

WASHINGTON'S OFFENDER ACCOUNTABILITY ACT: DEPARTMENT OF CORRECTIONS' STATIC RISK INSTRUMENT[‡]

Revised October 17, 2008. This revision updates Appendix C (page 9) to include the intercepts or constants for the three static risk score calculations.

BACKGROUND

The Offender Accountability Act (OAA) was enacted by the Washington State Legislature in 1999. The OAA affects how the Department of Corrections (DOC) supervises convicted felony offenders after their release. One purpose of the OAA is "to reduce the risk of reoffending by offenders in the community."¹ DOC is required to classify and supervise felony offenders according to their risk for future offending.

As part of the 1999 law, the Washington State Institute for Public Policy (Institute) was directed to study the impact of the OAA on recidivism. In our 2003 report, the Institute analyzed the validity of DOC's risk for reoffense instrument, the Level of Service Inventory—Revised (LSI-R).² The LSI-R is a 54-question survey which includes "static" and "dynamic" risk factors (see sidebar on page 2 for definitions). In the analysis of the LSI-R, the Institute also determined how the predictive accuracy of the LSI-R could be strengthened by including more static risk information about an offender's prior record of convictions.³

Subsequently, DOC asked the Institute to develop a new static risk instrument based on offender demographics and criminal history. DOC made this decision because the new static risk instrument, compared with assessments that include both static and dynamic items, has the following advantages:

- Increased predictive accuracy;
- Prediction of three types of high risk offenders: drug, property, and violent;
- Increased objectivity;
- Decreased time to complete the assessment; and
- Accurate recording of criminal history for use in other DOC reporting requirements.

This report describes our evaluation of the validity of the static risk instrument developed for the Washington State Department of Corrections.

SUMMARY

The 1999 Offender Accountability Act (OAA) affects how the Department of Corrections (DOC) supervises convicted felony offenders in the community. The Washington State Institute for Public Policy (Institute) was directed by the Legislature to evaluate the OAA.

The OAA requires DOC to supervise felony offenders according to their risk for future offending. Risk for future offending is estimated using instruments that classify offenders into groups with similar characteristics. Criminal behavior is difficult to predict; even the most accurate instruments, like this one, cannot predict with absolute certainty who will subsequently reoffend.

In our 2003 report, the Institute evaluated the validity of DOC's risk assessment tool and found that the tool could be strengthened by including more information about an offender's prior record of convictions. Subsequently, DOC asked the Institute to develop a new "static risk" instrument based on offender demographics and criminal history because of the following advantages:

- Increased predictive accuracy;
- Prediction of three types of high risk offenders: drug, property, and violent;
- Increased objectivity;
- Decreased time to complete the assessment; and
- Accurate recording of criminal history for use in other DOC reporting requirements.

This report describes our evaluation of the validity of the static risk instrument developed for DOC.

Finding

Analyses indicate that the static risk instrument has moderate predictive accuracy for Washington State felony offenders, exceeding the accuracy of DOC's previous risk assessment instrument. In addition, the risk classification scheme can be generalized to future cohorts of offenders with little loss in accuracy.

¹ RCW 9.94A.010

² R. Barnoski & S. Aos. (2003). *Washington's offender accountability act: An analysis of the Department of Corrections' risk assessment*. Olympia: Washington State Institute for Public Policy, Document No. 03-12-1202.

[‡]Suggested citation: Robert Barnoski and Elizabeth K. Drake. (2007). *Washington's Offender Accountability Act: Department of Corrections' Static Risk Assessment*. Olympia: Washington State Institute for Public Policy.

METHODOLOGY

In 2006, the Institute developed a static risk instrument for the Department of Corrections (see sidebar below for a definition of static risk). The static risk instrument is displayed in Appendix A of this report. Two steps are taken to design prediction instruments, such as DOC's static risk instrument.

In the first step, the static risk instrument was developed based on the recidivism patterns of a "construction sample." The construction sample included all offenders released from prison/jail or placed on community supervision from 1986 to March 2000 (308,423 observations).

The second step, called cross validation, measures how well the instrument works for a different "validation sample." Cross validation demonstrates how well the results from the construction sample can be generalized to other cohorts of offenders. The statistical model derived from the construction sample is applied to all offenders released from prison/jail or placed on community supervision from 2001 through September 2002 (51,648 observations).

This study follows the state's definition of recidivism recommended by the Institute.⁴ Recidivism is defined as a subsequent conviction in a Washington State Superior Court for a felony offense committed within three years of placement in the community. In addition, one year is allowed for the offense to be adjudicated in court.

Three types of recidivism are predicted using a separate prediction equation for each:

- Any felony recidivism,
- Property or violent felony recidivism, and
- Violent felony recidivism.

When developing the instrument for the construction sample, the factors most strongly associated with recidivism were organized into the following six categories: demographics, juvenile record, commitments to DOC, adult felony record, adult misdemeanor record, and adult sentence violations. The criminal record counts are based on sentences in a Washington State court. Each sentence is classified by the most serious offense involved and is counted once.

⁴ R. Barnoski. (1997). *Standards for improving research effectiveness in adult and juvenile justice*. Olympia: Washington State Institute for Public Policy, Document No. 97-12-1201, pg. 2.

Exhibit 1 lists the risk factors within each of the six categories on the static risk instrument.

Exhibit 1 Offender Risk Factors in Prediction Equations

Demographics
Age at time of current sentence
Gender
Juvenile Record
Felony convictions
Non-sex violent felony convictions
Felony sex convictions
Commitments to state juvenile institution
Commitment to the Department of Corrections
Current commitment to the Department of Corrections
Adult Felony Record
Commitments to Department of Corrections
Felony homicide
Felony sex
Felony violent property
Felony assault offense—not domestic violence
Felony domestic violence assault or protection order violation
Felony weapon
Felony property
Felony drug
Felony escape
Adult Misdemeanor Record
Misdemeanor assault—not domestic violence
Misdemeanor domestic violence assault or violation of a protection order
Misdemeanor sex
Misdemeanor other domestic violence
Misdemeanor weapon
Misdemeanor property
Misdemeanor drug
Misdemeanor escapes
Misdemeanor alcohol
Adult Sentence Violations
Sentence/supervision violations

Recidivism rates were used to determine the values for each factor. Appendix B shows the percentage distribution of the validation sample for each value of the risk factor. For example, 39 percent of the sample was age 20 to 29. Appendix B also shows the recidivism rates for each value of the risk factor. For example, the felony recidivism rate for offenders age 20 to 29 was 35.7 percent.

What Is "Static" Risk and "Dynamic" Risk?

Risk factors that cannot decrease, such as criminal history, are static. Once a criminal record is obtained, it will always be a part of an offender's history. Dynamic risk factors, such as drug dependency, can decrease through treatment or intervention.

