

Crime Analysis: What Factors Influence Homicide Solve Rates?

By Juliana Lebowitz

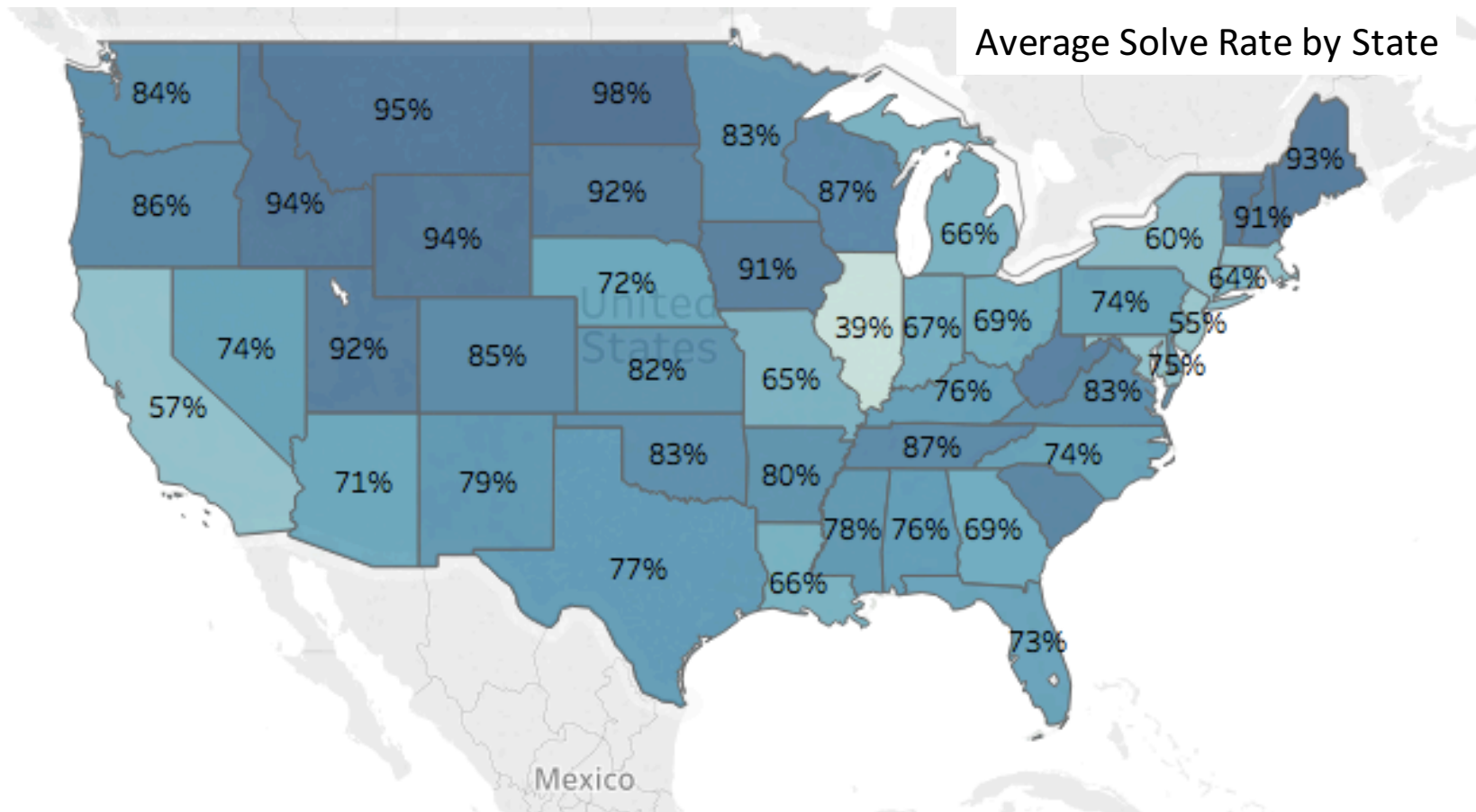
Analyzing Homicide Solve Rates

- Dataset from Murder Accountability Project
- This project uses the most recent ten years of U.S. homicide data (over 150,000 homicides between 2004 and 2015)
- For each homicide, we know the state, police agency, year, month, weapon, victim sex, victim race, victim age and whether the crime was solved

What factors are the best predictors of whether a homicide will or won't be solved?

