prison returns) to 0.648 (for committing an offense that led to a prison return within one year of release). The scores were higher for violent offenders than non-violent offenders.

LSI-R risk instrument

The lowest LSI risk category ranging from 0-13 had the lowest recidivism rates, followed by the low/moderate risk category (14-23), the moderate risk category (24-33), and the moderate/high risk category (34-40). Based on percentages, the high risk category (41 or higher) was most likely to recidivate. This pattern was observed on all measures of recidivism except for technical violation prison returns and new felony convictions.

Overall **MCR** scores for the LSI-R instrument on the various definitions of recidivism ranged from 0.107 (for the first new conviction being a felony) to 0.281 (for committing an offense that led to a new conviction within three years of release). Higher MCR scores, indicating stronger predictability, were observed for violent offenders than non-violent offenders and for unsupervised offenders than supervised offenders.

ROC scores ranged from 0.554 (for the first new conviction being a felony) to 0.640 (for committing an offense that led to a new conviction within three years of release). The scores were higher for violent offenders than non-violent offenders and for unsupervised offenders than supervised offenders.

Discussion

Validation analyses only included offenders who had a current risk score at their FY2007 release. About one quarter of the release cohort did not have a current score at release. Admission type and release supervision were associated with not having a current BOP score. Offenders who were returning to supervision after a revocation were much less likely to have current risk scores than those who were new admissions at their entrance to supervision, and those released without supervision were less likely to have current scores than those who were released supervised.

The distribution of BOP composite risk scores was skewed toward higher risks, with 25% of releases in the cohort having the highest risk score of 9. Scores on the LSI-R, on the other hand, followed a normal distribution, with about 45% of releases having a moderate risk score. The large percentage of inmates scoring nine is a problem, particularly because positive votes from all five Board members are required prior to release. A more accurate instrument would have a smaller percentage of the cohort scoring as high risks, but a higher percentage of these actually recidivating.

Based on the percentages of recidivism, both the BOP risk instrument and the LSI-R showed moderate degrees of predictive power. Lower scores tended to have lower rates of recidivism, moderate scores tended to have intermediate rates of recidivism, and higher scores tended to have higher rates of recidivism.

The BOP risk instrument showed similar results as the 2003 validation study. This is not surprising considering that no modifications to the instrument have occurred during that time. Although the results of many of the MCR and ROC statistical tests used in the study were statistically “significant,” the associations between risk assessment scores and measures of recidivism were nevertheless modest. The earlier study interpreted these results as being adequate for continued use. However, the MCR and ROC scores were not high enough to indicate “good” results for the tool, suggesting that the tool could be improved with modifications.

The Career Criminal Sub-Score (CCS) and the Violence Prediction Sub-Score (VPS) on the BOP risk instrument were generally better at predicting a first new felony conviction and violent conviction, respectively, than the BOP composite score. MCR scores (of 0.35 or above) and ROC scores (of 0.75 or above) showed that the CCS sub-score was “good” at predicting the time to commit an offense that led to a new *felony* conviction in the first year for violent offenders and, although not statistically significant likely due to low numbers of cases the analysis, in the first, second, and third years for offenders with “other” offense classes (those with enhanced and special sentences). The VPS sub-score was “good” at predicting a new *violent felony* conviction for both violent offenders and for offenders in “other” offense classes. Career Violence Sub-Score (CVS) showed similar results as the VPS.

When comparing the BOP risk instrument and the LSI-R, the MCR and ROC results on the composite scores appear to be similar, mostly falling short of being “good” predictors. With exception, the LSI-R was “good” at predicting violent offenders’ time to commit an offense that led to new convictions and prison returns. Both tools performed very poorly in predicting the measure of prison returns for technical violations, although the LSI-R appeared to be a slightly better predictor than the BOP

instrument. The results for the overall cohort on the various measures of recidivism showed that the BOP risk score was marginally better (although still not “good”) at predicting more serious new convictions, including indictable, felony, and violent convictions, whereas the LSI-R held more promise in predicting any simple misdemeanor or higher. Also, the BOP risk score was slightly more predictive (although still not “good”) of the time to commit a new offense that led to a *prison return*, whereas the LSI-R was more predictive of the time to commit a new offense that led to a *conviction*.

