The Value of Pretrial Risk Assessment Instruments: Don't Throw the Baby Out with the Bathwater

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Background

The Safety and Justice Challenge (SJC), funded by the MacArthur Foundation, is the nation's largest initiative to directly attempt to 1) significantly reduce local jail populations and 2) reduce the level of racial and ethnic disparities (R&ED) in jail incarceration rates. A key tool for addressing both high incarceration rates and racial/ethnic disparities is the use of reliable and valid Pretrial Risk Assessment (PRA) instruments. Recently, the use of PRAs has been criticized with claims that, rather than reducing incarceration rates and racial/ethnic disparities, PRAs actually serve to exacerbate them.

The most recent critique, issued by the Pretrial Justice Institute (PJI), called for the abolition of all pretrial risk assessment instruments. This policy statement is a marked departure for PJI, which for many years supported the position that such tools can "substantially reduce the disparate impact that people of color experience."

The basis for this policy shift is the claim that all pretrial risk instruments are biased against all black pretrial defendants (and not biased against white, Hispanic, Asian or other racial/ethnic groups) and thus serve to institutionalize racism toward blacks within the criminal justice system. The new PJI policy statement does not provide any references to published research studies to support this claim. For this reason, the JFA Institute, which has been advising the SJC on its reform methods and has helped numerous jurisdictions implement pretrial and other risk assessment systems, is issuing the following defense of PRAs to inform the current discussion in the criminal justice community.

History of PRAs

Risk assessment is a scientific technique widely used in many aspects of our daily lives. For example, when you visit your doctor, risk assessment methods are employed to determine your risk of incurring certain health conditions. When buildings, roads, and bridges are constructed, risk assessment is used to critically examine health and safety hazards in the design and construction of these structures. It's fair to say that risk assessments affect almost every aspect of our lives and, when properly deployed, serve to improve our well-being.

In criminal justice, risk assessment is increasingly used to guide the safe housing and treatment of prisoners, parole board decision-making and the supervision of probationers and parolees. Risk assessment systems have, in selected jurisdictions, served to reduce the use of solitary confinement and maximum-security prisons, lower recidivism rates, increase parole grant rates, and lower prison populations.

Pretrial risk assessments are narrowly designed to assess the risk level of detained people to fail pretrial supervision when released from pretrial detention. Prior to the development of PRAs in the 1960s, judges were free to make detention decisions solely on personal and professional discretion. There were no rules or transparency for such assessments. The only guaranteed method of release from jail was for a person to post the bail set by the judge. This subjective decision-making process resulted in a heavy bias against poor people of which a significant proportion were

black. There is considerable historic evidence of the explicit practice of setting of bail by race occurring in the United States prior to the development of PRAs.[1]

In the early 1960s, the Vera Institute introduced the first PRA instrument as part of the historic Manhattan Bail Reform initiative.[2] This reform was pioneered to empirically show the court that most jailed defendants are a low risk to public safety and thus suitable for release while their charges are processed through the courts. More importantly, it also showed that the posting of bail was unnecessary to assure the court that a defendant would neither flee nor pose a danger to the community. Before the Vera instrument was implemented, the court simply did not know which factors would make the defendant a suitable risk for release. Lacking an alternative, the court largely relied on the defendant's charge(s) and the subjective judgement of the judge.

Today much has and has not changed. The design and use of PRAs have rapidly expanded to numerous jurisdictions. They have been tested in multiple studies and found to be reliable and valid in terms of assessing the risk to be re-arrested and/or fail to appear (FTA) for court. Within the Safety and Justice Challenge (SJC), 25 implementation sites have deployed PRAs (Table 1). The most frequently used instrument is the Arnold Foundation's Pretrial Safety Assessment (PSA) which is being used in 18 sites. Other sites are utilizing the Virginia PRA (VPRAI) or a customized PRA specifically developed for an individual site.

Despite this progress in the implementation of PRAs, the inability to post bail remains the primary reason for people not being released from jail. Further, with a few exceptions, the nation's pretrial jail population has not been reduced. This lack of progress in reducing pretrial detention can be linked to resistance from the private bail bond industry, which has lobbied against the use of PRAs which they interpret as a means for eliminating the use of bail. Judges and prosecutors have also resisted PRAs, perceiving them as a threat to the long-held tradition of basing detention on the severity of charge(s) and using pretrial detention to punish defendants and to facilitate guilty pleas.[3]

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[1] For a review of such racist practices see Ayres, Ian and Joel Waldfogel. May 1994. "A Market Test for Race Discrimination in Bail Setting", *Stanford Law Review*. 46:987-1047.

