

Visualizing Sentencing Disparity in Cocaine Trafficking Cases

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Data Background: Sentencing Trends & State Information

Federal sentencing trend: U.S. Sentencing Commission

State information: U.S. Census

Focus: Based on visualizations, which factors affect sentence lengths? With a focus on plea/trial status

Data Cleaning

Variable selection: Over hundreds of variables; odebook

Cleaning: missing values, subsetting population to only include incarceration

ETL Pipeline & Google Storage

Extracting

- Downloading data into local storage (tsv to csv, then reading into python)

Transforming (and merging data sets)

- Selecting only the relevant columns to keep runtime efficient
- Subsetting population and data cleaning
- Mapping for District/Circuit courts and categorical variables

Loading

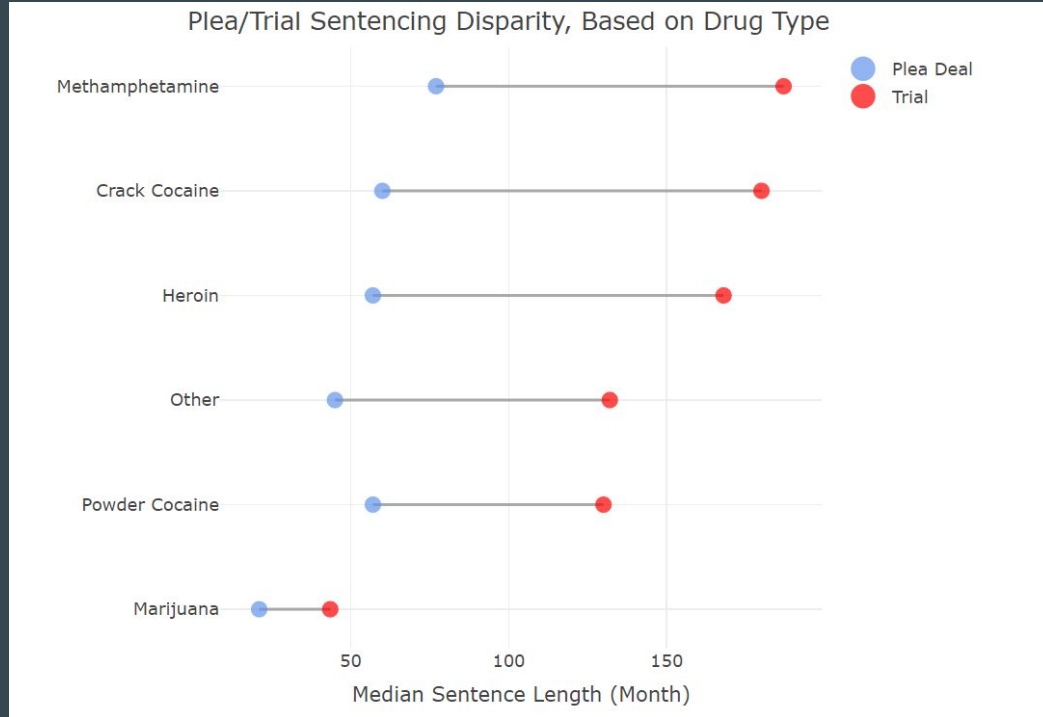
- Connecting data to MySQL

SENTENCING TABLE

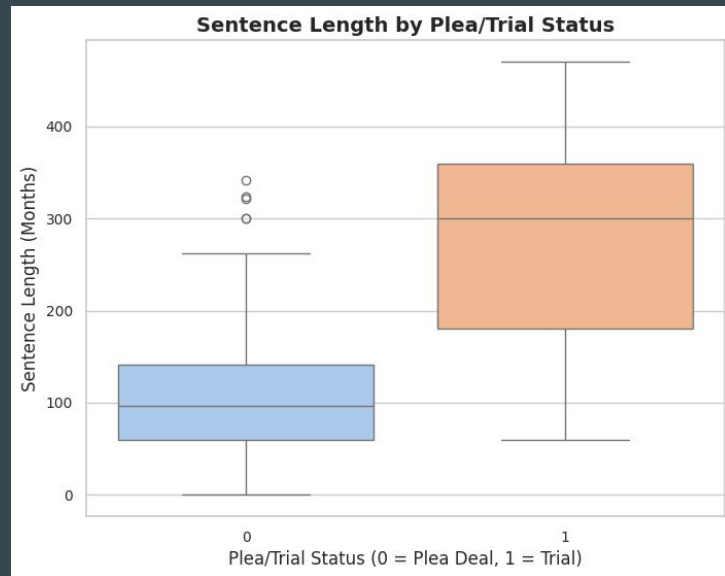