^a D.A. Andrews & J. Bonta. (1998). *The psychology of criminal conduct*. Cincinnati, Ohio: Anderson Publishing Co.

When developing the instrument for the construction sample, multivariate regression was used to determine equations that weight and combine the risk factors to best predict the three types of recidivism.⁵ The instrument produces three scores: felony, property/violent, and violent scores. (Appendix C displays the weights used for each risk factor.) These scores are calculated by multiplying the value of the static risk factor by the weight for the factor. For example, if an offender is between ages 30 and 39 at the time of the offender's current sentence, 3 points (see Appendix A) are multiplied by 5 (see Appendix C) to get the weighted age for the felony score. The weighted values are summed to produce the total felony score. The process is repeated for the property/violent and violent scores.

Risk scores of the construction sample were then analyzed to ascertain the threshold or cutoff scores used to classify offenders into risk levels. Typically, offenders are classified into low, moderate, and high risk for reoffense. Having the three types of risk scores allows us to break the high risk level into more specific levels: high risk for drug, property, or violent recidivism, resulting in the following five risk levels:

- High violent risk
- High property risk
- High drug risk
- Moderate risk
- Low risk

Exhibit 2 shows the rules developed to classify offenders into the five risk levels.

Exhibit 2
Classification Rules for Risk Levels

Classification Rules	Risk Level
Violent Score is greater than or equal to 38	High Violent
Not High Violent Risk and Property/Violent Score is greater than or equal to 50	High Property
Not High Violent Risk and not High Property Risk and Felony Score is greater than or equal to 64	High Drug
Not High Risk and Property/Violent Felony Score is greater than or equal to 38	Moderate
Not High Risk and not Moderate Risk and Felony Score is less than 64	Low

⁵ Logistic regression is used to identify the significant variables, and ordinary least squares regression is used to obtain the variable weighting. These weights are transformed to whole numbers to minimize shrinkage, tailoring the weights to the construction sample.

CROSS-VALIDATION RESULTS

The best measure for determining how accurately a score predicts an event like recidivism is a statistic called the *area under the receiver operating characteristic* (AUC).⁶ The AUC ranges from .500 to 1.000. This statistic is .500 when there is no association and 1.000 when there is perfect association. AUCs in the .500s indicate little to no predictive accuracy, .600s weak, .700s moderate, and above .800 strong predictive accuracy.

Exhibit 3 presents the AUCs for recidivism and the three equations in both the construction and validation samples. For example, the AUC is 0.756 when predicting any felony recidivism in the construction sample compared with a 0.742 AUC for the validation sample.⁷ Two conclusions are drawn from Exhibit 3:

- All of the AUCs are in the mid .700s, indicating moderate predictive accuracy for all three equations in both the construction and validation samples.
- The AUCs in the validation sample are only slightly smaller than those in the construction sample AUCs. This means the prediction models are robust and the risk equations can be generalized to other cohorts of offenders with little loss in accuracy.

Exhibit 3
AUCs of Prediction Equations

Recidivism by Predicted Felony	AUCs	
	Construction Sample (N=308,423)	Validation Sample (N=51,648)
Any Felony	0.756	0.742
Property/Violent Felony	0.757	0.733
Violent Felony	0.745	0.732

⁶ V. Quinsey, G. Harris, M. Rice, & C. Cormier. (1998). *Violent offenders: Appraising and managing risk*. Washington D.C.: American Psychological Association; P. Jones. (1996). Risk prediction in criminal justice. In A. Harland (Ed.), *Choosing correctional options that work*. Thousand Oaks, CA: Sage, pp. 33–68.

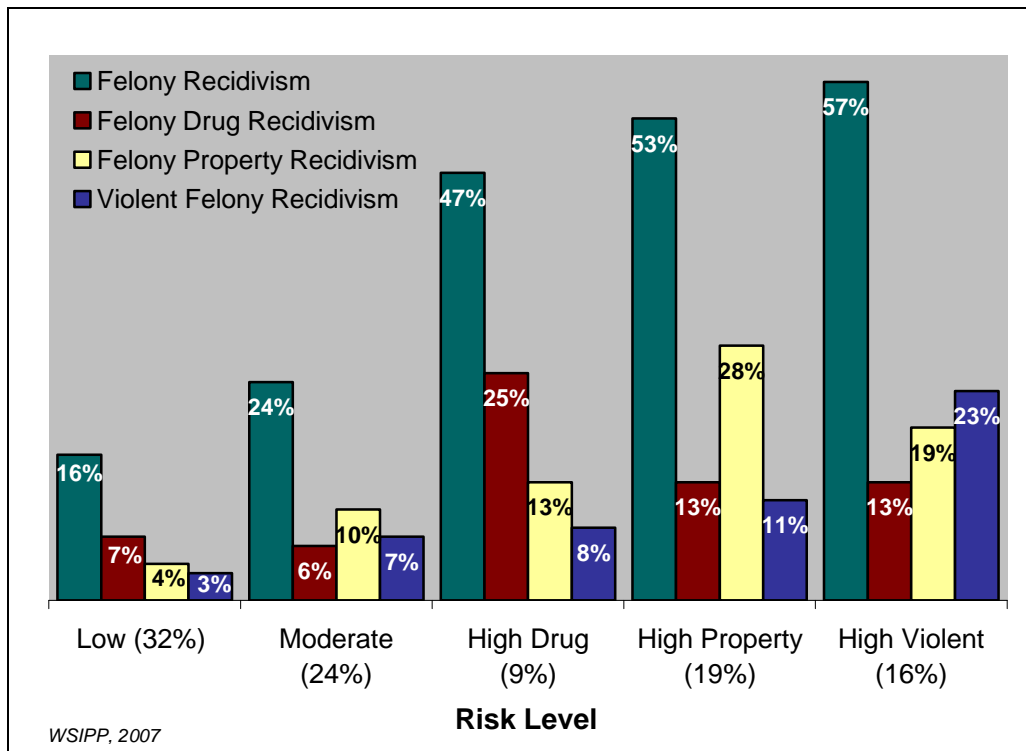
⁷ The AUCs for the LSI-R were in the .640 to .660 range. Barnoski & Aos (2003).

Exhibit 4 displays the recidivism rates for each of the risk levels for the validation sample. The bottom axis of Exhibit 4 shows the percentage of offenders in each risk level. For example, 32 percent of the offenders in the validation sample are classified as low risk. In addition, the bars in the chart show the recidivism rates for each risk level. Therefore, for low risk offenders, 16 percent recidivated with a felony offense, 7 percent with felony drug, 4 percent with a felony property, and 3 percent with a violent felony.⁸

Between 47 and 57 percent of offenders in the three high risk levels recidivated with a felony.

- For high drug risk offenders, 25 percent recidivated with a felony drug offense.
- For high property risk offenders, 28 percent recidivated with a felony property offense.
- For high violent risk offenders, 23 percent recidivated with a violent felony offense.

