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Changes in the Black-White Sentencing Gap after *United*  
*States v. Booker*, 2008-17

A Thesis Presented in Partial Fulfillment of the Requirements

for the Master of Arts in Criminal Justice

John Jay College of Criminal Justice

City University of New York

Shuhao Zhang

May, 2021

Changes in the Black-White Sentencing Gap after *United States v. Booker*, 2008-17

Shuhao Zhang

This thesis has been presented to and accepted by the Criminal Justice Master's Program, John Jay College of Criminal Justice of the City University of New York in partial fulfillment of the requirements for the Master of Arts in Criminal Justice.

Thesis Committee:

Thesis Advisor: William C. Heffernan

Second Reader: Frank S. Pezzella

Program Director: Heath Grant

## **Abstract**

The Black-White sentencing gap, as defined by the differences between the average sentences received by Black defendants and those by White defendants, is an under-research area. In the federal court, after *United States v. Booker*, this gap has decreased from 25 months in 2008-2010 to 0 in 2016-2107. By using Oaxaca decomposition, I find that the differences in criminal history, offense levels, and pretrial detention status between Black and White defendants are the main source of the gap. The unexplained portion of the gap, resulting from judges finding Black defendants more culpable to their offenses and thus imposing harsher sentences, is relatively small, though significant. I further examine the changes in the gap with the Wellington extension and find that the decrease is largely driven by the changes in the Black and White defendants' offense levels and the rate of receiving charges carrying mandatory minimum sentences. Judges' treatment of Black defendants has changed very little over time.

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## I. Introduction

The Supreme Court ruling in *United States v. Booker* (2005) held that the provision in the federal sentencing statute that made the United States Federal Sentencing Guidelines (Guidelines) mandatory violated the Sixth Amendment right to a jury. Because of this ruling, the Guidelines became advisory, and federal judges have been granted more discretion in determining the defendants' sentences. In his dissent, Justice Stevens cautioned that sentencing in the post-*Booker* era would "return to the same type of sentencing disparities Congress sought to eliminate in 1984."

Justice Stevens's concern was later echoed by the United States Sentencing Commission (USSC) in its 2010 *Booker* report, in which the USSC found that Black-White disparities went up from 5.5% in the pre-*Booker* era to 23.3% in 2007-2009. This disparity has remained largely unchanged in subsequent *Booker* reports (United States Sentencing Commission, 2012; United States Sentencing Commission, 2017). The Black-White disparity has also attracted much academic interest. Some included additional variables from external sources in their analysis to estimate the disparity (see Yang (2015) and Schanzenbach (2015) for including judicial characteristics); some employed new analytic strategies (see Ulmer et al. (2011) for using Tobit regression and Nowacki (2015) for quantile regression); others used both (see Starr and Rehavi (2013) for including prosecution data and using regression discontinuity design and Kim et al. (2014) for including district-level socioeconomic factors and using hierarchical linear modeling).

While these estimates of the Black-White disparity differ from, and to some extent even contradict, each other, one thing they have in common is to assess the impact of *Booker*. That is, in their analyses of racial disparity in the post-*Booker* era, data from the pre-*Booker* era were also included. Though these scholarly works have played a crucial role in shaping our understanding of the impact of *Booker*, fifteen years after it was decided, I believe that, rather than examining how *Booker* has changed federal sentencing, it is important to see how sentencing has changed with it.

This paper departs from previous works in two ways. First, it only examines data from 2008 to 2017. Though *Booker* was decided in 2005, the Court further clarified its reasonableness standard of review in three cases in 2007 (see Section II for details). Second, the focus of the paper is on the Black-White sentencing gap. This is to be distinguished from "sentencing disparity." The Black-White sentencing gap is the difference between the average sentences of all Black defendants and all White defendants, whereas disparity implies the difference of sentences between similarly situated Black and White defendants, which is usually the coefficient of the race variable in regression analysis.