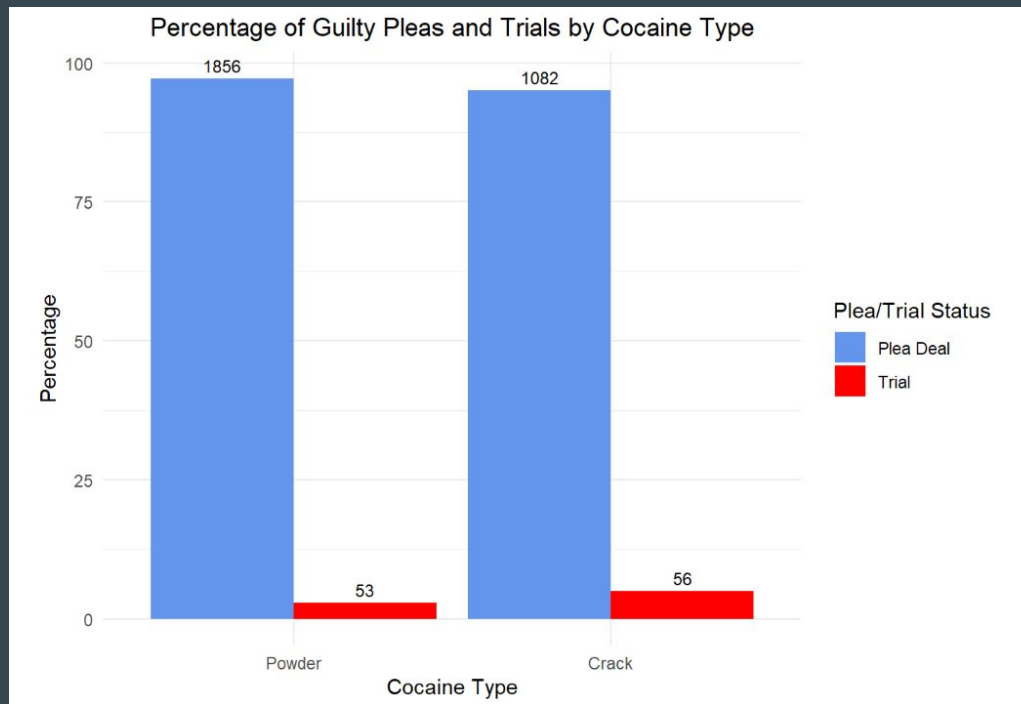
(in months of imprisonment)

	Offense Level	Criminal History Category (Criminal History Points)					
		I (0 or 1)	II (2 or 3)	III (4, 5, 6)	IV (7, 8, 9)	V (10, 11, 12)	VI (13 or more)
Zone A	1	0-6	0-6	0-6	0-6	0-6	0-6
	2	0-6	0-6	0-6	0-6	0-6	1-7
	3	0-6	0-6	0-6	0-6	2-8	3-9
	4	0-6	0-6	0-6	2-8	4-10	6-12
	5	0-6	0-6	1-7	4-10	6-12	9-15
	6	0-6	1-7	2-8	6-12	9-15	12-18
	7	0-6	2-8	4-10	8-14	12-18	15-21
	8	0-6	4-10	6-12	10-16	15-21	18-24
Zone B	9	4-10	6-12	8-14	12-18	18-24	21-27
	10	6-12	8-14	10-16	15-21	21-27	24-30
	11	8-14	10-16	12-18	18-24	24-30	27-33
Zone C	12	10-16	12-18	15-21	21-27	27-33	30-37
	13	12-18	15-21	18-24	24-30	30-37	33-41
	14	15-21	18-24	21-27	27-33	33-41	37-46
	15	18-24	21-27	24-30	30-37	37-46	41-51
	16	21-27	24-30	27-33	33-41	41-51	46-57
	17	24-30	27-33	30-37	37-46	46-57	51-63
	18	27-33	30-37	33-41	41-51	51-63	57-71
	19	30-37	33-41	37-46	46-57	57-71	63-78
	20	33-41	37-46	41-51	51-63	63-78	70-87

