



Ramsey County Proxy Tool Norming & Validation Results

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A Ramsey County (St. Paul, Minnesota) work team consisting of the Sheriff, City District Attorney, local pretrial services and the Center for Effective Public Policy in collaboration with Applied Research Services (ARS) conducted a Proxy assessment norming and validation study with support from the National Institute of Corrections (NIC). The Proxy is three-question screening instrument used to triage community corrections populations for the purpose of moving those at low risk to minimum supervision without further assessment. The Ramsey County team identified a random sample of 200 misdemeanor cases processed through the city court in 2008 and determined who was subsequently re-arrested in a three-year follow up period. A data collection form was completed on each case by the City District Attorney staff and warrants clerks at the Sheriff's Office (see appendix). That data collection effort relied upon a file review followed by an official criminal history inquiry to answer demographic, offense and criminal history questions, to include the three Proxy assessment questions.

The Proxy norming and validation followed the recommended steps of Bogue, Woodward and Joplin (2006).¹ Results indicate that the Proxy as currently scored identifies half of the sample as low risk and does not perform better than chance at predicting re-arrest for those low risk offenders. The normed reclassification allows for more efficient distribution of resources and improved prediction of re-arrest.

The study sample of 198 individuals is 63% male, 44% white and 36% black, and ranges in age from 18 to 80 with an average age of 34 years. Two cases were dropped due to an inability to locate files. While all charges are misdemeanor, 7% of cases have petty and 3% gross misdemeanors. Table 1 describes the sample demographics.

Table 1. Ramsey County Proxy Validation Sample

	Male (n=125)	Female (n=73)	Total (n=198)
White	27%	17%	44%
Black	23%	13%	36%
Asian	5%	1%	6%
Indian	2%	2%	4%
Hispanic	1%	0%	1%
Unknown	5%	4%	9%
Total	63%	37%	100%

¹ Brad Bogue, William Woodward, and Lore Joplin (2006). *Using a Proxy Score to Pre-Screen Offenders for Risk to Reoffend*.

Proxy assessment scores are computed according to the following data collection rules:

Figure 1. Proxy Data Collection Form

Current Age: (from court data form) _____	(16-25) = 2 (26-35) = 1 (36+) = 0 Score <input type="text"/>
Age of First Arrest: (from review of criminal history) In your LIFETIME -Include arrests, summons, and warrant for any criminal offense include criminal traffic _____	(0-17) = 2 (18-21) = 1 (22+) = 0 Score <input type="text"/>
Number of Prior Arrests: (from review of criminal history) As an ADULT only - Arrests, summons, warrant for any criminal offense, this includes ordinance violations that would otherwise be a criminal offense _____	(0-1) = 0 (2-4) = 1 (5+) = 2 Score <input type="text"/>
TOTAL <input type="text"/>	

Tables 2 and 3 describe the scores on the three Proxy questions in the validation sample, where the average age is 34, the average age at first arrest (including juvenile arrests) is 24, and the average number of prior adult arrests is 7.

Table 2. Ramsey County Proxy Validation Items

	Min	Max	Mean	Median
Current Age	18	80	34	34
Age of First Arrest	12	57	24	21
Number of Prior Adult Arrests	0	68	7	3

Table 3. Ramsey County Proxy Validation Item Scores

	Range	Score	%
Current Age	(16-25)	2	36%
	(26-35)	1	15%
	(36+)	0	49%
Age of First Arrest	(0-17)	2	11%
	(18-21)	1	40%
	(22+)	0	49%
Number of Prior Arrests	(0-1)	0	24%
	(2-4)	1	23%
	(5+)	2	43%

Table 4 describes the validation sample on the total Proxy score. Nearly one half of the sample (47%) score in the range typically defined as low risk (0 – 2). Only one quarter score above 3.