The analysis of the BOP risk instrument showed that there were only minimal changes in the predictive power of both risk instruments when sex offenders were excluded from the cohort. Although the BOP risk assessment was originally designed to predict the risk of recidivism for the general population of offenders, sex offenders are a special population that are likely to be assessed as high risk due to the seriousness of their crimes, but who historically have relatively low recidivism rates. Utilizing validated assessment instruments specifically designed to assess the risk of sex offenders, such as the Iowa Sex Offender Risk Assessment (ISORA8) and the Static-99, may increase recidivism prediction for sex offenders and assist the Board in making release decision for that special population.

Conclusion

In conclusion, it appears that both the BOP and the LSI-R risk assessment instruments were better than chance at predicting all measures of recidivism except for technical violations for the FY2007 release cohort examined in this study. In conjunction with other factors, the BOP risk instrument can aid Parole Board members in determining the timing of release. Nevertheless, the predictive abilities of both instruments could be strengthened with modifications. In light of the fact that the BOP risk instrument has been used with no empirical modifications since the early 1990s, exploring ways to modify the BOP instrument that would improve the tool’s utility should be considered in the future.

Perhaps most telling of the need for a modification of the BOP risk instrument is that it is recommended by Dr. Daryl Fischer, the creator of the instrument. In reviewing the current study, he suggested several avenues for improvement, including reducing the weight placed on current offenses and focusing more on previous offenses, factoring additional variables into the risk assessment (specifically offender age and gang affiliation), and utilizing other validated risk assessments for the population of sex offenders. Appendix D provides Dr. Fischer’s commentary on the findings of the study, the shortcomings of the current BOP risk instrument, and suggestions for improvements.

Appendix A: Characteristics of Offenders with a Current BOP Assessment

Table 6: Admission Reason by Risk Score Status

	No Current BOP score		Current BOP score		Total
New Admission	78	3.0%	2485	97.0%	2563
Return	971	73.1%	358	26.9%	1329
Total	1049	27.0%	2843	73.0%	3892

Table 7: Release Supervision Type by Risk Score Status

	No Current BOP score		Current BOP score		Total
Supervised (Paroled, Released to Special Sentence)	493	19.8%	2003	80.2%	2496
Unsupervised (Expired Sentence, Paroled with Immediate Discharge)	556	39.8%	840	60.2%	1396
Total	1049	27.0%	2843	73.1%	3892

Table 8: Most Serious Conviction Class for Supervision Status and Admission Type by Risk Score Status

	No Current BOP score		Current BOP score		Total
Felony	904	30.2%	2091	69.8%	2995
New Admission	47	2.6%	1767	97.4%	1814
Return	857	72.6%	324	27.4%	1181
Misdemeanor	83	11.4%	647	88.6%	730
New Admission	29	4.4%	633	95.6%	662
Return	54	79.4%	14	20.6%	68
Other (Enhanced, Special Sentence)	62	37.1%	105	62.9%	167
New Admission	2	2.3%	85	97.7%	87
Return	60	75.0%	20	25.0%	80
Total	1049	27.0%	2843	73.0%	3892

Table 9: Most Serious Conviction Class for Supervision Status and Release Type by Risk Score Status

	No Current BOP score		Current BOP score		Total
Felony	904	30.2%	2091	69.8%	2995
Supervised	440	20.6%	1701	79.4%	2141
Unsupervised	464	54.3%	390	45.7%	854
Misdemeanor	83	11.4%	647	88.6%	730
Supervised	15	6.8%	207	93.2%	222
Unsupervised	68	13.4%	440	86.6%	508
Other (Enhanced, Special Sentence)	62	37.1%	105	62.9%	167
Supervised	38	28.6%	95	71.4%	133
Unsupervised	24	70.6%	10	29.4%	34
Total	1049	27.0%	2843	73.0%	3892

Table 10: Most Serious Conviction Type for Supervision Status by Admission Type and Risk Score Status