Visualizations: Plea/Trial Disparity



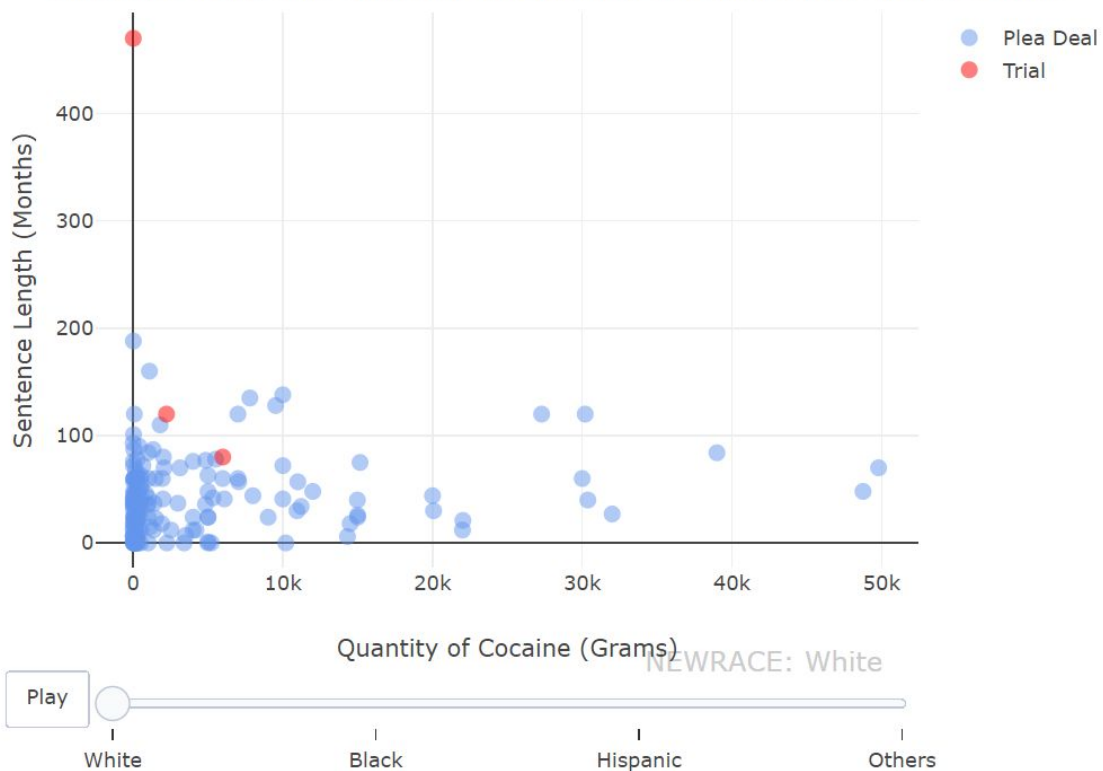
Plea/Trial Disparity (by Cocaine Type)