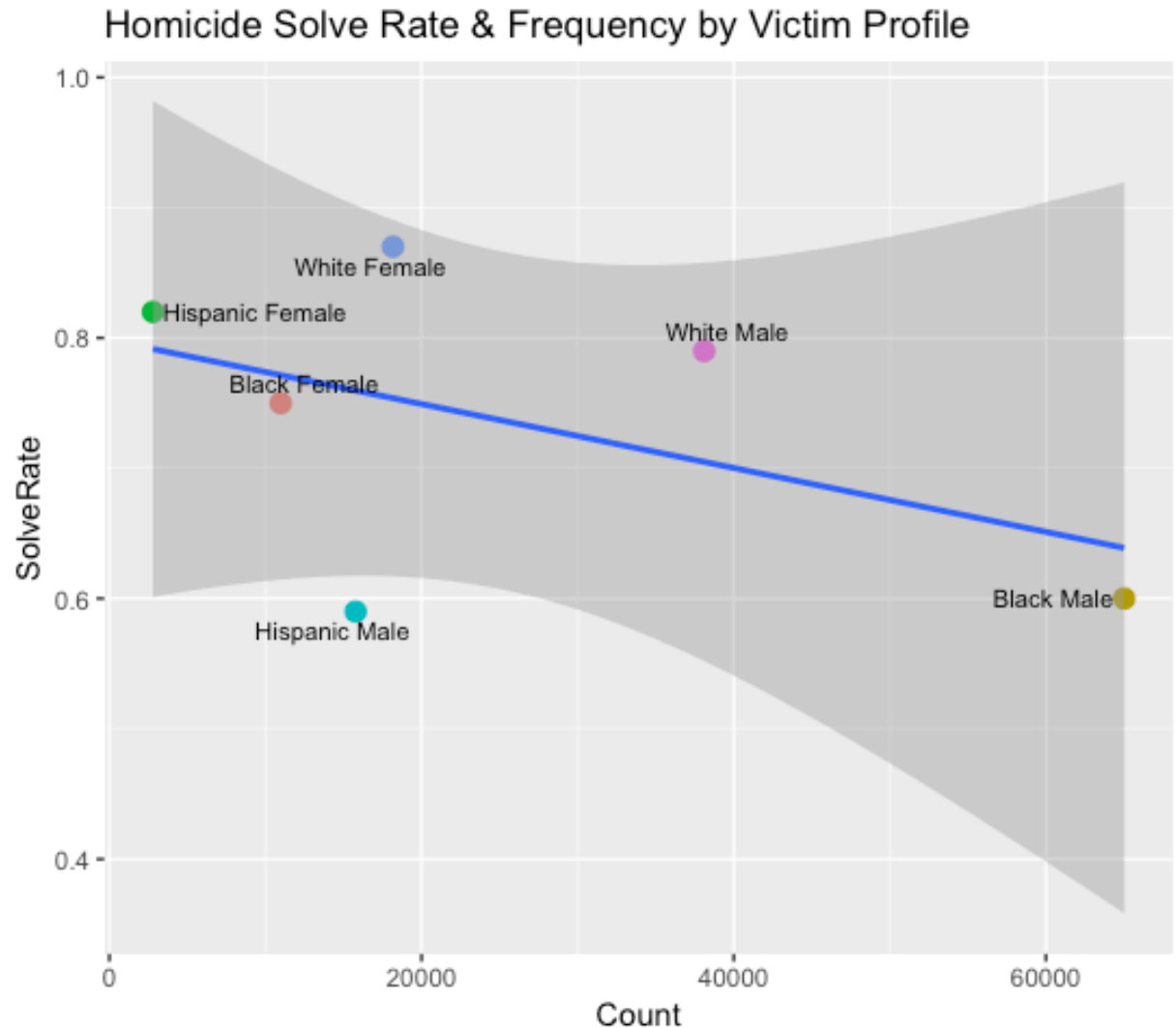
Location

- Location is the single most important predictor of whether a homicide will be solved.
- Illinois has the lowest average solve rate (39%) and North Dakota has the highest (98%)



Race & Gender

- Black victims have lower average solve rates than white victims, regardless of gender.
- Black and Hispanic males have the lowest average solve rate (60%) while white females have the highest (87%).