	No Current BOP score		Current BOP score		Total
Drug	375	29.5%	895	70.5%	1270
New Admission	21	2.7%	762	97.3%	783
Return	354	72.7%	133	27.3%	487
Property	367	29.7%	867	70.3%	1234
New Admission	25	3.1%	784	96.9%	809
Return	342	80.5%	83	19.5%	425
Public Order	141	25.1%	420	74.9%	561
New Admission	10	3.1%	311	96.9%	321
Return	131	54.6%	109	45.4%	240
Violent	157	19.6%	644	80.4%	801
New Admission	22	3.5%	613	96.5%	635
Return	135	81.3%	31	18.7%	166
Other	9	34.6%	17	65.4%	26
New Admission	0	0.0%	15	100.0%	15
Return	9	81.8%	2	18.2%	11
Total	1049	27.0%	2845	73.1%	3892

Table 11: Risk Score Status by New Conviction

	N	Total	% New Conviction
No Current BOP score	708	1049	67.5%
Current BOP score	1672	2843	58.8%
Total	2380	3892	61.2%

Table 12: New Conviction among Risk Score Statuses by Admission Reason, Release Supervision, & Convicting Class

	No Current BOP Score			Current BOP Score			Grand Total		
	N New Conviction	% New Conviction	Total	N New Conviction	% New Conviction	Total	N New Conviction	% New Conviction	Total
Admission Reason									
New Admission	47	6.6%	78	1429	85.5%	2485	1476	57.6%	2563
Return	661	93.4%	971	243	14.5%	358	904	68.0%	1329
Total	708	100%	1049	1672	100%	2843	2380	61.2%	3892
Release Supervision									
Supervised	323	45.6%	493	1137	68.0%	2003	1460	58.5%	2496
Unsupervised	385	54.4%	556	535	32.0%	840	920	65.9%	1396
Total	708	100%	1049	1672	100%	2843	2380	61.2%	3892
Initial Conviction Class									
Felony	607	85.7%	904	1176	70.3%	2091	1783	59.5%	2995
Misdemeanor	61	8.6%	83	439	26.3%	647	500	68.5%	730
Other	40	5.6%	62	57	3.4%	105	97	58.1%	167
Total	708	100%	1049	1672	100%	2843	2380	61.2%	3892

Table 13: Risk Score Status by Prison Return

	N	Total	% Prison Return
No Current BOP score	443	1049	42.2%
Current BOP score	990	2843	34.8%
Total	1433	3892	36.8%

Table 14: Prison Return among Risk Score Statuses by Admission Reason, Release Supervision, & Convicting Class

	No Current BOP Score			Current BOP Score			Grand Total		
	N Prison Return	% Prison Return	Total	N Prison Return	% Prison Return	Total	N Prison Return	% Prison Return	Total
Admission Reason									
New Admission	28	6.3%	78	843	85.2%	2485	871	34.0%	2563
Return	415	93.7%	971	147	14.8%	358	562	42.3%	1329
Total	443	100%	1049	990	100%	2843	1433	36.8%	3892
Release Supervision									
Supervised	256	57.8%	493	756	76.4%	2003	1012	40.5%	2496
Unsupervised	187	42.2%	556	234	23.6%	840	421	30.2%	1396
Total	443	100%	1049	990	100%	2843	1433	36.8%	3892
Initial Conviction Class									
Felony	384	86.7%	904	750	75.8%	2091	1134	37.9%	2995
Misdemeanor	29	6.5%	83	193	19.5%	647	222	30.4%	730
Other	30	6.8%	62	47	4.7%	105	77	46.1%	167
Total	443	100%	1049	990	100%	2843	1433	36.8%	3892

