Machine Learning Bias

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Supervised Machine Learning

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If training data is biased, algorithm will be too, *even if implemented perfectly!*

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If supervisors tend to discriminate against women, then our SML will look for signals that an applicant is a woman, since they can use this to give women lower reviews, better matching the training data.

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In COMPAS, race wasn't in the model.

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Picking unbiased outcomes is not as easy as it seems...

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Arrests are pretty objective, right?

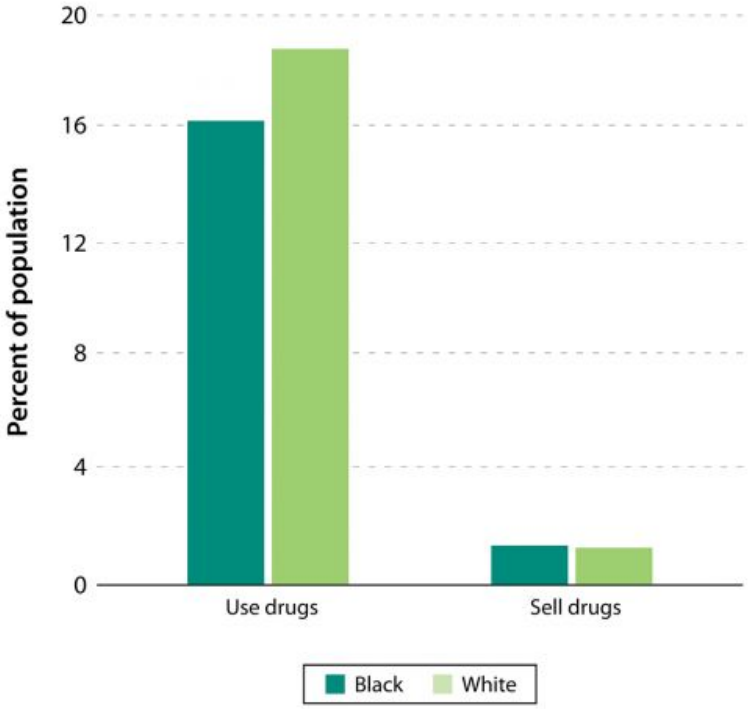
FIGURE 6A.

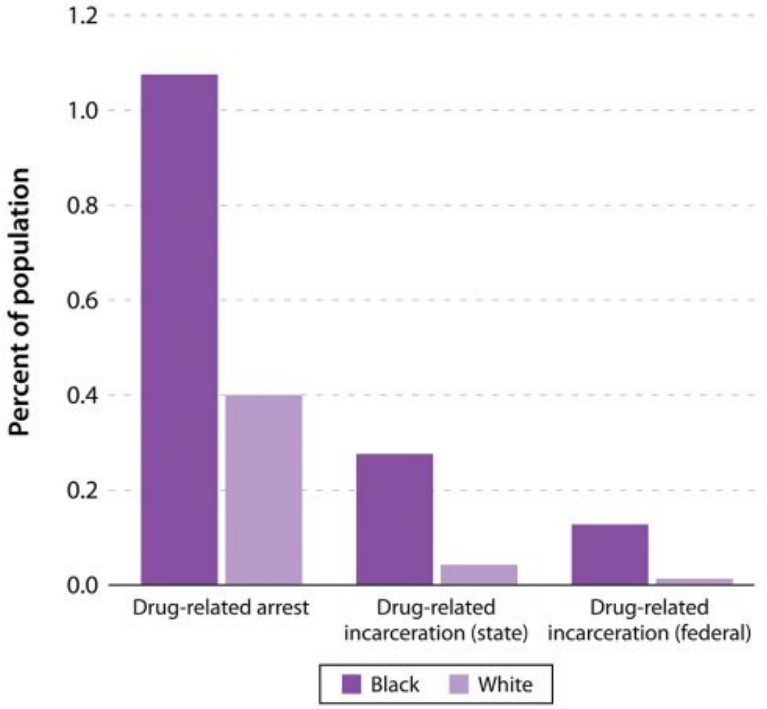
Rates of Drug Use and Sales, by Race

FIGURE 6B.

Rates of Drug-Related Criminal Justice Measures, by Race

At the state level, blacks are about 6.5 times as likely as whites to be incarcerated for drug-related crimes.





Source: BLS n.d.c; Carson 2015; Census Bureau n.d.; FBI 2015; authors' calculations.

THE HAMILTON PROJECT
BROOKINGS

Probability of arrest $\neq$ probability of committing a crime

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The relationship between actual ailments and spending varies by race!

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$\rightsquigarrow$ SMLs generally perform better when they are sexist/racist/xenophobic/homophobic!

Biased By Design

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So long as society has biases, Machine Learning has an affirmative incentive to be biased too!