Table 4. Ramsey County Proxy Validation Total Score

Proxy Score	#	%	Cum %
0	23	12%	12%
1	16	8%	20%
2	54	27%	47%
3	56	28%	75%
4	25	13%	88%
5	19	10%	98%
6	4	2%	100%
Total	198	100%	

To “norm” the Proxy tool on the Ramsey County population, Bogue, Woodward, and Joplin (2006) recommend adopting a “1/3, 1/3, 1/3” formula for scoring each risk factor. That formula suggests that the scores for individual items are set such that one-third of the sample falls into each score range, meaning one-third of cases receive a score of 0, one-third a score of 1 and one-third a score of 2. This methodology results in the revised scoring of individual items reflected in Table 5. The proposed item scoring method results in roughly one-third of cases falling into each item score.

Table 5. Ramsey County Proxy Current and Proposed (Normed) Item Scores

	Current			Proposed (Normed)		
	Range	Score	%	Range	Score	%
Current Age	(16-25)	2	36%	(18-24)	2	35%
	(26-35)	1	15%	(25-40)	1	32%
	(36+)	0	49%	(41+)	0	33%
Age of First Arrest	(0-17)	2	11%	(0-18)	2	30%
	(18-21)	1	40%	(19-23)	1	37%
	(22+)	0	49%	(24+)	0	34%
Number of Prior Arrests	(0-1)	0	34%	(0-1)	0	34%
	(2-4)	1	23%	(2-6)	1	33%
	(5+)	2	43%	(7+)	2	33%

Based on this analysis, a normed version of the Proxy is reflected in Figure 2.

Figure 2. Ramsey County Normed Proxy Form

Current Age: (from court data form) _____	(18-24) = 2 (25-40) = 1 (41+) = 0 Score <input type="text"/>
Age of First Arrest: (from review of criminal history) In your LIFETIME -Include arrests, summons, and warrant for any criminal offense include criminal traffic _____	(0-18) = 2 (19-23) = 1 (24+) = 0 Score <input type="text"/>
Number of Prior Arrests: (from review of criminal history) As an ADULT only - Arrests, summons, warrant for any criminal offense, this includes ordinance violations that would otherwise be a criminal offense _____	(0-1) = 0 (2-6) = 1 (7+) = 2 Score <input type="text"/>
TOTAL <input type="text"/>	

The new scoring method results in the total scores reflected in Table 6. The recommended scoring method normed to the Ramsey population results in 35% of the sample in the low risk (0-2) range, compared to half of the sample originally. The distribution of the normed scores is more evenly spread across the range from 0 to 6, allowing for a Ramsey-specific formula for separating risk groups.

Table 6. Ramsey County Proxy Validation Total Score – Original vs. Normed

Proxy Score	Original		Normed	
	#	%	#	%
0	23	12%	16	8%
1	16	8%	22	11%
2	54	27%	32	16%
3	56	28%	56	28%
4	25	13%	34	17%
5	19	10%	31	16%
6	4	2%	7	4%
Total	198	100%	198	100%

The final question of interest is whether the normed scoring method can be validated. That is, do offenders with different risk levels recidivate at different rates? An indication that the tool “works” is when progressively more offenders recidivate at each incremental increase on the scale. Recidivism in this study is defined as a new arrest since the 2008 court date. A comparison of the current and proposed total Proxy scores with re-arrest rates is presented in Table 7. Both scoring methods result in an incremental increase in recidivism (% re-arrested) as the scale increases.

Table 7. Re-Arrest Rates for the Ramsey County Proxy Original and Normed Total Scores

Proxy Score	Original	Normed
	% Arrested	% Arrested
0	30%	38%
1	31%	32%
2	63%	69%
3	75%	57%
4	73%	79%
5	95%	90%
6	100%	100%

Proxy scores are translated into risk groups defined as low, moderate and high in order to identify a cut-off score which agency management can use to triage regular supervision from minimum supervision needs among their population (Bogue, Woodward and Joplin, 2006). For example, if an agency had resources to supervise only 60% of their volume of cases they could set a minimum cut-point which would identify the 40% lowest risk offenders for diversion or administrative supervision. In the absence of a pre-determined cut-point based on resources, risk groups are generally identified by grouping natural cut-points in the outcome of interest (recidivism). In the original Proxy scale, natural groups in the rate of re-arrest occur for those scoring 0 thru 1 (low), 2 through 4 (moderate) and 5 through 6 (high). In the normed Proxy scale, natural groups in the rate of re-arrest occur for those scoring 0 thru 1 (low), 2 through 3 (moderate) and 4 through 6 (high).