Appendix B: BOP Validation Results

Table 15: Percent Recidivism by Composite BOP Risk Scores

BOP Risk Score	N	First New Conviction (Simple Misd. and higher)	First New Conviction - Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
N	2843	1672	1051	298	263	909	1339	1568	990	624	366	314	492	589
% Total		58.8%	37.0%	10.5%	9.3%	32.0%	47.1%	55.2%	34.8%	21.9%	12.9%	11.0%	17.3%	20.7%
2	512	43.0%	23.4%	5.7%	4.3%	17.2%	29.5%	37.9%	22.7%	11.3%	11.3%	4.3%	7.6%	10.2%
3	89	39.3%	20.2%	4.5%	11.2%	20.2%	30.3%	38.2%	15.7%	7.9%	7.9%	4.5%	7.9%	7.9%
4	151	49.7%	29.8%	6.6%	7.3%	28.5%	39.7%	47.7%	33.1%	17.2%	15.9%	8.6%	13.2%	15.9%
5	390	55.1%	33.6%	12.8%	5.1%	27.9%	40.3%	49.2%	36.2%	17.2%	19.0%	8.7%	13.3%	15.9%
6	392	61.0%	39.3%	8.2%	11.7%	32.9%	51.5%	58.2%	31.6%	21.4%	10.2%	8.4%	16.3%	20.7%
7	173	64.7%	41.6%	10.4%	8.7%	30.1%	49.1%	59.5%	36.4%	20.8%	15.6%	8.1%	15.0%	17.9%
8	427	62.5%	43.6%	16.4%	9.1%	34.7%	51.5%	59.0%	40.0%	26.2%	13.8%	14.3%	21.1%	25.5%
9	709	71.8%	45.8%	12.0%	14.1%	45.4%	61.6%	69.5%	43.9%	33.0%	10.9%	18.8%	27.4%	31.5%

Table 16: Percent Recidivism by Low, Moderate, and High BOP Risk Scores

BOP Risk Score	N	First New Conviction (Simple Misd. and higher)	First New Conviction - Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
N	2843	1672	1051	298	263	909	1339	1568	990	624	366	314	492	589
% Total		58.8%	37.0%	10.5%	9.3%	32.0%	47.1%	55.2%	34.8%	21.9%	12.9%	11.0%	17.3%	20.7%
Low (2-4)	752	43.9%	24.3%	5.7%	5.7%	19.8%	31.6%	39.9%	23.9%	12.1%	11.8%	5.2%	8.8%	11.0%
Moderate (5-6)	782	58.1%	36.4%	10.5%	8.4%	30.4%	45.9%	53.7%	33.9%	19.3%	14.6%	8.6%	14.8%	18.3%
High (7-9)	1309	67.8%	44.5%	13.2%	11.8%	39.9%	56.7%	64.8%	41.6%	29.2%	12.5%	15.9%	23.7%	27.7%

Table 17: MCR Scores for Composite BOP Risk by Offender Types and Various Recidivism Measures

	N	First New Conviction (Simple Misd. and higher)	First New Conviction - Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
All	2843	0.239	0.202	0.153	0.216	0.245	0.256	0.253	0.183	0.261	-0.029	0.296	0.278	0.268
Supervised	2003	0.235	0.225	0.176	0.199	0.210	0.251	0.246	0.170	0.242	0.013	0.276	0.252	0.248
Unsupervised	840	0.231	0.140	0.106	0.226	0.276	0.243	0.247	0.269	0.269	NA	0.295	0.298	0.279
Prison	2182	0.220	0.170	0.092	0.213	0.255	0.254	0.240	0.151	0.249	-0.086	0.280	0.266	0.254
Work Release	661	0.308	0.288	0.227	0.317	0.221	0.273	0.311	0.235	0.297	0.027	0.308	0.298	0.301
Non-violent	2199	0.235	0.205	0.145	0.203	0.233	0.252	0.249	0.189	0.262	-0.011	0.290	0.265	0.271
Violent	644	0.282	0.203	0.293	0.210	0.294	0.285	0.288	0.230	0.283	-0.016	0.333	0.332	0.280
Felon	2091	0.258	0.240	0.189	0.224	0.234	0.269	0.269	0.167	0.256	-0.021	0.287	0.266	0.259
Misdemeanant	647	0.205	0.098	-0.027	0.188	0.291	0.230	0.230	0.262	0.276	-0.017	0.300	0.300	0.293
Other	105	0.063	0.139	0.399	0.261	0.131	0.174	0.082	0.116	0.243	-0.073	0.389	0.323	0.243