Exhibit 4
Recidivism Rates for Each Risk Level of the Validation Sample



⁸ The drug, property and violent felony rates do not sum to the felony rate because a small percentage of felony offenders recidivate with other miscellaneous felony offenses.

In order to evaluate the effectiveness of the static risk instrument, recidivism rates of various subgroups were also analyzed. These subgroups are based on the type of sentence the offender received, gender, ethnicity, and most serious offense in the offender's conviction history. These results, presented in Appendix D of this report, indicate the following:

Felony recidivism:

- Eleven of the 13 subgroups have moderate predictive accuracy with AUCs in the .700s for felony recidivism.
- Weak predictive accuracy was obtained for offenders whose most serious offense was a felony drug conviction.
- Strong predictive accuracy is associated with sex offenders.

Property/violent recidivism:

- Ten of the 13 subgroups have moderate predictive accuracy for violent property recidivism.
- Weak predictive accuracy was found for three subgroups: African Americans, Asian Americans, and offenders whose most serious offense was a felony drug conviction.

Violent felony recidivism:

- Twelve of the 13 subgroups have moderate predictive accuracy for violent felony recidivism.
- Weak predictive accuracy was found for offenders whose most serious offense was a violent non-sex crime.

CONCLUSIONS

In this study, a sample of offenders was used to determine if the static risk instrument developed by the Institute for the Department of Corrections can be generalized to future cohorts of offenders.

Results of the study indicate that the prediction models used to develop the static risk instrument have moderate predictive accuracy for all three types of recidivism. Furthermore, the results can be generalized to future cohorts of offenders with little loss in predictive accuracy.

Appendix A
Department of Corrections' Static Risk Instrument
Offender Risk Factors

I. Demographics			
1. Age at time of current sentence	<input type="radio"/> 60 or older (0)	<input type="radio"/> 20 to 29 (4)	
	<input type="radio"/> 50 to 59 (1)	<input type="radio"/> 18 to 19 (5)	
	<input type="radio"/> 40 to 49 (2)	<input type="radio"/> 13 to 17 (6)	
	<input type="radio"/> 30 to 39 (3)		
2. Gender	<input type="radio"/> Female (0)	<input type="radio"/> Male (1)	
II. Juvenile Record			
(All prior and current times the offender was sentenced. Each sentence is defined by a unique or different date of sentence.)			
3. Prior juvenile felony convictions	<input type="radio"/> None (0)	<input type="radio"/> Three (3)	
	<input type="radio"/> One (1)	<input type="radio"/> Four (4)	
	<input type="radio"/> Two (2)	<input type="radio"/> Five or more (5)	
4. Prior juvenile non-sex violent felony convictions for: homicide, robbery, kidnapping, assault, extortion, unlawful imprisonment, custodial interference, domestic violence, or weapon	<input type="radio"/> None (0)	<input type="radio"/> Two or more (2)	
	<input type="radio"/> One (1)		
5. Prior juvenile felony sex convictions	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)	
6. Prior commitments to a juvenile institution	<input type="radio"/> None (0)	<input type="radio"/> Two or more (2)	
	<input type="radio"/> One (1)		
III. Commitment to the Department of Corrections			
7. Current commitment to the Department of Corrections	<input type="radio"/> First (1)	<input type="radio"/> Fourth (4)	
	<input type="radio"/> Second (2)	<input type="radio"/> Fifth or more (5)	
	<input type="radio"/> Third (3)		
IV. Total Adult Felony Record			
(All prior and current times the offender was sentenced. Each sentence is defined by a unique or different date of sentence.)			
8. Felony homicide offense: murder/manslaughter	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)	
9. Felony sex offense	<input type="radio"/> None (0)	<input type="radio"/> Two or more (2)	
	<input type="radio"/> One (1)		
10. Felony violent property conviction for a felony robbery/kidnapping/extortion/unlawful imprisonment/custodial interference offense/harassment/burglary 1/arson 1	<input type="radio"/> None (0)	<input type="radio"/> Two or more (2)	
	<input type="radio"/> One (1)		
11. Felony assault offense—not domestic violence related	<input type="radio"/> None (0)	<input type="radio"/> Two (2)	
	<input type="radio"/> One (1)	<input type="radio"/> Three or more (3)	
12. Felony domestic violence assault or violation of a domestic violence related protection order, restraining order, or no-contact order/harassment/malicious mischief	<input type="radio"/> None (0)	<input type="radio"/> Two or more (2)	
	<input type="radio"/> One (1)		
13. Felony weapon offense	<input type="radio"/> None (0)	<input type="radio"/> Two or more (2)	
	<input type="radio"/> One (1)		
14. Felony property offense	<input type="radio"/> None (0)	<input type="radio"/> Three (3)	
	<input type="radio"/> One (1)	<input type="radio"/> Four (4)	
	<input type="radio"/> Two (2)	<input type="radio"/> Five or more (5)	
15. Felony drug offense	<input type="radio"/> None (0)	<input type="radio"/> Two (2)	
	<input type="radio"/> One (1)	<input type="radio"/> Three or more (3)	
16. Felony escape	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)	

V. Total Adult Misdemeanor Record

Total number of sentences, past and current, involving a misdemeanor conviction for:

17. Misdemeanor assault offense—not domestic violence related	<input type="radio"/> None (0) <input type="radio"/> One (1) <input type="radio"/> Two (2)	<input type="radio"/> Three (3) <input type="radio"/> Four (4) <input type="radio"/> Five or more (5)
18. Misdemeanor domestic violence assault or violation of a domestic violence related protection order, restraining order, or no-contact order	<input type="radio"/> None (0) <input type="radio"/> One (1)	<input type="radio"/> Two or more (2)
19. Misdemeanor sex offense	<input type="radio"/> None (0) <input type="radio"/> One (1)	<input type="radio"/> Two or more (2)
20. Misdemeanor other domestic violence: any non-violent misdemeanor convictions such as trespass, property destruction, malicious mischief, theft, etc., that are connected to domestic violence	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)
21. Misdemeanor weapon offense	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)
22. Misdemeanor property offense	<input type="radio"/> None (0) <input type="radio"/> One (1)	<input type="radio"/> Two (2) <input type="radio"/> Three or more (3)
23. Misdemeanor drug offense	<input type="radio"/> None (0) <input type="radio"/> One (1)	<input type="radio"/> Two or more (2)
24. Misdemeanor escapes	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)
25. Misdemeanor alcohol offense	<input type="radio"/> None (0)	<input type="radio"/> One or more (1)

VI. Total Sentence/Supervision Violations

26. Total sentence/supervision violations	<input type="radio"/> None (0) <input type="radio"/> One (1) <input type="radio"/> Two (2)	<input type="radio"/> Three (3) <input type="radio"/> Four (4) <input type="radio"/> Five or more (5)
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Appendix B
Validation Sample:
Percentage Distribution of Demographics and Recidivism Rates for Static Risk Factors