[2] Manhattan Bail Project. Official Court Transcripts, October 1961 – June 1962. https://storage.googleapis.com/vera-web-assets/downloads/Publications/manhattan-bail-project-official-court-transcripts.

[3] Feeley, Malcom. 1979. The Process is the Punishment. Handling Cases in a Lower Criminal Court. New York: Russell Sage Foundation.

Table 1. Pretrial Risk Assessment Instruments by SJC Sites

Site	Risk Model	Site	Risk Model
Harris	PSA	Buncombe	PSA
Lucas	PSA	East Baton Rouge	PSA
Milwaukee	PSA	Minnehaha	PSA
New Orleans	PSA	Missoula	PSA
Pima	PSA	San Francisco	PSA
Spokane	PSA	Lake	VPRAI
St. Louis	PSA	Palm Beach	VPRAI
Cook	PSA	Ada	VPRAI
Mecklenburg	PSA	New York	Other
Pennington	PSA	Multnomah	Other
Los Angeles	PSA	Clark	Other
Shelby	PSA	Charleston	Other
Allegheny	PSA		

The Controversy and the Science

More recently a few activists and social scientists have joined the bail industry in the effort to abolish PRAs. The single reason their position is the claim that all PRAs are racially biased against blacks. The scientific basis for this claim comes largely from a single study by ProPublica in 2016 of the COMPAS risk assessment instrument used in Broward County, Florida. [4]
The following points should be emphasized regarding the COMPAS instrument:

1. It is not being used in any SJC (or other) sites for pretrial risk assessment;

2. COMPAS was not designed to be a pretrial assessment instrument. It should be used for assessing prisoners (post sentencing) and supervising probationers and parolees; and,

3. It is not being used by the Initial Appearance Judges in Broward County for such purposes.

Conversely, the PSA instrument, which is the dominant PRA used in the SJC network has been independently re-validated by the well-respected Research Triangle Institute (RTI) and was found not to be racially biased.

> "After analyzing nearly 165,000 pretrial cases in Kentucky, we found that that the PSA was a good predictor of failure to appear and new arrests and a fair predictor of new violent arrests. We found the PSA predicted equally well on re-arrests for black and white defendants and male and female defendants across the outcomes. The one exception is we found the instrument underestimates the rate at which black defendants would fail to appear

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[4] Angwin, Julia, Jeff Larson, Surya Mattu and Lauren Kirchner. May 23, 2016. *Machine Bias. There's software used across the country to predict future criminals. And it's biased against blacks.* NY: ProPublica.

in court. Our study suggests that risk assessments can be helpful to judges but does not replace them. We emphasize that researchers and practitioners need to work more closely to develop risk assessments that maximize accuracy and minimize bias".[5]

The VPRAI has also been tested for racial and gender parity with similar results.[6]

> "In sum, the VPRAI-Revised is a good predictor of pretrial failure as measured by Any Failure, FTA, NA, and TV, and is free of race and gender predictive bias. Specifically, the VPRAI-Revised risk levels have the same meaning for People of Color and Whites and for females and males. Thus, concerns about predictive bias are successfully addressed and the VPRAI-Revised may be considered race and gender neutral" (2016: p.25).

The COMPAS instrument, which is not being used by any SJC sites, consists of over 130 scoring items, many of which have been found to be of questionable value when tested for reliability and validity.[7] The following lists the significant findings surrounding the ProPublica study:

1. The study used a two-year follow-up of re-arrest data instead of the more established measurement of arrests and FTAs that occurred prior to the disposition of the charges.

2. By using an entire two-year follow-up of arrest, results and the degree of potential racial bias were artificially amplified.

3. The study found that both blacks and whites were accurately classified by risk of re-arrest but that blacks had a higher pretrial re-arrest rate than whites. Similar risk results were also found in males versus females.

4. Blacks, who had a significantly higher re-arrest rate, also had a higher proportion classified as higher risk. This was a result of lengthier prior criminal records, which are associated with higher re-arrest rates.

5. The proportion of false positives for people assessed as high risk but who were not re-arrested was higher for blacks as opposed to whites. There were no differences in the percentage of false positives by race for the other and larger risk groups.

In other words, the only issue with the COMPAS instrument was limited to those released defendants classified as "high risk", which represents a small percentage of the released population. For this group, there was a disproportionately higher number of false positives for blacks as compared to whites.