Why should anyone care about the gap rather than disparity? The answer goes back to how prison sentences are determined by the court. In the sentencing schemes prescribed by the Guidelines, judges determine the defendants' sentences based on their culpabilities in the convicted crimes or the deterrence effects to prevent future crimes. Though these are fundamentally two different approaches, as the Guidelines reasoned, in practice, they produce the same results in the defendants' sentences (United States Sentencing Commission, 2018). Since the Guidelines generally rely on the culpability

approach, not only as the criteria for judges sentencing within the range but also as justifications to depart for upward or downward departure, I shall reason under this approach as well. Therefore, if I take up the assumption that Black and White defendants' offendings haven't changed much since *Booker*, as I found in Section IV and the lack of empirical evidence to prove otherwise, it is reasonable to believe that their culpabilities in the convicted crimes haven't changed either. Sentences received by Black and White defendants, and the gap between them, then, should not change. Nonetheless, recent works have revealed that the overall Black-White sentencing gap has been decreasing since *Booker* (Hofer, 2019; King and Light, 2019). In 2009, it reached a peak of 34 months; since then, it has declined to less than 10 months in 2017. As I show in Section IV, for "severe offenses," this gap was virtually 0 in 2016 and 2017.

The changes in the gap thus raise serious questions on the main reasons behind it. Is federal sentencing veering towards less punitiveness in general? Perhaps, though, Hofer (2019) showed that average sentences of Black defendants had gone down while those of White defendants have gone up. The more likely answers, in my opinion, come from two sources: judges and prosecutors. It can be argued that judges have been adjusting the Black and White defendants' sentences to equalize them, with their newfound discretions from *Booker*, or by finding one group more or less culpable than the other. This perspective then raises a further question that whether this is an equality up or equality down approach. That is, are judges finding White defendants more culpable to their crimes and thus imposing harsher sentences insofar that their sentences are as high as Black defendants, or are they finding Black defendants less culpable and imposing more lenient sentences?



Prosecutors, on the other hand, could also contribute to this trend. As Starr and Rehavi (2013) found, prosecutors' charging decisions played a major role in driving up the Black-White sentencing disparity. Though data on prosecutors' charging decisions are not available, the rate of charging defendants with an offense carrying mandatory minimum sentences and the defendants' offense level could be a proxy (Fischman and Schanzenbach, 2012). In this paper, I intend to test each of the possible reasons stemming from judges and prosecutors and find out which one is the main drive behind the changes in the Black-White sentencing gap.

The rest of this paper is organized as follows: Section II briefly reviews the legal background behind the Guidelines and *Booker* and relevant research on sentencing disparity. Section III describes data and analytical strategy. I use the Oaxaca-Blinder-Kitagawa decomposition method to analyze the Black-White sentencing gap in 2008-2010 and its extension by Wellington (1993) to analyze changes in the trend in three periods: 2008-2010, 2012-2014, and 2016-2017. I present the results in Section IV and the conclusions in Section V.

## **II. Legal Background and Literature Review**

### **1) Legal Background**

The Sentencing Reform Act of 1984 (SRA) established the United States Sentencing Commission. The USSC's purposes were "to establish sentencing policies and practices for the federal courts" and "[avoid] unwarranted disparity among offenders with similar characteristics convicted of similar criminal conduct" (United States Sentencing Commission, n.d.). Pursuing this goal, the USSC developed the Federal Sentencing

Guidelines (Guidelines), which mandated the federal courts to sentence the defendants accordingly.

Under the Guidelines (United States Sentencing Commission, 2018), the USSC created the sentencing table, as shown in Table 1. After a defendant is convicted, a federal district court judge assigns each conviction to one of 43 offense levels. The criminal history category is determined by the frequency and severity of the defendant's prior criminal convictions, which are not limited to federal courts, and assigned on a scale of one to six. Together, the offense level and criminal history category yield a narrow sentencing range, where the lower bound is either six months or 25% lower than the upper bound. In determining the sentence length, the trial judge may only consider factors such as the defendant's age, education, and employment history. Other factors such as race, sex, nationality, creed, religion, and socioeconomic status are specifically prohibited (United States Sentencing Commission, 2018).