	Value	Percentage Distribution of Population	Type of Recidivism			
			Felony	Felony Drug	Felony Property	Violent Felony
Demographics						
1. Age at time of current sentence						
60 or older	0	1%	8.4%	3.4%	2.2%	2.5%
50 to 59	1	4%	18.2%	7.5%	5.0%	4.8%
40 to 49	2	17%	28.7%	12.7%	9.6%	5.7%
30 to 39	3	30%	36.7%	12.9%	14.3%	8.4%
20 to 29	4	39%	35.7%	9.3%	14.0%	11.1%
18 to 19	5	9%	39.1%	7.1%	16.8%	13.8%
13 to 17	6	1%	42.5%	5.2%	14.5%	20.3%
2. Gender						
Female	0	21%	28.5%	11.1%	13.7%	3.0%
Male	1	79%	35.9%	10.5%	13.1%	11.0%
Juvenile Record						
3. Prior juvenile felony convictions						
None	0	81%	30.4%	10.3%	11.6%	7.5%
One	1	8%	45.2%	11.5%	17.8%	14.1%
Two	2	4%	50.3%	11.7%	20.3%	16.6%
Three	3	3%	58.0%	12.5%	23.1%	20.4%
Four	4	2%	63.3%	12.5%	25.6%	22.1%
Five or more	5	2%	64.5%	12.8%	22.2%	26.7%
4. Prior juvenile non-sex violent felony convictions						
None	0	95%	33.2%	10.5%	12.9%	8.6%
One	1	4%	54.0%	12.2%	18.6%	21.5%
Two or more	2	1%	61.8%	14.0%	15.2%	30.4%
5. Prior juvenile felony sex convictions						
None	0	98%	34.2%	10.6%	13.1%	9.3%
One or more	1	2%	44.7%	9.1%	18.7%	12.0%
6. Prior commitments to a juvenile institution						
None	0	93%	32.5%	10.5%	12.6%	8.4%
One	1	4%	54.7%	12.6%	19.1%	20.1%
Two or more	2	3%	64.3%	12.7%	24.6%	24.5%
Commitment to the Department of Corrections						
7. Current commitment to the Department of Corrections						
First	1	46%	21.3%	6.1%	8.2%	6.4%
Second	2	21%	34.7%	10.4%	12.7%	10.1%
Third	3	12%	44.5%	13.6%	16.2%	12.9%
Fourth	4	7%	50.0%	15.5%	20.5%	12.6%
Fifth or more	5	14%	60.0%	20.8%	24.0%	13.3%
Adult Felony Record						
8. Felony homicide offense						
None	0	99%	34.4%	10.6%	13.3%	9.4%
One or more	1	1%	24.7%	7.5%	6.1%	10.1%
9. Felony sex offense						
None	0	94%	35.2%	10.9%	13.7%	9.5%
One or more	1	5%	21.2%	5.2%	5.6%	7.5%
Two or more	2	0%	20.8%	6.5%	4.9%	8.6%
10. Felony violent property conviction						
None	0	92%	33.5%	10.5%	12.9%	8.9%
One or more	1	7%	43.3%	11.0%	16.0%	14.6%
Two or more	2	1%	49.4%	13.7%	20.1%	14.4%
11. Felony assault - not domestic violence						
None	0	85%	34.1%	10.9%	13.7%	8.4%
One or more	1	14%	34.3%	8.9%	10.2%	13.7%
Two or more	2	1%	46.2%	8.9%	12.0%	23.3%
Three or more	3	0%	46.0%	8.8%	13.3%	21.2%
12. Felony domestic violence assault						
None	0	94%	34.0%	10.8%	13.4%	8.6%
One or more	1	5%	37.4%	7.8%	9.2%	19.0%
Two or more	2	1%	55.9%	9.0%	9.5%	36.2%
13. Felony weapon offense						
None	0	94%	33.7%	10.4%	13.1%	9.0%
One or more	1	5%	44.4%	13.1%	14.3%	15.3%
Two or more	2	0%	54.3%	16.1%	12.1%	24.7%

	Value	Percentage Distribution of Population	Type of Recidivism			
			Felony	Felony Drug	Felony Property	Violent Felony
Adult Felony Record (continued)						
14. Felony property offense						
None	0	52%	26.3%	10.5%	6.3%	8.6%
One or more	1	28%	34.5%	10.0%	14.1%	9.3%
Two or more	2	10%	49.7%	11.5%	24.6%	11.9%
Three or more	3	5%	58.3%	13.1%	31.7%	11.8%
Four or more	4	2%	56.6%	12.0%	33.8%	9.5%
Five or more	5	3%	63.0%	10.9%	39.8%	10.9%
15. Felony drug offense						
None	0	55%	28.5%	4.6%	12.8%	9.9%
One or more	1	27%	35.2%	12.7%	12.8%	8.6%
Two or more	2	10%	46.4%	21.3%	15.4%	8.5%
Three or more	3	8%	57.5%	32.2%	14.9%	8.9%
16. Felony escape						
None	0	96%	33.4%	10.3%	12.8%	9.2%
One or more	1	4%	54.8%	17.8%	22.2%	11.9%
Adult Misdemeanor Record						
17. Misdemeanor assault offense - not domestic violence						
None	0	81%	32.0%	10.1%	12.7%	8.0%
One or more	1	14%	41.0%	11.9%	14.2%	13.5%
Two or more	2	3%	51.6%	14.2%	19.0%	16.5%
Three or more	3	1%	54.0%	16.7%	15.5%	19.8%
Four or more	4	0%	58.5%	15.0%	12.6%	30.4%
Five or more	5	0%	67.4%	15.9%	15.2%	34.8%
18. Misdemeanor domestic violence assault						
None	0	82%	31.7%	10.2%	12.8%	7.6%
One	1	10%	43.0%	12.8%	14.7%	13.9%
Two or more	2	8%	50.4%	12.0%	15.1%	21.6%
19. Misdemeanor sex offense						
None	0	97%	34.1%	10.3%	13.2%	9.4%
One	1	1%	42.2%	18.0%	14.0%	8.6%
Two or more	2	1%	50.2%	27.3%	13.3%	7.2%
20. Misdemeanor other domestic violence						
None	0	98%	34.1%	10.6%	13.1%	9.2%
One	1	2%	48.0%	12.3%	16.3%	18.6%
21. Misdemeanor weapon offense						
None	0	95%	33.4%	10.3%	12.9%	9.0%
One	1	5%	53.1%	16.8%	18.3%	16.4%
22. Misdemeanor property offense						
None	0	64%	27.1%	9.0%	9.1%	7.8%
One	1	18%	40.3%	12.2%	15.7%	11.2%
Two	2	8%	49.2%	13.4%	21.3%	12.9%
Three	3	10%	57.4%	15.6%	27.9%	12.8%
23. Misdemeanor drug offense						
None	0	81%	31.0%	9.1%	12.0%	8.8%
One	1	13%	46.4%	15.5%	17.6%	11.8%
Two	2	5%	55.5%	21.1%	20.7%	12.4%
24. Misdemeanor escapes						
None	0	99%	34.1%	10.6%	13.1%	9.3%
One	1	1%	57.9%	15.6%	23.6%	15.2%
25. Misdemeanor alcohol offense						
None	0	76%	32.8%	10.4%	12.8%	8.5%
One	1	24%	39.1%	11.1%	14.4%	12.1%
Adult Sentence Violations						
26. Total sentence/supervision violations						
None	0	69%	26.9%	8.1%	10.0%	7.9%
One	1	10%	42.3%	12.4%	16.5%	11.8%
Two	2	7%	49.0%	14.9%	18.0%	14.5%
Three	3	4%	52.7%	15.8%	21.9%	13.1%
Four	4	3%	55.5%	18.7%	23.6%	11.6%
Five or more	5	7%	62.8%	22.5%	25.6%	12.2%