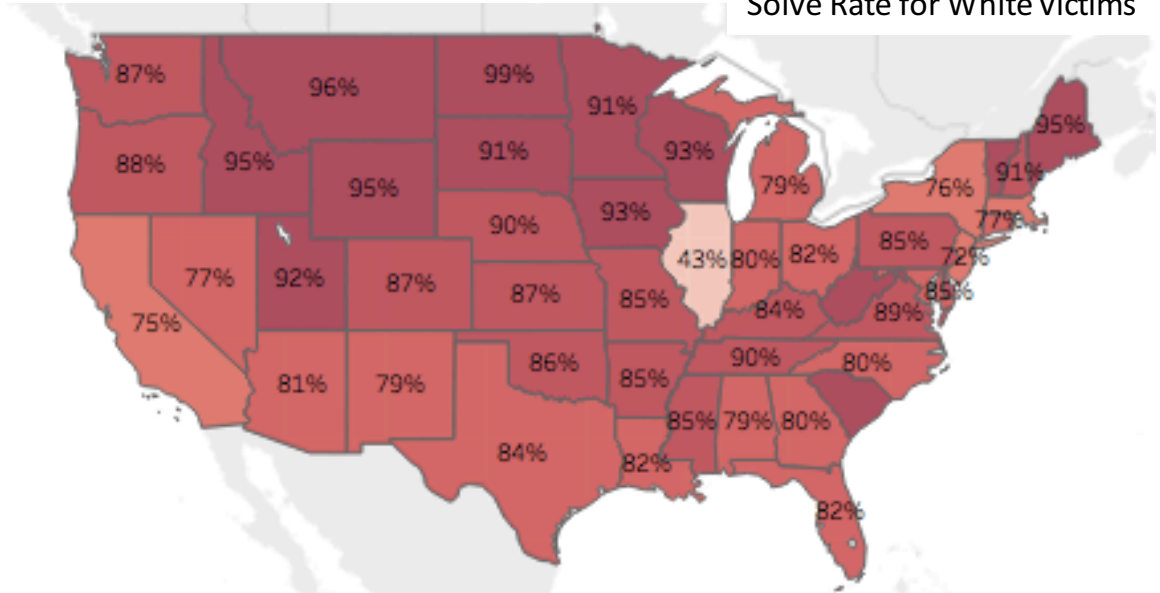
Race & Location

- Racial inequality is the most prevalent in Nebraska, which has a 90% solve rate for white victims and 50% solve rate for non-white victims

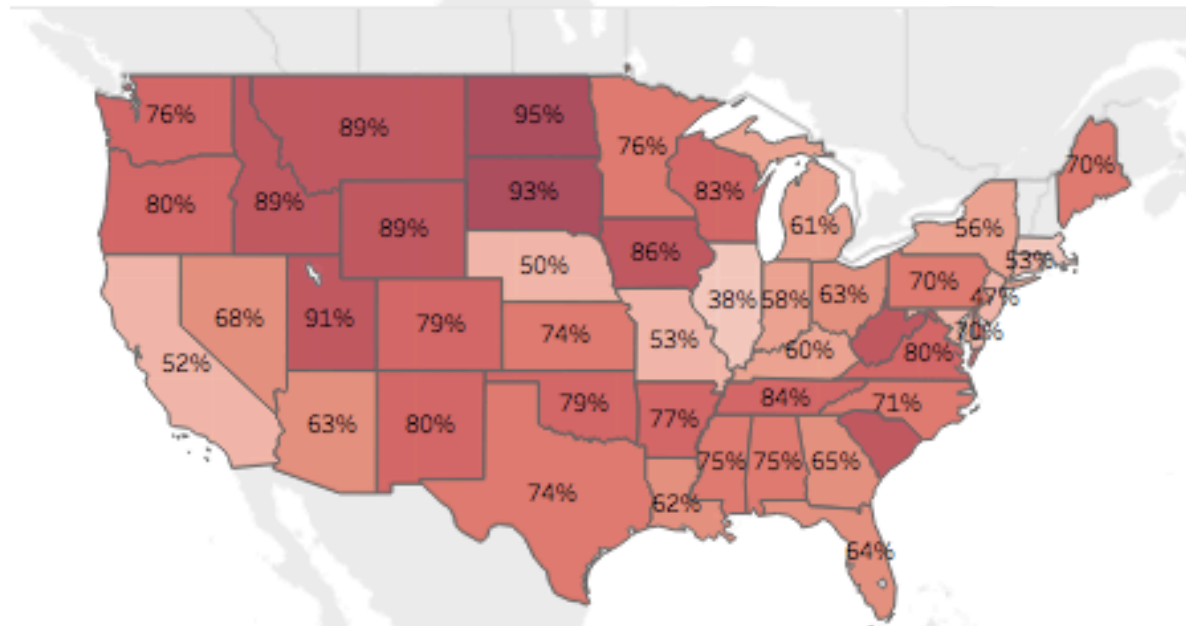
- Missouri, Massachusetts, and Maryland also have high inequality; homicides with white victims are over 25% more likely to be solved than those with non-white victims