≤0.001; ≤0.01; ≤0.05; Not Significant

Table 18: ROC Scores for Composite BOP Risk by Offender types and Various Recidivism Measures

	N	First New Conviction (Simple Misd. and higher)	First New Conviction - Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
All	2843	0.620	0.601	0.577	0.608	0.622	0.628	0.627	0.592	0.631	0.486	0.648	0.639	0.634
Supervised	2003	0.618	0.613	0.588	0.600	0.605	0.625	0.623	0.585	0.621	0.507	0.638	0.626	0.624
Unsupervised	840	0.616	0.570	0.553	0.613	0.638	0.622	0.624	0.634	0.634	NA	0.647	0.649	0.639
Prison	2182	0.610	0.585	0.546	0.606	0.628	0.627	0.620	0.575	0.624	0.457	0.640	0.633	0.627
Work Release	661	0.654	0.644	0.613	0.658	0.610	0.637	0.655	0.617	0.649	0.513	0.654	0.649	0.651
Non-violent	2199	0.617	0.602	0.572	0.601	0.617	0.626	0.625	0.595	0.631	0.495	0.645	0.632	0.635
Violent	644	0.641	0.601	0.647	0.605	0.647	0.642	0.644	0.615	0.641	0.492	0.667	0.666	0.640
Felon	2091	0.629	0.620	0.595	0.612	0.617	0.634	0.635	0.584	0.628	0.489	0.643	0.633	0.629
Misdemeanant	647	0.602	0.549	0.486	0.594	0.645	0.615	0.615	0.631	0.638	0.492	0.650	0.650	0.646
Other	105	0.532	0.569	0.700	0.630	0.566	0.587	0.541	0.558	0.621	0.464	0.694	0.661	0.621

≤0.001; ≤0.01; ≤0.05; Not Significant

Table 19: MCR Scores for CCS (Career Criminal) Sub-Score by Offender Types and Felony Recidivism

	N	First New Conviction - Felony	First Felony Conviction Time to Reoffend-1yr	First Felony Conviction Time to Reoffend-2yr	First Felony Conviction Time to Reoffend-3yr
All	2843	0.215	0.297	0.249	0.238
Supervised	2003	0.240	0.325	0.280	0.261
Unsupervised	840	0.150	0.253	0.178	0.177
Prison	2182	0.136	0.209	0.159	0.158
Work Release	661	0.339	0.401	0.386	0.368
Non-violent	2199	0.184	0.253	0.222	0.204
Violent	644	0.312	0.476	0.335	0.353
Felon	2091	0.254	0.345	0.294	0.280
Misdemeanant	647	-0.009	0.108	0.015	0.021
Other	105	0.418	0.466	0.467	0.403

≤0.001; ≤0.01; ≤0.05; Not Significant

Table 20: ROC Scores for CCS (Career Criminal) Sub-Score Risk by Offender Types and Felony Recidivism

	N	First New Conviction - Felony	First Felony Conviction Time to Reoffend-1yr	First Felony Conviction Time to Reoffend-2yr	First Felony Conviction Time to Reoffend-3yr
All	2843	0.607	0.648	0.624	0.619
Supervised	2003	0.620	0.663	0.640	0.631
Unsupervised	840	0.575	0.626	0.589	0.588
Prison	2182	0.568	0.605	0.579	0.579
Work Release	661	0.670	0.700	0.693	0.684
Non-violent	2199	0.592	0.626	0.611	0.602
Violent	644	0.656	0.738	0.668	0.676
Felon	2091	0.627	0.672	0.647	0.640
Misdemeanant	647	0.496	0.554	0.507	0.511
Other	105	0.709	0.733	0.734	0.701

≤0.001; ≤0.01; ≤0.05; Not Significant

Table 21: MCR Scores for VPS (Violence Prediction) Sub-Score Risk by Offender Types and Violent Recidivism