Appendix C
Static Risk Factor Weighting

Static Risk Factor Weighting			
Felony Score	Property & Violent Score	Violent Score	Static Risk Factor
+20	+15	+10	Risk Score Constant or Intercept
+5	+4	+2	Age at Time of Sentence for Current Offense
+5	+4	+4	Gender
+4	+4	+2	Prior Juvenile Felony Convictions
+2	+2	+5	Prior Juvenile Non-Sex Violent Felony Convictions
-3	-2	-1	Prior Juvenile Felony Sex Convictions
+4	+3	+2	Prior Commitments to a Juvenile Institution
+2	+1	+1	Current Commitment to the Department Of Corrections
-5	-3	+1	Felony Homicide Offense
-4	-2	+2	Felony Sex Offense
+6	+5	+5	Felony Violent Property Conviction for a Felony Robbery/ Kidnapping/Extortion/Unlawful Imprisonment/Custodial Interference Offense
+1	+2	+4	Felony Assault Offense—Not Domestic Violence Related
+3	+6	+10	Felony Domestic Violence Assault or Violation of a Domestic Violence Related Protection Order, Restraining Order, or No-Contact Order
+3	+2	+5	Felony Weapon Offense
+4	+5	0	Felony Property Offense
+6	-2	0	Felony Drug Offense
+5	+3	+1	Felony Escape
+2	+2	+3	Misdemeanor Assault Offense – Not Domestic Violence Related
+2	+3	+3	Misdemeanor Domestic Violence Assault or Violation of a Domestic Violence Related Protection Order, Restraining Order, or No-Contact Order
+3	-1	0	Misdemeanor Sex Offense
-3	-1	+1	Misdemeanor Other Domestic Violence
+6	+4	+4	Misdemeanor Weapon Offense
+4	+4	+1	Misdemeanor Property Offense
+3	+1	0	Misdemeanor Drug Offense
+4	+3	+2	Misdemeanor Escapes
-1	-1	+1	Misdemeanor Alcohol Offense
+5	+3	+1*	Total Sentence/Supervision Violations (*three or more scored as 3 for violent score)

Appendix D

Validity of Offender Subgroups

In order to evaluate the effectiveness of the static risk assessment, we analyze the recidivism rates of subgroups of the validation sample. These subgroups include gender and ethnicity as well as sentence type and most serious offense.

For each subgroup, the analysis:

- compares the percentage distribution of offenders,
- displays the AUCs for the prediction risk scores and recidivism, and
- displays the recidivism rates by each risk level.

The results of these analyses follow on pages 11 through 14.

How to read the recidivism by risk category charts. Lower recidivism rates are expected for offenders classified as low and moderate risk. In general, recidivism rates should become increasingly higher reading left to right. For example, felony recidivism rates in Exhibit 7 increase as the risk level increases. However, when looking at a particular type of recidivism, such as felony drug, offenders classified as high drug risk are expected to have higher recidivism rates relative to the other risk categories.

APPENDIX D SUMMARY OF FINDINGS

Felony recidivism. Of the 13 subgroups, 11 have moderate predictive accuracy for felony recidivism. Weak predictive accuracy was obtained for offenders whose most serious offense was a felony drug conviction. The AUC for sex offenders, however, shows strong predictive accuracy for felony recidivism.

Property/violent recidivism. Ten of the 13 subgroups have moderate predictive accuracy for property/violent recidivism. Weak predictive accuracy was found for African Americans, Asian Americans, and offenders whose most serious offense was a felony drug conviction.

Violent felony recidivism. Findings indicate moderate predictive accuracy for violent felony recidivism for 12 of the 13 subgroups. Weak predictive accuracy was found for offenders whose most serious offense was a violent non-sex crime.

Sentence Type

Exhibit 5 compares the percentage distribution of offenders sentenced with community supervision and offenders sentenced to prison by risk level. Thirty-five percent of community offenders are low risk to reoffend compared to 22 percent of prison offenders. Twenty-nine percent of the offenders sentenced to prison are at high risk to reoffend with a violent offense compared with 12 percent on community supervision.

