Sentencing Length

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Agenda

1. Problem Statement
2. Background
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Problem Statement

As a team of data scientists working with the United States Sentencing Commission, we will analyze the impact of variables relating to offender demographics, details of offense and trial proceedings on the sentencing outcomes of federal cases dating from 2018 to 2021.

Background

The U.S. Sentencing Commission tracks data regarding federal crime and sentencing for each year, details for each case include:

- Offense committed
- Defendant demographic
- Sentencing guidelines
- Location
- Sentencing outcome

Background (cont.)

Booker Report (2017 Update) Findings:

- Black males received longer sentences than white males under similar circumstances over all periods
- Black males were less likely than white males to receive sponsored departures below the sentencing guidelines
- Violence in criminal history does not account for this disparity
- Disparity between white males and males of other minorities differed over the reporting periods
- Females of all races received lower sentences than males

How is Sentencing Length Determined?

Sentencing guidelines take into account:

- Seriousness of the offense
    - Each type of crime is assigned a base offense level
    - Can also have specific offense characteristics that increase or decrease the base
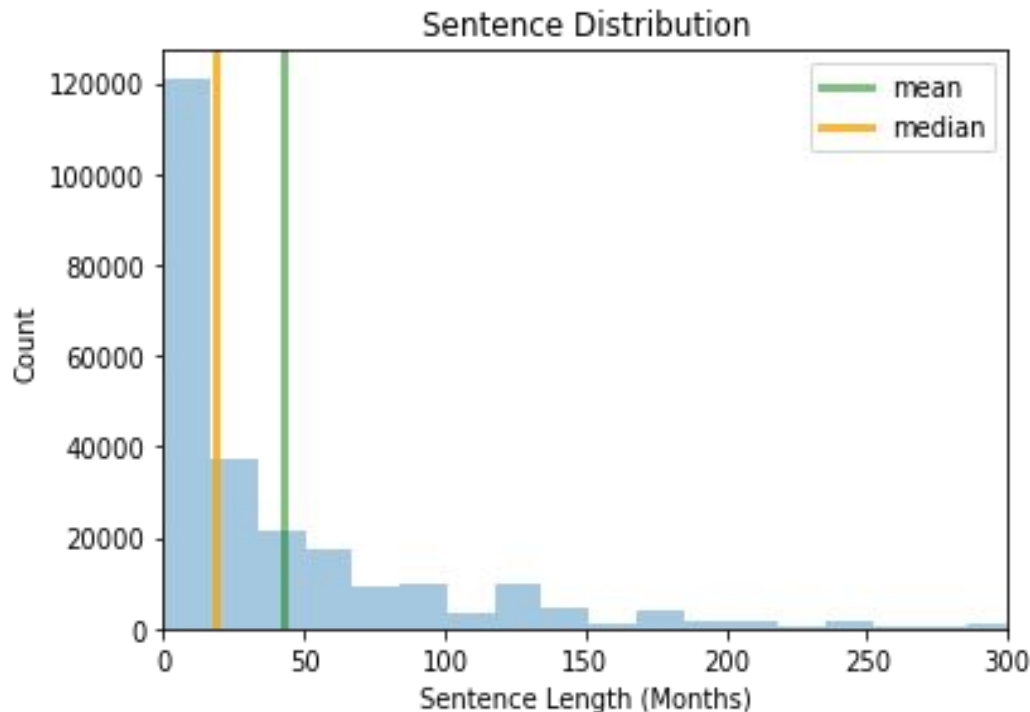- Offender's criminal history

Exploratory Analysis

Collected 4 years of data covering 2018 - 2021.