- The states with the highest racial equality are South Dakota, New Mexico and Utah, where there is no racial distinction for solve rates

Solve Rate for White Victims

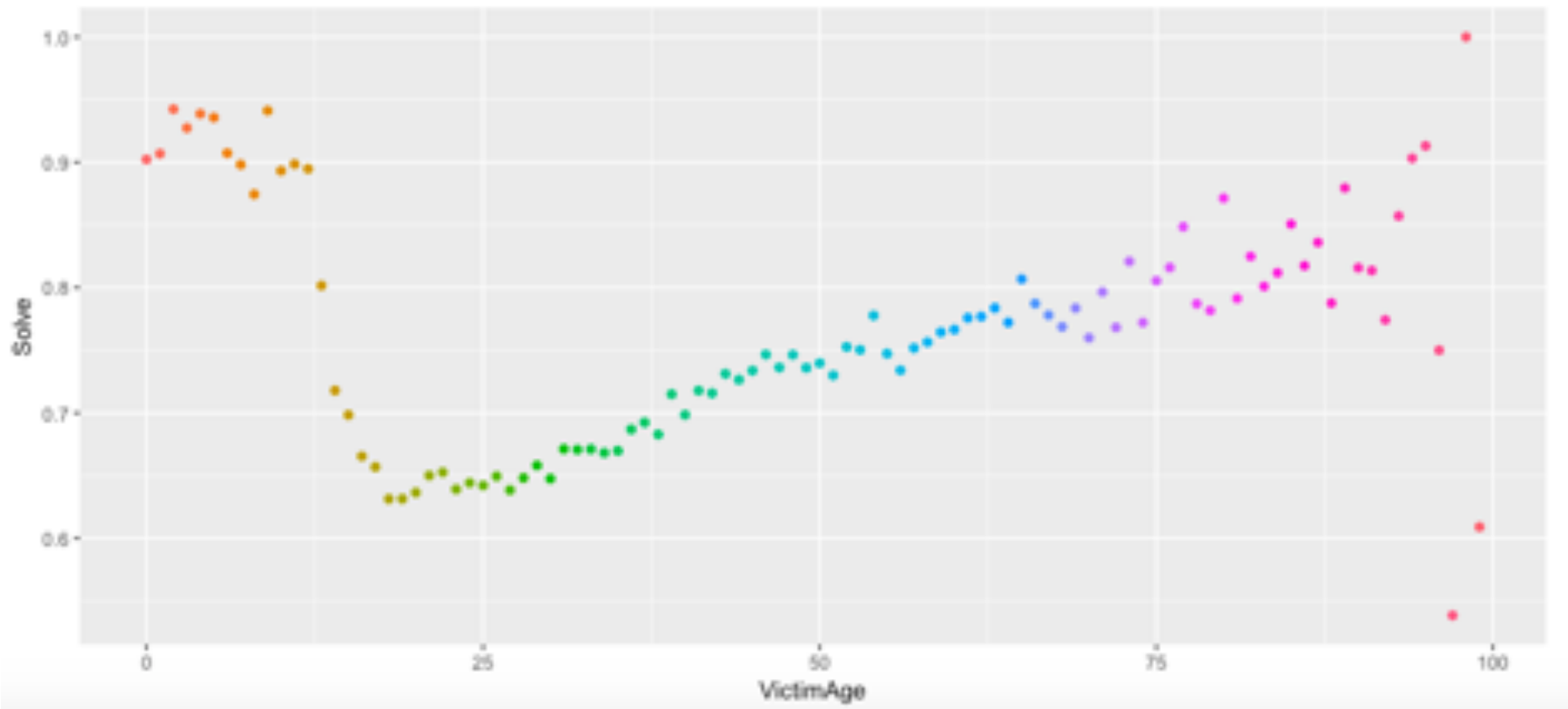


Solve Rate for Non- White Victims



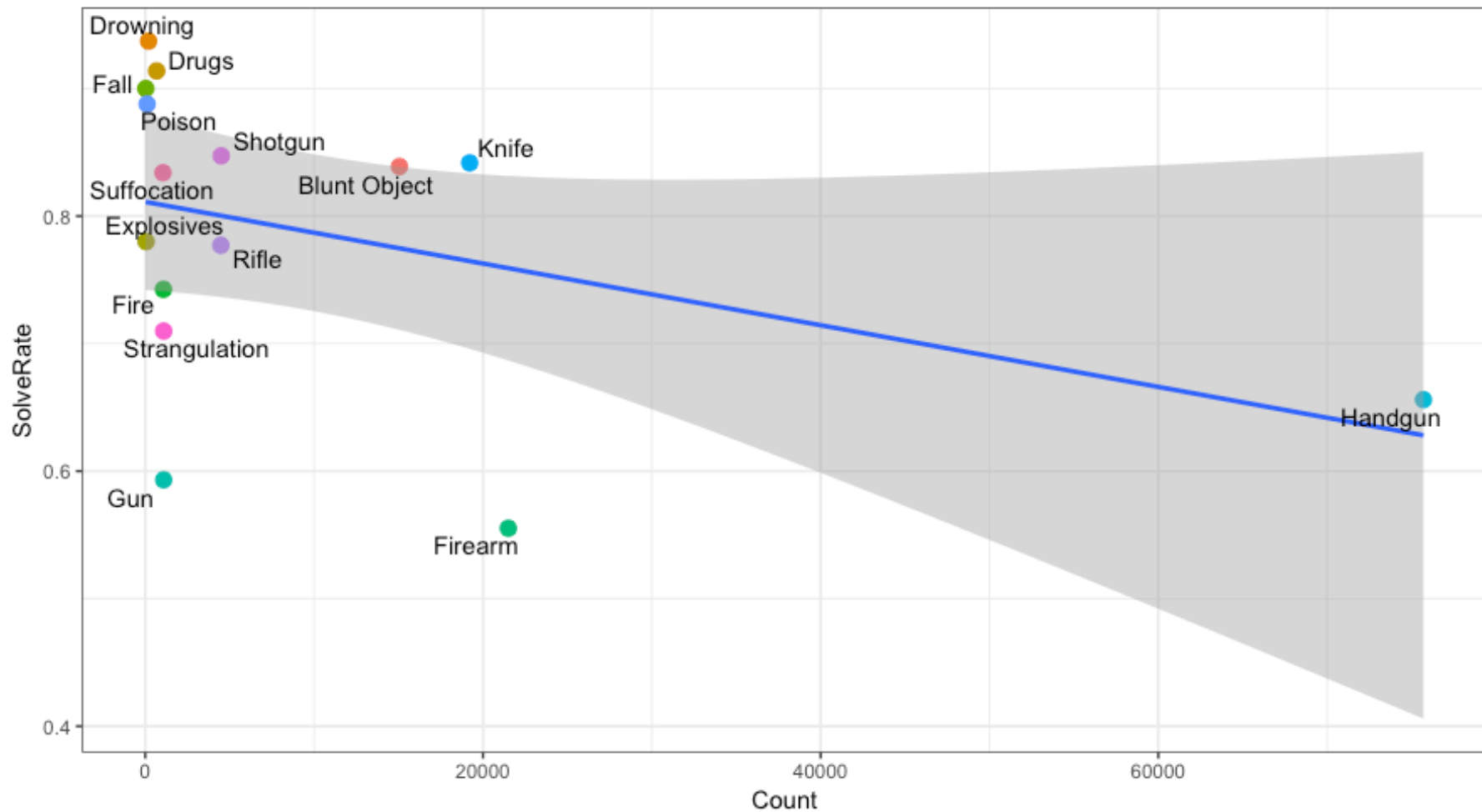
Victim Age

- 90% of homicides with victims under twelve years old are solved.
- After age twelve, the average solve rate rapidly decreases until the age of twenty, where it will continually increase as the victim ages.



Weapon

- Homicides by drowning, drugs, fall, and poison are over 90% likely to be solved.
- Handguns are the most common weapon, and only have a 66% average solve rate.



Summary

- Location (police agency or state) is the strongest single indicator of whether a homicide will be solved, followed by weapon, victim race, victim age, then victim sex
- When it comes to the strongest single-factor predictors with at least .002 support, there is a 90% chance a homicide will be solved if *any* of these criteria are met:
 - The state is Utah, Iowa or West Virginia
 - The weapon is drugs
 - The victim is under 10 years old
- Black men killed by handguns are at a disadvantage - especially in cities like Boston, Compton, and Buffalo, where homicides of black victims by handgun are only 20% likely to be solved

Recommendations

- Work to combat institutional racial bias in locations with the highest racial inequality, such as Boston and Omaha
 - Implement new training programs
 - Hire more minorities on police force?
 - Set racially-aware goals
- Investigate why teenage homicide solve rates are so low, and prioritize safety for teenagers.
- Compare tactics of successful police agencies (Houston, Philadelphia, Nashville, Sacramento) and less successful (Chicago, Boston, Buffalo, Pittsburgh, Gary, San Francisco) police agencies to look for distinctions and encourage best practices.