Table 8 compares the re-arrest rates for three risk groups defined by the original Proxy and the three risk groups proposed for the normed Proxy. The normed risk group definition does a better job of differentiating groups of risk defined by re-arrest and allows for a more even distribution of cases across groups. The original Proxy defines half of the Ramsey misdemeanor population as low risk, of which half are re-arrest (a chance guess would be as effective). However, final risk group cut-points should be set by the Ramsey work group.

Table 8. Re-Arrest Rates for the Ramsey County Proxy Original and Normed Score Groups

Original Proxy Group	% Arrested	% of Cases
Low (0-1)	49%	47%
Moderate (2-4)	74%	41%
High (5-6)	96%	12%

Normed Proxy Group	% Arrested	% of Cases
Low (0-1)	34%	19%
Moderate (2-3)	61%	44%
High (4-6)	86%	36%

To guide the decision of setting risk group cut-points, Table 9 presents options for defining a “low risk” offender based on points accrued on the normed Proxy scale. If we define low risk as only those scoring 0 points, the low risk group would encompass 8% of misdemeanor cases. A low risk definition of 0 – 1 points describes 19%, a low risk definition of 0 – 2 describes 35% and a low risk definition of 0 – 3 describes 64% of cases. Which option is the best choice? It depends on the proportion of misdemeanor cases the county is interested in triaging away from regular supervision. If resources are available to monitor 80% of the misdemeanor caseload, then identifying the lowest risk 20% for diversion would be desired. Thus low risk would be defined as 0 - 1 points on the normed Proxy (which would screen away 19%). In addition, a low re-arrest rate is desired for a valid definition of low risk. Once we include those scoring a 2 on the normed Proxy half of the low risk group gets arrested (which may not be helpful to a decision maker). Both issues should be considered.

Table 9. Options for Defining Low Risk

Normed Proxy Score	% of Cases	% Arrested	Low Risk Definition	Low Risk % of Cases	Low Risk % Arrested
0	8%	38%	Low (0)	8%	38%
1	11%	32%	Low (0-1)	19%	34%
2	16%	69%	Low (0-2)	35%	50%
3	28%	57%	Low (0-3)	64%	53%
4	17%	79%			
5	16%	90%			
6	4%	100%			

Individual Proxy Items

While the normed Proxy scale allows for a segmentation of the Ramsey County misdemeanor court cases based on the likelihood of re-arrest, individual items both on and off the instrument vary in their relative importance. Table 10 displays the Pearson correlation coefficients for the three individual Proxy item scales and the outcome of re-arrest. Age is not significantly related to recidivism, but age at first arrest is (the younger the defendant was at the first arrest the more likely to be re-arrested). The number of prior adult arrests is even more highly related.

Table 10. Pearson Correlation Coefficients Between Proxy Items and Re-Arrest

	Correlation w/Re-Arrested	
Current Age	0.02	
Age of First Arrest	-0.20	*
Number of Prior Arrests	0.39	*

* p value is significant at < .01

While gender is not significantly correlated with the proxy score or recidivism, the normed Proxy scale appears to do a better job of distinguishing between groups of risk based on recidivism for males than females. In addition, the normed Proxy scale appears to do a better job with younger offenders, those with fewer prior arrests and offenders with a non-drug primary offense.

Further Examination of Offending Patterns

A review of the results described above with the Ramsey County work team resulted in recommendations for further analysis. The first question of interest is how defendants compare across the normed Proxy risk groups in terms of both prior and subsequent arrest activity. Table 11 demonstrates significant separation across risk groups. High risk defendants have ten times the number of prior arrests and six times the recidivism level of low risk defendants.