- 247,555 total cases

Incarceration outcomes:

- Average of 42.9 months
- Median of 18.0 months

Sentence Distribution

Federal Crimes per State

5 states with **most** crime

- New Mexico
- Arizona
- Texas
- South Dakota
- North Dakota

5 states with **least** crime

- Minnesota
- Massachusetts
- New Jersey
- Wisconsin
- Colorado

Minority Conviction Disparity

States with largest difference between % of overall minority population and % of minority convicted population

- Arizona
- Missouri
- South Dakota
- North Dakota
- Wisconsin

Prevalence/Average Sentence Length of Different Crimes

Most Prevalent

- Immigration-Offense: 90,772 cases
- Drug Trafficking: 66,321 cases
- Firearms: 29,144 cases
- Fraud/Theft/Embezzlement: 20,467 cases
- Robbery: 5,590 cases
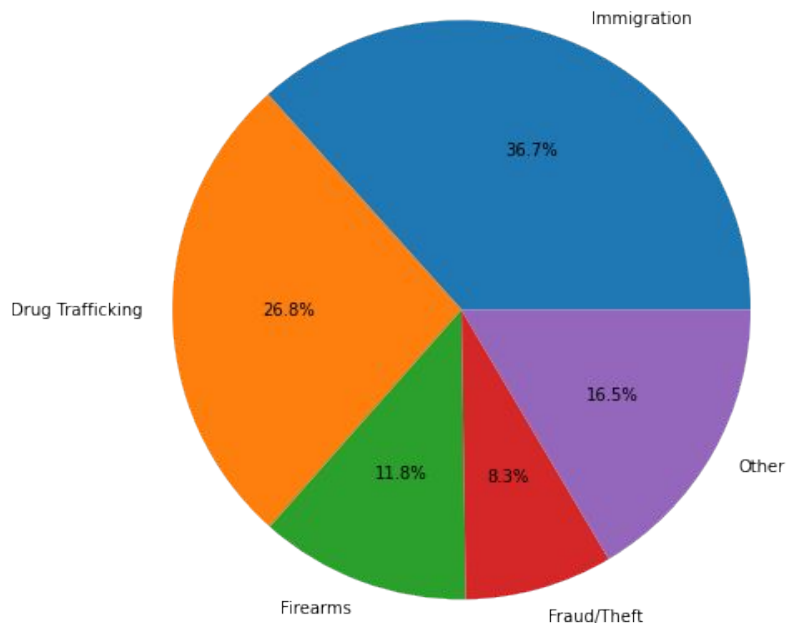
Longest Average Sentences

- Murder: 145.4 years
- Kidnapping: 54.8 years
- Sex Abuse: 31.8 years
- Robbery: 10.2 years
- Child Pornography: 9.7 years

Immigration Cases

Immigration offenses account for 36.7% of total federal convictions

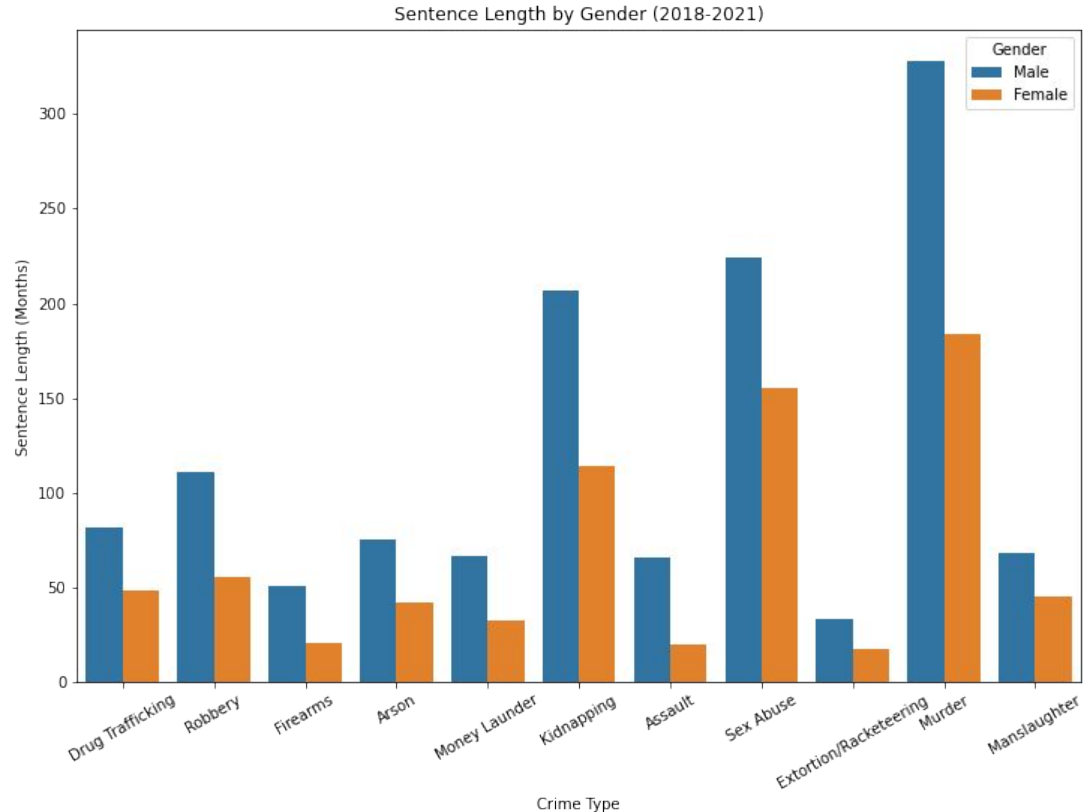Percent of total cases in border states:

- Texas: 68.9%
- Arizona: 69.7%
- New Mexico: 79.8%
- California: 37.6%

Sentencing Differences by Gender

Average Sentencing Length:

- Men - 45 months
- Women - 27 months

Sentence Length by Gender (2018-2021)

Deviation from Sentencing Guidelines

Highest deviation above guidelines, by race

1. Asian or Pacific Islander
2. White/Caucasian
3. American Indian/Alaskan Native
4. Black/African American

Regression Model

Developed regression model to predict sentence length.
- Demographics
- Offense, Prosecution Details
- Location

Lasso Linear Regression Model
- Low Regularization
- 51.42% R2

Findings
- Key Determinants
- Race
- Gender

Conclusions/ Recommendations

We anticipated large variance in sentence length based on race. Largest impact on length:
- Crime Type, Plea/Trial, Firearm
- Midwestern, Southern vs. Northeast, West Coast States

Recommendations for U.S. Sentencing Commission, DOJ
- Review of geographic variance
- Review of gender disparity
- Ensure adequate legal counsel
- Address recidivism

Further Research
- Adding presiding judge, acting prosecutor to dataset

Questions?

Data Dictionary

Column	Value	Description
crime_type	1	Administration of Justice
crime_type	2	Antitrust
crime_type	3	Arson
crime_type	4	Assault
crime_type	5	Bribery/Corruption
crime_type	6	Burglary/Trespass
crime_type	7	Child Pornography
crime_type	8	Commercialized Vice
crime_type	9	Drug Possession
crime_type	10	Drug Trafficking
crime_type	11	Environmental
crime_type	12	Extortion/Racketeering
crime_type	13	Firearms
crime_type	14	Food and Drug
crime_type	15	Forgery/Counter/Copyright

Column	Value	Description
crime_type	16	Fraud/Theft/Embezzlement
crime_type	17	Immigration
crime_type	18	Individual Rights
crime_type	19	Kidnapping
crime_type	20	Manslaughter
crime_type	21	Money Launder
crime_type	22	Murder
crime_type	23	National Defense
crime_type	24	Obscenity/Other Sex Offenses
crime_type	25	Prison Offenses
crime_type	26	Robbery
crime_type	27	Sex Abuse
crime_type	28	Stalking/Harassing
crime_type	29	Tax
crime_type	30	Other

Column	Value	Description
race	0	Hispanic
race	1	White/ Caucasian
race	2	Black/ African American
race	3	American Indian/ Alaskan Native
race	4	Asian or Pacific Islander
race	5	Multi- Racial
race	7	Other
race	8	Unknown
race	9	Non- US American Indians
race	10	American Indian Citizenship Unknown

Sources

https://www.ussc.gov/research/datafiles/commission-datafiles

https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2017/20171114_Demographics.pdf