Exhibit 5
Percentage Distribution by Risk Level

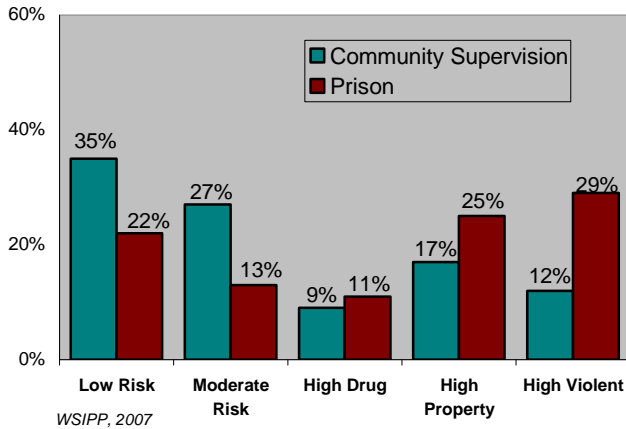


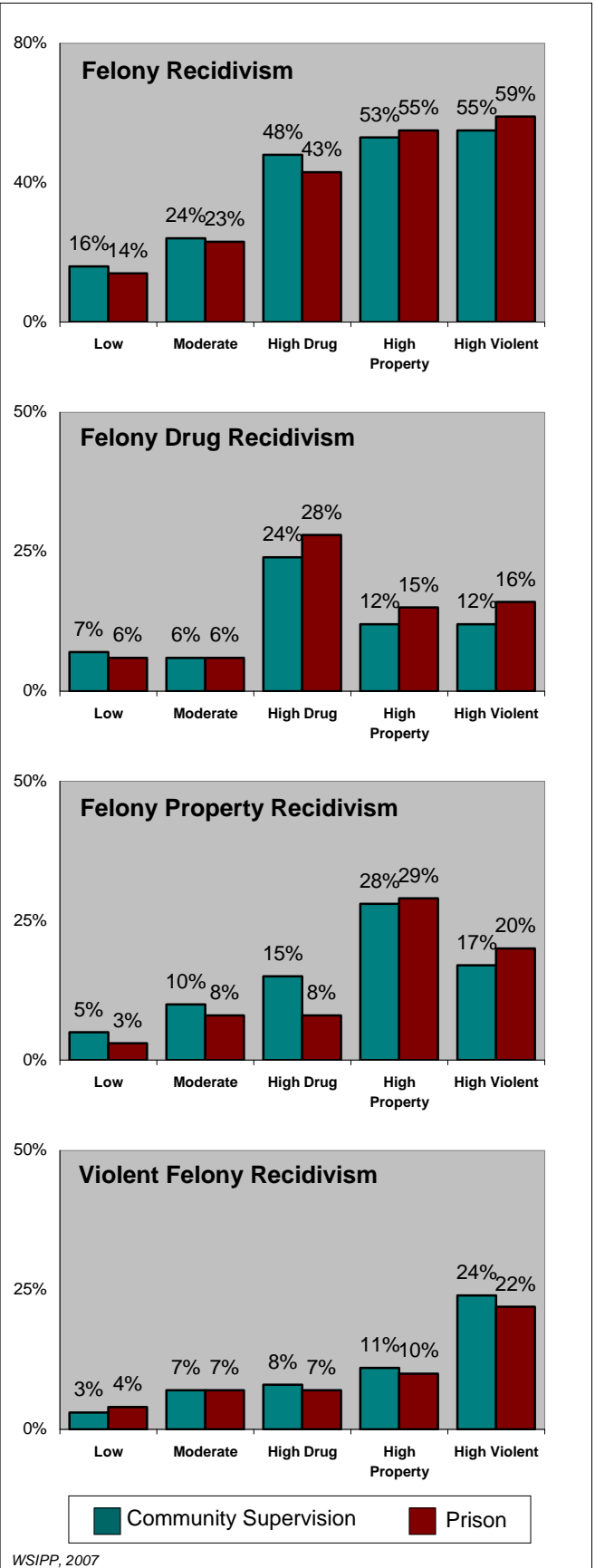
Exhibit 6 displays the AUCs for the three risk scores and recidivism. The AUCs for the total validation sample are displayed for reference. The AUCs show there is moderate predictive strength for both sentence types for all types of recidivism. The sentence subgroup and total sample AUCs are similar.

Exhibit 6
AUCs for Risk Scores Predicting Type of Recidivism by Sentence Type

Sentence Type	Type of Recidivism		
	Felony	Property/ Violent	Violent
Community	0.734	0.726	0.736
Prison	0.741	0.744	0.717
Total Sample	0.742	0.733	0.732

Exhibit 7 displays the recidivism rates for offenders sentenced to community supervision compared with offenders sentenced to prison by each of the risk levels. There are no differences in recidivism rates for the different risk levels, which again indicates that the static risk assessment predicts equally well for both prison and community supervision offenders.

Exhibit 7
Recidivism Rates by Risk Category for Community Supervision and Prison Sentences



Gender

Exhibit 8 shows the percentage distribution of males and females by risk level. Fifty-one percent of female offenders are low risk to reoffend compared with 27 percent for males. Two percent of females are at high risk to reoffend with a violent offense, compared with 20 percent of males.

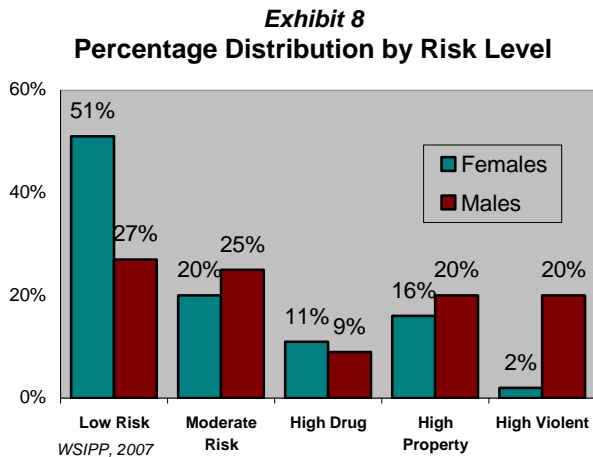


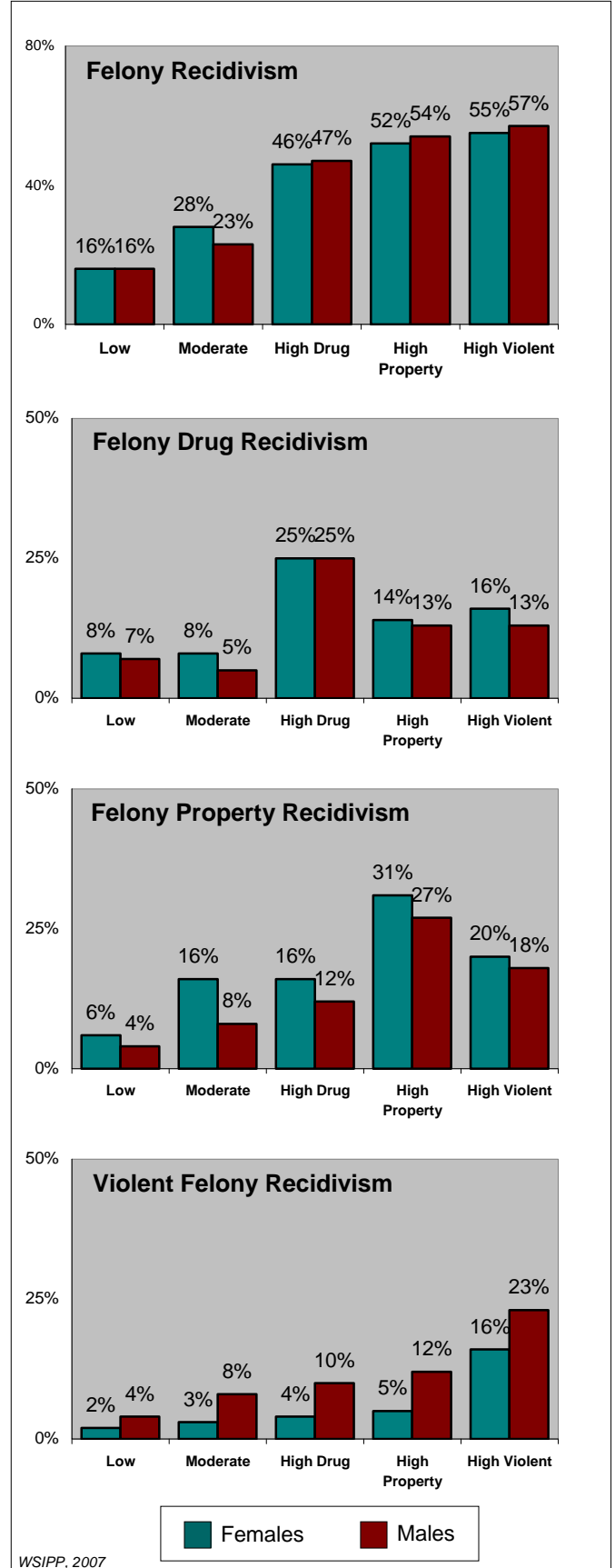
Exhibit 9 displays the AUCs for the three risk scores and recidivism. The AUCs show there is moderate predictive strength for both genders on all types of recidivism.