The trial judge may, under Chapter Two and Three of the Guidelines, adjust a defendant's offense level (United States Sentencing Commission, 2018). Part K in Chapter Five also listed circumstances under which the trial judge may depart from the Guidelines, most notably, providing "substantial assistance to authorities." If the case presents a situation that's not contemplated by the Guidelines, the trial judge may choose to depart from them. However, this departure is subject to review by the appellate court. The Guidelines were sufficiently mandatory, and judges rarely departed from them. In the early 1990s, less than 10% of the cases were judge-invoked departures from the Guidelines (Hofer, 1996).

The constitutionality of the mandatory sentencing guidelines was first challenged in *Blakely v. Washington* (2004), in the context of Washington state law. The Court held that the State of Washington's criminal sentencing law violated the Sixth Amendment right to a jury because it allowed trial judges to increase sentences based on facts other than those decided by the jury beyond a reasonable doubt. Washington's mandatory sentencing guidelines, as a result, were struck down. Subsequently, the reasoning of *Blakely* was applied to the Guidelines.

In *Booker* (2005), the Court held that the mandatory Guidelines were also unconstitutional under the Sixth Amendment. Instead of striking down the Guidelines, the Court held that the trial judges "must consult those Guidelines and take them into account when sentencing." Though the Guidelines became "effectively advisory," they still hold some degree of force in trial judges since the Court set the appellate review of sentences under a reasonableness standard.

The Court further weakened the Guidelines by reducing the degree of appellate review in subsequent cases (*Gall v. U.S.*, 2007; *Kimbrough v. U.S.*, 2007; *Rita v. U.S.*, 2007) (hereafter, RGK). In *Rita* (2007), the Court held that a sentence within the Guidelines range is presumed "reasonable" because the judge's decision is "fully consistent with the [USSC] 's judgment in general." In *Gall* (2007), the Court held that appellate courts "must review all sentences—whether inside, just outside, or significantly outside the Guidelines range—under a deferential abuse-of-discretion standard." In *Kimbrough* (2007), the Court went even further by holding that the trial judges could depart from the Guidelines if they disagree with USSC's policies, notably the disparate treatment of crack and powder cocaine offenses.

## 2) Literature Review

Since *Booker* was decided, many studies have attempted to explain the increase in racial disparities as indicated in the USSC's *Booker* report. Here, I summarize these studies by their analytical strategies, data, and conclusions.

In estimating the racial disparities in sentencing, most studies (Kim et al., 2016; Nowacki, 2013; Ulmer et al., 2011; United States Sentencing Commission, 2010; United States Sentencing Commission, 2012; United States Sentencing Commission, 2017) follow a "presumptive sentence" approach. That is, the estimates mainly rely on the USSC data and use the Guidelines-recommended sentences, as determined by the final offense level and criminal history category, and aggravating and mitigating facts as a proxy for the defendants' criminal conduct. Studies under this approach produce an estimate of racial disparity in the trial judges' "formal adherence" to the Guidelines (Rehavi and Starr, 2014). A variation of the "presumptive sentence" approach uses the base offense level rather than the final offense level to avoid the endogeneity issue (Cohen and Yang, 2019; Fishman and Schanzenbach, 2012; Schanzenbach, 2015; Yang, 2015).

Starr and Rehavi (2013) took a different approach by measuring the defendants' criminal conduct based on their arrest and charging records. This approach is based on the prosecutorial "hydraulic discretion" theory, which assumes that prosecutorial discretion and judicial discretion are counterbalancing forces against each other and that by limiting the power of one party, the power invariably shifts to the other. Amid lack of counterbalance under the SRA, the judicial discretion was largely constrained by the Guidelines. Though *Booker's* holding turned the Guidelines advisory and RGK granted

trial judges more deference in appellate reviews, Starr and Rehavi (2013) argued judges are still bounded by the Guidelines for that they are still required first to calculate the Guidelines range then decide whether to depart from it. Therefore, the unmatched power of prosecutorial discretion is still the main source of racial disparities.

Most studies solely rely on USSC data (Fishman and Schanzenbach, 2012; Nowacki, 2015; Schanzenbach, 2015; Ulmer et al., 2011). Other studies merged the USSC data with other public or restricted databases. Yang (2015) and Cohen and Yang (2019) merged the USSC data with information on the sentencing judges from the Transactional Records Access Clearinghouse and the Federal Judicial Center, while Kim et al. (2015) included data from the 2000 U.S. Census, Uniform Crime Reports, and the County Characteristics. Starr and Rehavi (2013) merged the USSC data with arrest records gathered from the U.S. Marshals' Service, the Executive Office of the U.S. Attorneys, the Administrative Office of the U.S Courts.

