INTRODUCTION

Recidivism, the tendency for inmates to become re-involved in criminal activity, is of great concern to the Correctional society, indeed, to society as a whole. In order to counteract this issue inmates participate in programs aimed at minimizing the risk of recidivism; these programs include education, counseling, and work training opportunity. While there are resources allocated to these programs they are not limitless and thus need be allocated efficiently. A question of interest is how to establish the allocation of these resources.

On intake to the prison system each inmate is given assessments to establish their Intake/Criminal History/Risk Scale Set. One component of the scale set is the General Recidivism Risk Score which may be used to predict recidivism risk. This risk score is based on a COMPAS Core scale which is a standard decile scale with 1 corresponding to the lowest risk of recidivism and 10 corresponding to the highest risk Offenders scoring a moderate to high risk to recidivate in either the general or the violent recidivism scale are administered a Needs Assessment and the offender referred for programming.

This brief seeks to take a statistical look at the three-level risk scale by examining the separation of the levels to establish their effectiveness in compartmentalizing the inmate risk levels. **For the purposes of this study recidivism is considered to be a conviction with an initial arraignment date within one year of release from prison.**

ANALYSIS

Each inmate given a General Recidivism Risk Score is placed in a category ranging from 1 to 10 based on decile cut-points determined by a norm group. Each offender is then placed into one of three recidivism risk categories, Low (score 1-4), Medium (score 5-7), and High (score 8-10). To test the validity of these categories the one-year recidivism rates for inmates released during the first seven months of 2010 are analyzed and compared. Between January 1, 2011 and July 31, 2011, 887 male offenders were released to the street from the Massachusetts Department of Correction. The cohort used in this analysis consists of the 790 male, criminally sentenced offenders released to the street[*] during the 7 month period identified as having a completed and computed risk assessment. Due to the roll-out of the COMPAS Assessment, offenders who were incarcerated at that time were administered a Standing Risk Assessment as a proxy to the Initial Risk or Core Risk Assessment. These scales are used interchangeably in the analysis.

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[*] 14 offenders were state prisoners released from a House of Correction.

Table I: Recidivism Rate by General Recidivism Risk Level

			RECIDIVISM WITHIN ONE YEAR		
			NO	YES	Total
GENERAL RISK LEVEL	LOW	Count	194	9	203
		Percent	95.6%	4.4%	100%
	MED	Count	183	20	203
		Percent	90.1%	9.9%	100%
	HIGH	Count	301	83	384
		Percent	78.4%	21.6%	100%
Total		Count	678	112	790
		Proportion	85.8%	14.2%	100%

Table I shows a breakdown of the recidivism rate for each of the three levels: Low, Medium, and High. It can be seen from the table that 4.4% Low risk, 9.9% of Medium risk, and 21.6% of High risk offenders recidivated within one year of release. This translates to Medium risk having 2.25 times the risk of recidivism as Low risk inmates, and High risk having 2.18 times the risk of Medium risk inmates. Of note, one hope for the scale is to find that High risk inmates have five times the risk as Low risk inmates, and this cohort shows a relative risk for High to Low risk inmates of 4.91. While there do seem to be notable differences between the three levels several statistical tests were run in order to establish that these are significant.

Table II: Chi-Square Tests of Independence

Test Used	Test Statistic	df	P-value
Mantel-Haenszel	35.159	1	0.000
Likelihood Ratio (Low- to Mid-risk)	4.600	1	0.032
Likelihood Ratio (Mid- to High-risk)	13.721	1	0.000

Table II shows the results of several chi-square tests of independence used to establish trends in the data. The Mantel-Haenszel Chi-square test, a linear-association test resulted in a p-value of 0.00, rejecting the hypothesis that the recidivism rates are independent and supporting the conclusion that recidivism rate increases with an increase in risk level.

To confirm that there exists no overlap between the categories, i.e., Low- and Mid-risk inmates have a significant difference in their recidivism rates likelihood ratio chi-square tests for independence were run. These tests compared Low- to Mid-risk and Mid- to High-risk recidivism rates. The Low- to Mid-risk comparison resulted in a p-value of 0.03, and the Mid- to High-risk comparison has a p-value of 0.00; both resulting in the conclusion that there are significant differences between the levels of risk.

CONCLUSION

Reducing recidivism is of utmost importance to both general and prison populations. As such, discovering effective tools for the identification of likely recidivists and enrolling them in effective programming is imperative. Overall the Recidivism Risk Score seems to be a valid relative predictor of recidivism for the MADOC population. Using this, and similar standards, as tools to allocate programming resources the DOC may better optimize efforts to reduce recidivism in the state.