Exhibit 9
AUCs for Risk Scores Predicting Type of Recidivism by Gender

Gender	Type of Recidivism		
	Felony	Property/ Violent	Violent
Male	0.743	0.731	0.701
Female	0.720	0.717	0.722
Total Sample	0.742	0.733	0.732

Exhibit 10 displays the recidivism rates for male and female offenders by each risk level. There is little difference in male and female recidivism rates for felony and felony drug recidivism. Females have higher property recidivism rates than males at each level of risk. However, males have higher violent felony recidivism rates than females. That is, the risk classification scheme discriminates risk for reoffense equally well within each gender, but underestimates property recidivism and overestimates violent felony recidivism for females.

Exhibit 10
Recidivism Rates by Risk Category for Gender



Ethnicity

Exhibit 11 shows the percentage distribution of ethnicity by risk level. Thirty-four percent of Asian Americans and 39 percent of Hispanics are low risk offenders. Twenty-seven percent of African Americans and 28 percent of Native Americans are at a high risk to reoffend with a violent offense.

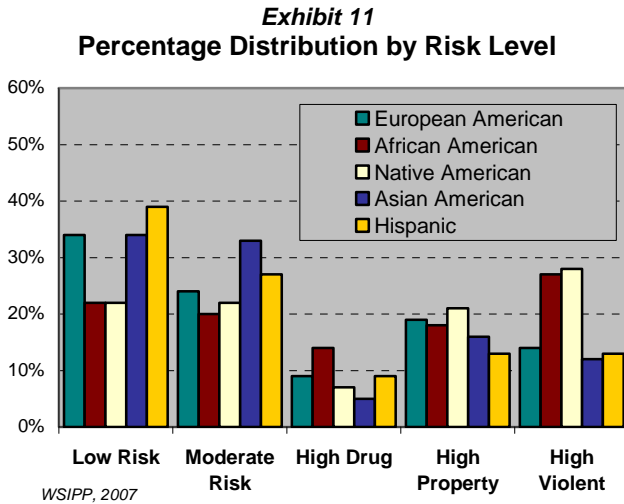


Exhibit 12 displays the AUCs for the prediction risk scores and recidivism. The AUCs show there is moderate predictive strength by ethnicity except for violent property felony recidivism for African and Asian Americans, which show rates just below moderate predictive strength.

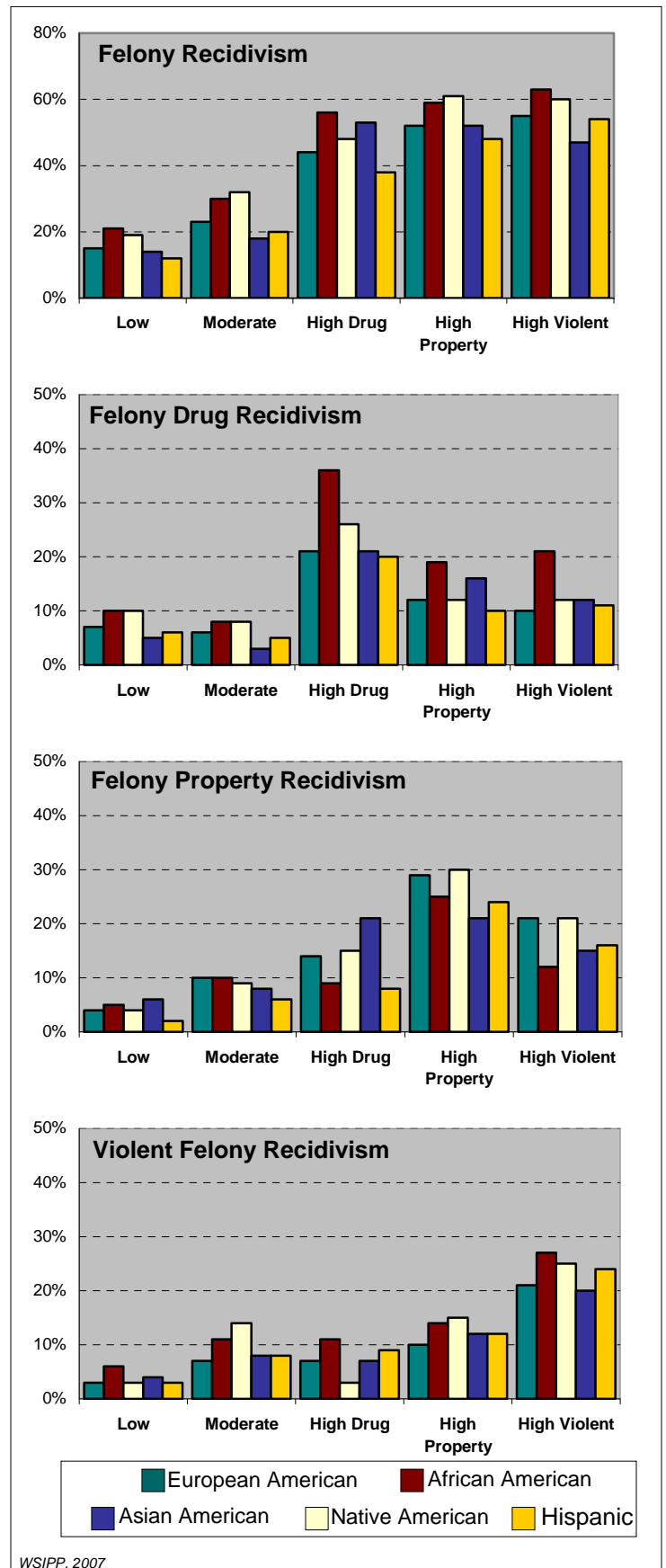
Exhibit 12
AUCs for Risk Scores Predicting Type of Recidivism by Ethnicity

Ethnicity	Type of Recidivism		
	Felony	Property/ Violent	Violent
European	0.736	0.740	0.730
African	0.723	0.691	0.700
Native	0.716	0.733	0.716
Asian	0.748	0.678	0.710
Hispanic	0.742	0.774	0.729
Total Sample	0.742	0.733	0.732

Exhibit 13 displays the recidivism rates of offenders by ethnicity for each of the risk levels. For felony property recidivism, Asian Americans classified as high drug have a recidivism rate similar to Asian Americans classified as high property. Ideally, these high drug offenders would be classified as high property. This appears to be a difference in ethnicity that is not fully captured by the static risk instrument.