Table 11. Average Number of Prior and Recidivism Arrests Among Normed Proxy Risk Groups

Normed Proxy Group	Average # Adult Arrests	Average # Arrests
	Prior to Court Date	After Court Date
Low	1.4	0.8
Moderate	7.3	3.6
High	10.9	6.8

In addition to volume of re-arrests, the next question is whether the type of re-arrests differs across risk groups. Table 12 compares risk groups according to the most serious new arrest type. A clear pattern exists of more serious recidivism among the high risk group. Two-thirds of the high risk defendants had a felony re-arrest, compared to less than one in four low risk defendants. An interesting question is whether the three risk groups varied by the seriousness of their prior arrest patterns as well. Unfortunately, only the number of prior arrests was captured during this study.

Table 12. Normed Proxy Risk Groups by Most Serious Subsequent Arrest (Recidivism)

Normed Proxy Group	Misdemeanor	Felony	Unknown	Total
Low	71%	21%	8%	100%
Moderate	48%	50%	2%	100%
High	29%	64%	7%	100%

Developing a Ramsey County Assessment Tool

Given the predictive power of prior criminal history, the work team explored options for creating a Ramsey-specific assessment tool in lieu of adopting the proposed normed Proxy. First, since age is not statistically related to recidivism the Proxy current age risk factor could be dropped without effecting predictive power. Second, patterns of re-arrest vary by risk group thus it is logical to suspect patterns of prior criminal history do as well. The third Proxy risk factor (number of prior adult arrests) could be split into two separate factors: number of prior adult misdemeanor arrests and number of prior adult felony arrests. While this level of detail was not captured in the current data collection efforts, anecdotal evidence from the field suggests that roughly two-thirds of prior arrests are misdemeanors and one-third are felonies. These changes to the proposed normed Proxy are illustrated in a proposed Ramsey County misdemeanor court case assessment tool presented in Figure 3 on page 10.

This Ramsey-specific proposed tool was validated with the assumption that 66% of each offender’s arrests are scored as misdemeanors and 34% are scored as felonies. Like the original and normed Proxy total scores, the Ramsey total score ranges from 0 to 6. The desired incremental increase in recidivism (% re-arrested) as the scale increases is demonstrated in Table 13.

Table 13. Re-Arrest Rates for the Ramsey County Assessment Total Score

Ramsey Score	% Arrested
0	25%
1	29%
2	46%
3	55%
4	77%
5	85%
6	100%

Table 14 compares the re-arrest rates for three risk groups defined by the original Proxy, the normed Proxy and the Ramsey County assessment. The Ramsey assessment tool does an even better job than the normed Proxy in differentiating groups of risk defined by re-arrest. It also allows for a more even distribution of cases across groups than the original Proxy, which defines half of the misdemeanor population as low risk. The Ramsey risk group cut-points ranges are set to identify roughly 20% of the population as low risk.

Table 14. Re-Arrest Rates for the Original Proxy, Normed Proxy and Ramsey Assessment Risk Groups

Original Proxy Group	% Arrested	% of Cases
Low (0-1)	49%	47%
Moderate (2-4)	74%	41%
High (5-6)	96%	12%

Normed Proxy Group	% Arrested	% of Cases
Low (0-1)	34%	19%
Moderate (2-3)	61%	44%
High (4-6)	86%	36%

Ramsey Risk Group	% Arrested	% of Cases
Low (0-1)	27%	21%
Moderate (2-4)	61%	47%
High (5-6)	92%	33%

Based on this analysis, a Ramsey County misdemeanor court case assessment is reflected in Figure 3.