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[5] DeMichele, Matthew, Peter Baumgartner, Michael Wenger, Kelle Barrick, Megan Comfort and Shilpi Misra. 2019. The Public Safety Assessment: A Re-Validation and Assessment of Predictive Utility and Differential Prediction by Race and Gender in Kentucky. Research Triangle Park, NC: Research Triangle Institute.
[6] Mona J.E. Danner, Ph.D., Marie VanNostrand, Ph.D., and Lisa M. Spruance, M.S., Race and Gender Neutral Pretrial Risk Assessment, Release Recommendations, and Supervision: VPRAI and Praxis Revised).
[7] Austin, James and Johnette Peyton. 2016. Validation Evaluation of the San Francisco Adult Probation Department COMPAS Risk/Needs Assessment System. Washington, DC: JFA Institute.

Two comprehensive studies have been issued since the release of the ProPublica report, and both refute the ProPublica findings. The developers of the COMPAS instrument (Northpointe) issued a detailed rebuttal to the ProPublica analysis which ProPublica has subsequently rebutted. Another study by Flores et al., systemically re-assessed the same data used by ProPublica and found several methodological flaws in the ProPublica analysis, concluding that there was no evidence of racial bias in COMPAS.[8]

A recent report released by the Center for Court Innovation (CCI) developed a risk assessment instrument based on a large number (over 175,000) of people arrested in New York City in 2015. Like the ProPublica study, it was not a study of pretrial failure but used a two-year follow-up period. As such, its instrument was not narrowly tested on pretrial defendants released from the NYC jail system nor was the dependent variable measures of pretrial arrests and/or FTAs.

The hypothetical risk instrument consisted of two demographic factors (age and gender) and 14 other measures of prior convictions and current charge attributes. Like the ProPublica study, CCI found that its instrument properly classified people by their risk to be re-arrested over a two-year period. Further, because blacks and Hispanics had significantly higher re-arrest rates as compared to whites, there were higher proportions of these two racial/ethnic groups in the higher risk category. However, when one controlled for the prior criminal record the racial differences in risk levels disappeared.

Like the ProPublica COMPAS study, the CCI instrument was found to produce a disproportionate number of false positives but only for the higher risk group. But unlike the ProPublica study, when the analysis was limited to people charged only for violent crimes, the disproportionate number of false positives by race and ethnicity for the higher risk group disappeared. Based on these results CCI made the following conclusion:

> "In interpreting our findings, we do not, however, argue for eliminating the use of risk assessments. Our principal recommendation… is that jurisdictions think "beyond the algorithm." That is, practitioners should take concerns regarding racial fairness seriously and minimize the use of unnecessary incarceration overall." (Picard et al., 2019:4)

Policy Implications

Our review of the key facts and issues surrounding PRAs can be summarized as follows:

1. There is a large body of scientific evidence demonstrating that objective, reliable and valid risk assessment instruments are far more accurate in assessing risk than professional human judgements.[9] For example, a study of well trained and experienced Federal Probation

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[8] Dieterich, William, Christina Mendoza and Timothy Brennan. COMPAS Risk Scales: Demonstrating Accuracy Equity and Predictive Parity. July 8, 2016. Northpointe. Flores, Anthony W., Bechtal, Kristen, and Christopher Lowenkamp T. False Positives, False Negatives and False Analysis: A Rejoiner to "Machine Bias.". 2016. *Federal Probation* Vol. 80, No. 2:38-46. Larson, Jeff and Julia Angwin. July 29, 2016. Machin Bias: Technical Response to Northpointe. *ProPublica*.

[9] Meehl, Paul E. 1954. Clinical versus statistical prediction: A theoretical analysis and a review of the evidence. University of Minnesota Press. Grove, William M., David H Zald, Boyd S Lebow, Beth E Snitz, and Chad Nelson.

officers found that they systemically over-estimated the actual risk of their cases compared to a risk assessment instrument.[10] In the world of pretrial detention, where over 10 million people are jailed each year after arrest, the court must quickly review the defendant's prior record, charges, and other relevant factors to make a determination on the suitability of release. Objective and valid risk instruments provide a more efficient and fairer basis for making that assessment versus a judge haphazardly and quickly scanning a myriad of court documents.

2. Thanks to PRAs, we know that the overwhelming majority of jailed defendants (75-85 percent), regardless of race, will not be re-arrested and/or fail to appear for their next court hearing if released. Even smaller numbers (5 percent or less) will be re-arrested for a violent crime, and an even smaller percentage will be convicted of a violent crime while on release. Armed with these statistics, defense counsels can more effectively argue for the release of their clients.

3. In many areas of American society, racial, gender and other biases exist. People from low socio-economic statuses struggle to secure adequate housing, employment, education, and health care services. Within the criminal justice system there are similar biases in the deployment of police, arrest, charging, detention, and sentencing practices. But this is not to say that all arrests, convictions, and sentences are biased. Any risk assessment system that relies on data used by criminal justice agencies will have some level of bias. But it is also true that much of the data for most defendants are accurate and can be used to conduct an accurate risk assessment.

