

An open-source recidivism score predictor based on the COMPAS Pre-Trial Risk Assessment Instrument (PRAI)

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Introduction

A pre-trial risk assessment instrument (PRAI) is an AI-powered tool used in almost every state in the U.S. to attempt to predict future behavior by defendants and incarcerated persons, and quantify flight risks (not showing up for one's trial) or recidivism. Recidivism refers to when an individual is released from prison and reoffends (National Institute of Justice, n.d.). This is an important metric for criminologists and judges, because it forms a pattern of troubling behavior over time and often informs sentences.

Problems with PRAIS

Significant empirical research has shown disparate impacts of risk assessment tools on criminal justice outcomes based on the race, ethnicity, and age of the accused. The concerns with the use of these tools don't stop there. Even when a PRAI is deemed "fair", the data and algorithms are not transparent for the suspect and the judge because the software is proprietary. An example is the Loomis vs Wisconsin instance. In this case, the suspect challenged the quality of the prediction tool and argued that he had the right to be sentenced based on accurate information and that not having insight into how COMPAS comes to its prediction score violates this right. The Wisconsin Supreme Court, however, rejected the suspect's arguments. It argued that, if applied properly, COMPAS "can enhance" a judge's evaluation, weighing, and application of the other sentencing evidence in the formulation of an individualized sentencing program appropriate for each defendant.

The Judges' Prejudice

Let's suppose COMPAS really "can enhance" a judge's evaluation. The issue remains that there could still include cognitive biases such as unconscious racial, gender, and ethnic biases, stereotypes, prejudices, discriminatory attitudes, and other preconceived notions that can invade judicial decision-making [1]. One study found that 97% of judges consider themselves above average in their ability to avoid racial prejudice in decision-making. In contrast, studies also have found judges' susceptibility to the influence of cognitive bias is no better than that of the general population [1]. It should not be assumed that judges are aware of, let alone able to confront and correct, manifestations of cognitive bias in their decision-making. But their awareness is critical for the judicial system because every time a judge's "personality" seeps into decision-making, justice crumbles.

How does this tie to the racial wealth gap?

Blacks are more likely than whites to be confined awaiting trial (which increases the probability that an incarcerative sentence will be imposed), to receive incarcerative rather than community sentences, and to receive longer sentences. Racial differences found at each stage are typically modest, but their cumulative effect is significant [2]. Lengthy and life sentences are disproportionately levied on people of color, with one out of every three black boys born today expecting to be sentenced to prison, compared to 1 out of 6 Latino boys; one out of 17 white boys [4]. These disparities in sentencing have major negative implications for physical and psychological health, housing and food security, and job security or fair pay for those affected and their families.

Hence, biases in criminal justice decision making are proponents of financial stability, and ultimately the racial wealth gap in the United States.

Solution: Awareness, Due Process and Transparency.

This hackathon submission aims to analyse these shortcomings and provide an open-source awareness tool where defendants can have an estimate of their score, as well as the factors that contribute to that score for more transparency, as well public awareness on the issues surrounding PRAIs. We particularly analyse the widely used Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) model developed by Equivant. We believe that the scoring and results of any PRAI completed on any individual must be fully disclosed to that person, with an ability to contest its accuracy [3]. While we cannot make that policy change, we suggest a system that approximates the scores that a certain PRAI in your region would give you based on your information, and allow you to use that information for a trial. Your lawyer can also find and use that information.

Sources

1. [Addressing Bias Among Judges | State Court Report](#)
2. [One in Five: Racial Disparity in Imprisonment — Causes and Remedies – The Sentencing Project](#)
3. [Open Letter to the Pretrial Justice Institute Re: Response to PJI’s Position on the Abolition of Pretrial Risk Assessment Inst](#)
4. [Criminal Justice Fact Sheet | NAACP](#)