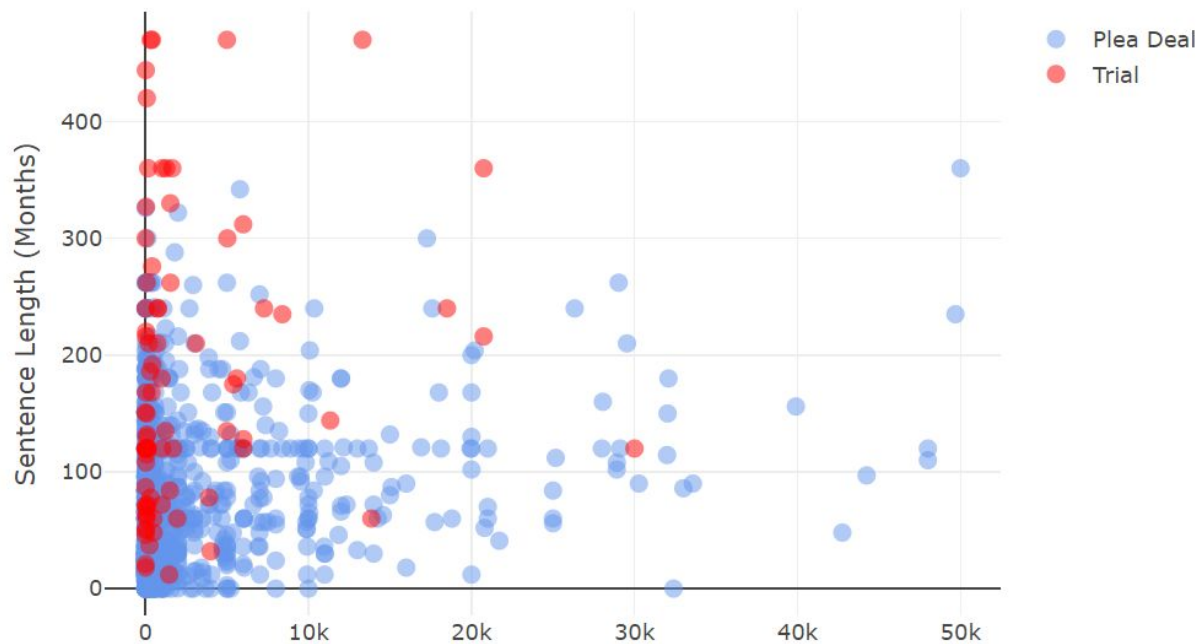
How much does
drug quantity
matter?



Sentence Length vs Quantity of Cocaine, Grouped by Plea/Trial Status



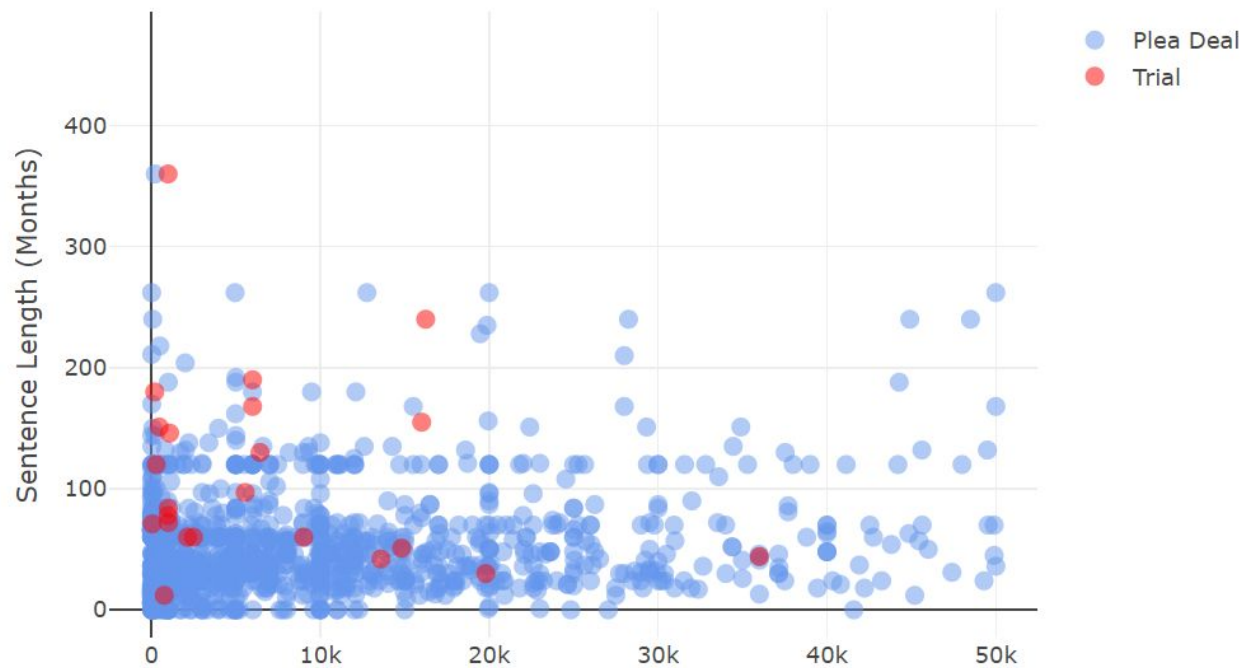
Sentence Length vs Quantity of Cocaine, Grouped by Plea/Trial Status