4. The assertion that some prior criminal history data are flawed does not negate the use of all criminal history data by the courts. Prior studies of wrongful convictions show that while there are *many* wrongful convictions, they represent a *small percentage* of all convictions.[11] Prohibiting the use of PRAs would be akin to disallowing the use of any prior conviction data for any court decision. In essence, a multiple domestic violent, DUI, or drug distribution offender would be treated the same as a first-time defendant.

5. For these reasons, we should not abolish PRAs, but endeavor to ensure that any form of implicit bias is reduced to its lowest level. This can be achieved by adopting the following PRA principles:

2000. Clinical versus mechanical prediction: a meta-analysis. *Psychological Assessment*, 12(1):19, 2000. J. Lin, J. Jung, S. Goel, J. Skeem, The limits of human predictions of recidivism. *Sci. Adv.* **6**, eaaz0652 (2020).

[10] Oleson J.C., Scott W. VanBenschoten, Charles R. Robinson, and Christopher T. Lowenkamp. September 2011. "Training to See Risk: Measuring the Accuracy of Clinical and Actuarial Risk Assessments among Federal Probation Officers". Federal Probation, Vol. 75, No. 2.

[11] For a review of these studies see Furman, H. Patrick Furman, Wrongful Convictions and the Accuracy of the Criminal Justice System, Sept. 2003, available at http://scholar.law.colorado.edu/articles/513/.

a. *Due Process and Transparency*. The results of any risk assessment completed for any individual must be fully disclosed to those persons with an ability to contest its accuracy.

b. *Reliability*. All risk instruments must undergo regular reliability tests to ensure the results are accurate. This means that defendants are screened in a uniform and consistent manner regardless of who is doing the screening.

c. *Validity.* All risk instruments should be properly tested to ensure they are properly scoring people by their risk to re-offend and or fail to appear in court during the time they are under pretrial status. PRAs should not be tested on re-arrests that have occurred after their cases have been disposed. Further, future validation studies should also seek to use convictions rather than arrests as the dependent variable.

d. *Tested on Local Population.* Research has shown that risk assessment instruments perform best when calibrated to the local population rather than another city or state. Consequently, PRAs developed in one jurisdiction and subsequently deployed in another, must be re-tested in the new jurisdiction and adjusted accordingly.

e. *Tested for Racial and Gender Bias*. All instruments must show that there is little if any systemic racial and gender bias in the assessment process. This is best accomplished by relying on the fewest number of risk factors that are not correlated with socio-economic status (e.g., education level, employment history, etc.). With regard to criminal justice factors, scoring factors should consist of prior conviction factors only with time limits (e.g. felony convictions in the past 10 years, prior supervision failures in the past 10 years, etc.) and the attributes of the offense, all of which have been shown to be strongly associated with risk.

f. *Use in the Detention Decision.* Risk assessment instruments were not designed to be, nor should they be used as the sole determinate of a detention decision. Given that the vast majority of detained defendants are suitable candidates for release based on the criteria of flight and danger to the community, there should be a presumption of release. In this context, risk assessment is best used to assign conditions of supervision upon release rather than in the decision to detain (or not).

Summary

The position that all PRAs should be abolished is largely based on a single study by ProPublica of a single risk instrument (COMPAS) that:

1. The COMPAS instrument is not being used in any SJC sites;
2. The COMPAS instrument was not designed to be a pretrial risk instrument;
3. The COMPAS instrument was designed using data that did not reflect the two key measures for PRA prediction – re-arrest and /or FTA *while under pretrial status*; and
4. The ProPublica study has been refuted by subsequent studies.

The PRA instruments used by SJC sites (PSA, VPRAI, and customized instruments in New York City, Charleston, and Clark) have been tested and show no systemic racial or gender bias. As such the position that all PRAs should be abolished is not grounded in science, nor would such a policy be supported by a great majority of the relevant scientific community.

Going forward all PRAs should be based on a small set of demographic factors and time limited prior criminal conviction history and current charges (severity and number). They also need to be periodically and rigorously tested for reliability, validity, and fairness regarding race and gender.

A PRA instrument should not be the sole determinate for pretrial detention, but rather a tool to be used by the courts to enhance the goal of reliable, objective, and valid decision making that minimizes all forms of gender, racial, and ethnic disparities. More importantly, there should be a presumption of release for all defendants who do not pose an obvious risk of flight or a danger to society. Moving these ideals forward is what we should focus on.