For felony drug recidivism, African Americans classified as high property and high violent risk have higher recidivism rates than other ethnicities in these risk categories; however, they are captured in a higher risk category.

Exhibit 13
Recidivism Rates by Risk Category for Ethnicity



Most Serious Offense

Exhibit 14 shows the percentage distribution of offenses by risk level. Over 60 percent of all drug offenders are classified as low risk. In addition, 54 percent of all sex offenders are classified as low risk.

Exhibit 14
Percentage Distribution by Risk Level

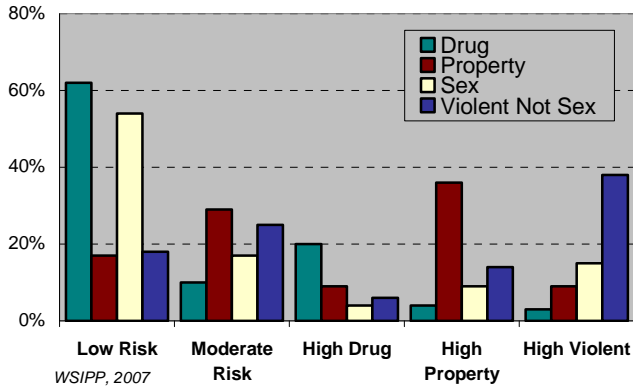


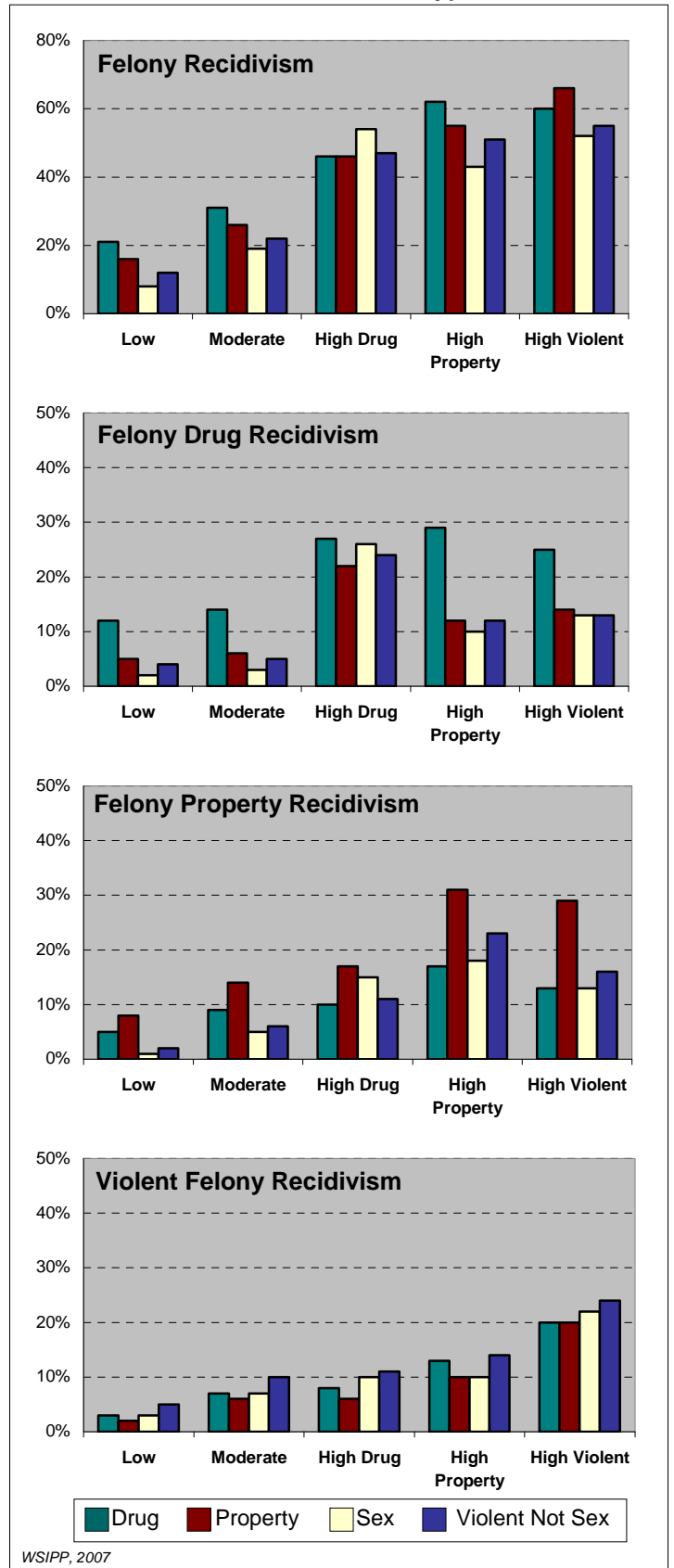
Exhibit 15 displays the AUCs for the prediction risk scores and recidivism. The AUCs show there is weak to strong prediction depending on the most serious offense type and the type of recidivism. For drug offenders, there is weak prediction for felony and violent property recidivism, but moderate prediction for violent recidivism. There is also weak prediction for violent non-sex offenders with violent recidivism. For sex offenders, prediction of felony recidivism is strong.

Exhibit 15
AUCs for Risk Scores Predicting Type of Recidivism by Offense Type

Offense Type	Type of Recidivism		
	Felony	Property/ Violent	Violent
Drug	0.683	0.674	0.709
Property	0.743	0.723	0.714
Sex	0.802	0.764	0.740
Violent non-sex	0.740	0.714	0.687
Total Sample	0.742	0.733	0.732

Exhibit 16 displays the recidivism rates by most serious offense type for each of the risk levels. There are differences in property and drug recidivism rates by offense type. Property offenders classified as high property and high violent have the highest felony property recidivism rates. In addition, drug offenders classified as high property and high violent have the highest felony drug recidivism rates. This indicates these types of offenders have a very diverse criminal record. Regardless, on the seriousness scale, they are already considered high risk and are supervised at a higher level.

Exhibit 16
Recidivism Rates by Risk Category for Most Serious Offense Type



For further information, contact: Robert Barnoski at (360) 586-2744 or barney@wsipp.wa.gov;
or Elizabeth K. Drake at (360) 586-2767 or ekdrake@wsipp.wa.gov.

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