Figure 3. Final Recommended Ramsey County Misdemeanor Court Case Assessment

<p>Age of First Arrest: (from review of criminal history)</p> <p>In your LIFETIME -Include arrests, summons, and warrant for any criminal offense include criminal traffic _____</p>	<p>(0-18) = 2 (19-23) = 1 (24+) = 0</p> <p>Score <input type="text"/></p>
<p>Number of Prior Misdemeanor Arrests: (from review of criminal history)</p> <p>As an ADULT only – Misdemeanor arrests, summons, warrant for any criminal offense, this includes ordinance violations that would otherwise be a criminal offense _____</p>	<p>(0) = 0 (1-4) = 1 (5+) = 2</p> <p>Score <input type="text"/></p>
<p>Number of Prior Felony Arrests: (from review of criminal history)</p> <p>As an ADULT only – Felony arrests, summons, warrant for any criminal offense, this includes ordinance violations that would otherwise be a criminal offense _____</p>	<p>(0) = 0 (1) = 1 (2+) = 2</p> <p>Score <input type="text"/></p>
<p style="text-align: right;"><input type="text"/></p> <p>TOTAL POINTS</p> <p>Low Risk = 0-1 points Mod Risk = 2-4 points High Risk = 5-6 points</p>	

Recommendations for a Ramsey County Misdemeanor Court Case Assessment

- (1) Use the Ramsey County Assessment version (Figure 3) instead of the original or normed Proxy. The original Proxy defines half of the Ramsey misdemeanor population as low risk, of which half are re-arrest (a chance guess would be as effective). While the normed method is validated on a Ramsey County sample and improves significantly the ability to identify those at highest risk to recidivate, the further refined Ramsey assessment more accurately reflects drivers of failure in the local population.
- (2) Monitor the intended use of the Ramsey County Assessment and availability of county resources to maintain the most appropriate cut-points for the three risk groups. While this statistical analysis indicates natural cut-points based on recidivism rates (defining 20% as low risk), alter the low risk cut point as necessary such that the desired proportion of cases are appropriately screened away from formal system processing (see Table 9 discussion).
- (3) Test the proposed Ramsey County Assessment on a new sample of defendants to determine if the scoring results have face validity (make sense) and the prior arrest assumption holds (2/3 misdemeanor 1/3 felony). Track those cases over time to continually assess predictive validity – whether the high risk group has the highest level of recidivism.

Appendix: Ramsey County PROXY Data Collection Form for Completion by City DA staff/intern

Person(s) completing this form: _____

Date form completed: _____

Instructions: Complete the following information for all persons appearing at arraignment court EXCEPT those charged with OWI, Sexual Assault, Domestic Violence, Prostitution, and Indecent Conduct

Name: _____

DOB: ____/____/____ Current Age: _____

Gender: (circle one) Male Female

Race: (circle one) Asia Black Biracial Native America
Hispanic
White Unknown

Current Charges (list all) _____

Total number of charges: _____

Most serious charge: (Of the number of current charges, list most serious)

Offense level: (circle one) Misdemeanor Gross Misdemeanor

Age at First Arrest: (self report) _____

As an ADULT only – Record the total number of arrests, summons, warrants for any criminal offense, this includes ordinance violations that would otherwise be a criminal offense:

(self report) _____

Appendix: Ramsey County PROXY Data Collection Form for Completion by Warrants Clerks

Person completing this form: _____

Date form completed: _____

Instructions:

1. Using Name and DOB from City DA Data Collection form, review criminal history data (MNCIS, Jw Jail, BAC, NCIC) and complete following information if a match can be verified. Throw out any cases where name and DOB match is questionable.
2. Add SID # from criminal history review: _____
3. Complete PROXY:
 - a. Add accurate #'s in first column (current age from court data collection form, age at first arrest and number of prior arrests from review of criminal history information)
 - b. In second column: calculate PROXY score

Current Age: (from court data form) _____	(16-25) <input type="checkbox"/> (26-35) <input type="checkbox"/> (36+) = 0
Age of First Arrest: (from review of criminal history) In your LIFETIME -Include arrests, summons, and warrant for any criminal offense include criminal traffic _____	(0-17) = 2 <input type="checkbox"/> (18-21) <input type="checkbox"/> (22+) = 0
Number of Prior Arrests: (from review of criminal history) As an ADULT only - Arrests, summons, warrant for any criminal offense, this includes ordinance violations that would otherwise be a criminal offense _____	(0-1) = 0 <input type="checkbox"/> (2-4) = 1 Score <input type="checkbox"/> (5+) = 2
	TOTAL <input type="checkbox"/>