Quantity of Cocaine (Grams)



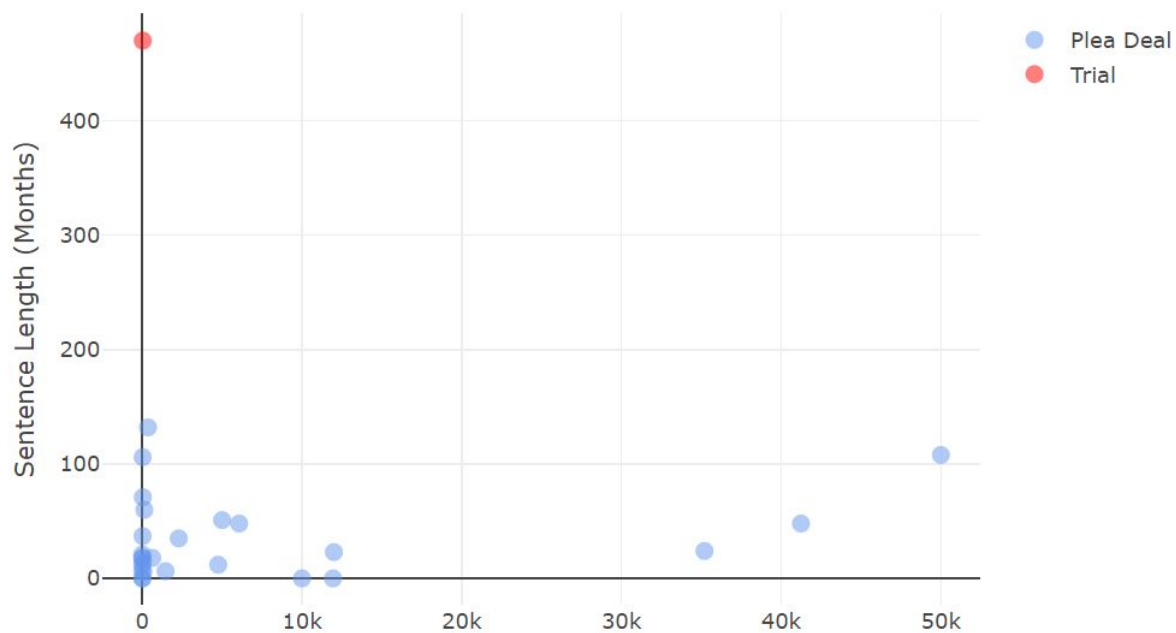
Sentence Length vs Quantity of Cocaine, Grouped by Plea/Trial Status



Quantity of Cocaine (Grams)



Sentence Length vs Quantity of Cocaine, Grouped by Plea/Trial Status



Quantity of Cocaine (Grams)

Play



Downward Departure: Plea Deals

Plea Deal Group: Reasons for Imposing Sentence Below the Range

Substantial Assistance
Count: 557

Early Disposition
Count: 126

Other
Count: 77

Government Sponsored
Count: 53

Downward Departure: Trials

Trial Group: Reasons for Imposing Sentence Below the Range

Substantial Assistance
Count: 1

Other
Count: 1

Takeaways