	N	First New Conviction - Violent	First New Conviction - Violent Felony	First Violent Conviction Time to Reoffend-1yr	First Violent Conviction Time to Reoffend-2yr	First Violent Conviction Time to Reoffend-3yr
All	2843	0.250	0.275	0.312	0.274	0.261
Supervised	2003	0.259	0.228	0.275	0.289	0.273
Unsupervised	840	0.196	0.235	0.284	0.191	0.196
Prison	2182	0.260	0.230	0.317	0.282	0.274
Work Release	661	0.280	0.338	0.364	0.340	0.289
Non-violent	2199	0.252	0.235	0.282	0.275	0.273
Violent	644	0.160	0.521	0.247	0.192	0.164
Felon	2091	0.267	0.267	0.313	0.282	0.276
Misdemeanant	647	0.184	0.189	0.282	0.224	0.201
Other	105	0.252	0.757	0.285	0.414	0.252

≤0.001; ≤0.01; ≤0.05; Not Significant

** Please note that lack of statistical significance in the “other” conviction class may be due to having a small numbers of offenders in that category. Strong recidivism prediction may be indicated despite the absence of statistical significance.

Table 22: ROC Scores for VPS (Violence Prediction) Sub-Score Risk by Offender Types and Violent Recidivism

	N	First New Conviction - Violent	First New Conviction - Violent Felony	First Violent Conviction Time to Reoffend-1yr	First Violent Conviction Time to Reoffend-2yr	First Violent Conviction Time to Reoffend-3yr
All	2843	0.625	0.637	0.656	0.637	0.630
Supervised	2003	0.629	0.614	0.637	0.645	0.636
Unsupervised	840	0.598	0.617	0.642	0.595	0.598
Prison	2182	0.630	0.615	0.659	0.641	0.637
Work Release	661	0.640	0.669	0.682	0.670	0.644
Non-violent	2199	0.626	0.617	0.641	0.637	0.636
Violent	644	0.580	0.761	0.623	0.596	0.582
Felon	2091	0.634	0.634	0.656	0.641	0.638
Misdemeanant	647	0.592	0.595	0.641	0.612	0.601
Other	105	0.626	0.879	0.642	0.707	0.626

≤0.001; ≤0.01; ≤0.05; Not Significant

** Please note that lack of statistical significance in the “other” conviction class may be due to having a small numbers of offenders in that category. Strong recidivism prediction may be indicated despite the absence of statistical significance.

Table 23: MCR Scores for CVS (Career Violence) Sub-Score Risk by Offender Types and Violent Recidivism

	N	First New Conviction - Violent	First New Conviction - Violent Felony	First Violent Conviction Time to Reoffend-1yr	First Violent Conviction Time to Reoffend-2yr	First Violent Conviction Time to Reoffend-3yr
All	2843	0.255	0.237	0.308	0.279	0.261
Supervised	2003	0.277	0.191	0.279	0.302	0.281
Unsupervised	840	0.169	0.163	0.258	0.172	0.169
Prison	2182	0.260	0.202	0.303	0.278	0.267
Work Release	661	0.279	0.300	0.367	0.340	0.284
Non-violent	2199	0.263	0.197	0.279	0.286	0.276
Violent	644	0.123	0.532	0.201	0.154	0.121
Felon	2091	0.277	0.216	0.318	0.293	0.279
Misdemeanant	647	0.159	0.156	0.251	0.202	0.173
Other	105	0.362	0.738	0.332	0.448	0.362

≤0.001; ≤0.01; ≤0.05; Not Significant

** Please note that lack of statistical significance in the “other” conviction class may be due to having a small numbers of offenders in that category. Strong recidivism prediction may be indicated despite the absence of statistical significance.

Table 24: ROC Scores for CVS (Career Violence) Sub-Score Risk by Offender Types and Violent Recidivism

	N	First New Conviction - Violent	First New Conviction - Violent Felony	First Violent Conviction Time to Reoffend-1yr	First Violent Conviction Time to Reoffend-2yr	First Violent Conviction Time to Reoffend-3yr
All	2843	0.628	0.618	0.654	0.639	0.630
Supervised	2003	0.638	0.596	0.640	0.651	0.641
Unsupervised	840	0.585	0.582	0.629	0.586	0.585
Prison	2182	0.630	0.601	0.652	0.639	0.633
Work Release	661	0.639	0.650	0.683	0.670	0.642
Non-violent	2199	0.631	0.598	0.640	0.643	0.638
Violent	644	0.561	0.766	0.601	0.577	0.560
Felon	2091	0.638	0.608	0.659	0.646	0.639
Misdemeanant	647	0.579	0.578	0.625	0.601	0.586
Other	105	0.681	0.869	0.666	0.724	0.681

≤0.001; ≤0.01; ≤0.05; Not Significant

** Please note that lack of statistical significance in the “other” conviction class may be due to having a small numbers of offenders in that category. Strong recidivism prediction may be indicated despite the absence of statistical significance.

Appendix C: LSI-R Validation Results

Table 25: Percent Recidivism by Low, Moderate, and High LSI-R Risk Score

LSI Risk Score	N	First New Conviction (Simple Misd. and higher)	First New Conviction - Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
N	2438	1447	917	269	225	776	1160	1358	891	536	355	274	428	511
% Total		59.4%	37.6%	11.0%	9.2%	31.8%	47.6%	55.7%	36.5%	22.0%	14.6%	11.2%	17.6%	21.0%
Low (0-13)	52	23.1%	13.5%	3.8%	1.9%	1.9%	9.6%	17.3%	7.7%	5.8%	1.9%	1.9%	1.9%	5.8%
Low/Moderate (14-23)	536	43.1%	27.1%	9.1%	6.0%	20.1%	32.1%	39.4%	25.0%	12.9%	12.1%	5.0%	9.0%	11.9%
Moderate (24-33)	1103	61.7%	39.5%	11.6%	9.0%	31.1%	49.0%	57.8%	36.9%	22.1%	14.8%	11.3%	18.1%	21.2%
Moderate/High (34-40)	598	67.4%	43.0%	11.4%	12.0%	40.3%	56.4%	64.2%	43.3%	25.8%	17.6%	14.0%	20.7%	24.2%
High (41+)	149	81.2%	48.3%	14.8%	14.1%	55.7%	71.1%	78.5%	58.4%	44.3%	14.1%	24.8%	36.9%	43.6%

Table 26: MCR Scores for Composite LSI-R Risk by Offender Types and Various Recidivism Measures

	N	First New Conviction (Simple Misd. and higher)	First New Conviction -Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
All	2438	0.279	0.181	0.107	0.186	0.273	0.272	0.281	0.233	0.230	0.117	0.270	0.246	0.232
Supervised	1894	0.254	0.166	0.078	0.160	0.243	0.245	0.262	0.253	0.162	0.225	0.198	0.182	0.169
Unsupervised	544	0.340	0.220	0.204	0.225	0.261	0.301	0.303	0.328	0.328	NA	0.362	0.328	0.320
Prison	1793	0.271	0.177	0.123	0.188	0.270	0.264	0.264	0.219	0.237	0.084	0.297	0.265	0.241
Work Release	645	0.305	0.206	0.107	0.159	0.293	0.299	0.330	0.297	0.221	0.220	0.233	0.212	0.219
Non-violent	1967	0.246	0.162	0.071	0.171	0.244	0.237	0.244	0.214	0.198	0.119	0.239	0.205	0.204
Violent	471	0.396	0.259	0.301	0.257	0.392	0.410	0.419	0.306	0.363	0.047	0.399	0.413	0.349
Felon	1840	0.278	0.177	0.107	0.212	0.272	0.278	0.285	0.258	0.212	0.182	0.235	0.210	0.217
Misdemeanant	500	0.258	0.184	0.177	0.126	0.214	0.223	0.233	0.259	0.281	-0.024	0.353	0.339	0.275
Other	98	0.214	0.216	0.225	-0.124	0.274	0.195	0.230	0.392	0.172	0.366	0.325	0.316	0.172

≤0.001; ≤0.01; ≤0.05; Not Significant

Table 27: ROC Scores for Composite LSI-R Risk by Offender types and Various Recidivism Measures

	N	First New Conviction (Simple Misd. and higher)	First New Conviction - Indictable	First New Conviction - Felony	First New Conviction - Violent	First New Conviction Time to Reoffend-1yr	First New Conviction Time to Reoffend-2yr	First New Conviction Time to Reoffend-3yr	First Prison Return (Any)	First Prison Return (New conviction)	First Prison Return (Technical violation)	First Prison Return Time to Reoffend-1yr	First Prison Return Time to Reoffend-2yr	First Prison Return Time to Reoffend-3yr
All	2438	0.639	0.590	0.554	0.593	0.637	0.636	0.640	0.617	0.615	0.559	0.635	0.623	0.616
Supervised	1894	0.627	0.583	0.539	0.580	0.622	0.623	0.631	0.627	0.581	0.613	0.599	0.591	0.585
Unsupervised	544	0.670	0.610	0.602	0.612	0.630	0.651	0.652	0.664	0.664	NA	0.681	0.664	0.660
Prison	1793	0.636	0.589	0.561	0.594	0.635	0.632	0.632	0.609	0.619	0.542	0.648	0.632	0.621
Work Release	645	0.652	0.603	0.553	0.579	0.646	0.649	0.665	0.648	0.611	0.610	0.617	0.606	0.610
Non-violent	1967	0.623	0.581	0.536	0.585	0.622	0.619	0.622	0.607	0.599	0.560	0.620	0.602	0.602
Violent	471	0.698	0.629	0.651	0.629	0.696	0.705	0.710	0.653	0.682	0.523	0.700	0.706	0.675
Felon	1840	0.639	0.588	0.553	0.606	0.636	0.639	0.642	0.629	0.606	0.591	0.618	0.605	0.608
Misdemeanant	500	0.629	0.592	0.588	0.563	0.607	0.611	0.617	0.630	0.641	0.488	0.677	0.670	0.637
Other	98	0.607	0.608	0.612	0.438	0.637	0.597	0.615	0.696	0.586	0.683	0.662	0.658	0.586

≤0.001; ≤0.01; ≤0.05; Not Significant

Appendix D: Dr. Daryl Fischer's Commentary

Commentary Regarding Current BOP Risk Assessment Validation

Daryl R. Fischer, Ph.D.

March 14, 2012

- 1) The current validation study appears to have been competently conducted, with the validation results not unexpected.
- 2) The validation results, as gauged by the calculated MCR and ROC values, suggest that the current BOP instrument is at best moderately successful in predicting recidivism as gauged by new offenses, and totally unsuccessful in predicting returns to prison for technical violations.
- 3) Based on the observed MCR and ROC values, the BOP instrument needs to be revised to improve its predictive validity.
- 4) One of the weaknesses of the current instrument is the relatively high percentage of releasees with a risk score of 9 (approximately 25%). The corresponding weakness in the LSI-R instrument is the high percentage of releasees scoring at the moderate level (approximately 45%).
- 5) Releasees assessing as low risk according to the current BOP instrument are recording recidivism rates that are much too high, resulting in a lack of utility in BOP case screening.
- 6) The current BOP instrument gives too much weight to current offenses in comparison to prior offenses. In most jurisdictions, current offense severity constitutes a poor predictor of recidivism. Consideration should be given to eliminating from the scoring all offenses associated with the most recent felony conviction.
- 7) Consideration should also be given to adding additional risk factors to the BOP instrument, most notably age at release and gang affiliation status. Every study this researcher has conducted in Arizona since 1985 shows that these two factors account for a high percentage of the variation in recidivism rates, most of the remaining portion being associated with prior criminal record.
- 8) If supplemented with the detailed risk assessment calculations, which the BOP data system may be able to provide, the database for the current validation study could be used to recalibrate the instrument.
- 9) National and international studies continue to show that risk assessment techniques applicable to broad offender populations do not work well with sex offenders. Accordingly, consideration should be given to screening Iowa parole candidates who happen to be sex offenders with a specific instrument calibrated to assess sex offense risk.