These studies generally find that the racial disparities increased after *Booker*, although to a smaller extent than USSC's *Booker* reports' findings. However, they disagree on what contributed to the increase. For example, both Fishchman and Schanzenbach (2012) and Yang (2015) find that Black defendants are disproportionately charged with mandatory minimums after *Booker*, which contributed to the increase in racial disparities. They reached different conclusions, however, on whether mandatory minimums are solely responsible for the increase. Yang (2015) also finds that racial disparities under judges who are appointed post-*Booker* are larger than racial disparities under pre-*Booker* judges. This finding is also contrary to Schanzenbach's (2015) finding that disparities among judges do not change after *Booker*.

The sentencing gap, on the other hand, has remained under-researched. This is understandable, however, since the Black-White sentencing gap had remained consistent and only started to shrink noticeably in 2013 (Hofer, 2019), and most of the abovementioned studies used data prior to that. The most recent one (Yang, 2019) used data up to 2015. Some studies noticed the shrinking gap (Hofer, 2019; King and Light, 2019); they nonetheless have not offered any explanation since the gap was not the focus.

So far, only one study has attempted to examine the reasons behind the shrinking sentencing gap (Light, 2021). It found that the changes in the rate of charging defendants offenses carrying mandatory minimum sentences were the main cause. Here, I contend that Light's (2021) study suffers several flaws. First, its exploratory data analysis, as often required to justify the usage of the Oaxaca decomposition method, failed to capture many aspects of the changes within the universe of Black and White defendants, as I show in Section III. Most importantly, its *key variables*, base offense level and criminal history, were only examined at mean and shown as similar between Black and White defendants. The distribution of these variables, in fact, has gone through tectonic changes.

Second, based on the flawed exploratory data analysis, Light chose the wrong extension of Oaxaca decomposition. The Smith-Welch extension only in part captures the time-wise over group effect (Kroger and Hartmann, 2021), whereas, in Section III, I show that a group-wise over time method is warranted. This extension suffers issues from its interpretation. The results come in 4 parts, 2 of which are interaction terms that are difficult to interpret.

Third, Light's (2021) study used data from all offenses. As I demonstrate in Section III, the analysis should be limited to certain offenses whose incarceration rates

are high and average prison sentences are long. Since Booker expanded judges' discretion to impose prison sentences, not forms of punishment, including certain offenses, such as gambling with a 25% incarceration rate and 11 months of average prison sentences, does not help assess the judges' determination of the defendants' sentences. Including these offenses further creates a potential problem. To reduce positive skewness in their distribution, prison sentences are often log-transformed, as Light (2021) has done. In this method, if a defendant does not receive a prison sentence, its log-transformed value is 0, the same as those who receive a one-month sentence. On the other hand, if a defendant receives a sentence of less than 1 month, as sometimes happens in less serious offenses, its log-transformed value is negative. To what extent does this approach affect the regression analysis is unknown.

Fourth, and most important, Light (2021) has failed to offer an adequate interpretation of the unexplained part of the Oaxaca decomposition's result. He interpreted the unexplained part as the result of the treatment effect, a standard interpretation based on labor economics. Light's failure to incorporate the philosophical reasoning behind the establishment of the Guidelines into the interpretation of the unexplained part of the result, in my opinion, is detrimental to his conclusion that the policy shifts at the Department of Justice are the main drive behind the declining Black-White sentencing gap.

### **III. Data and Methodology**

In this section, I first specify the data and relevant dependent and independent variables used in the analysis. By examining the forms of punishment broken down by

offense types and average sentences of each offense type, I argue that the analysis should narrow down to specific offense types, labeled as "severe offenses," for their high incarceration rates and long prison sentences. I then perform exploratory data analysis to examine the changes in the distribution and means of the variables between Black and White defendants in different time points. The results reveal the sentencing gap between Black and White defendants has been narrowing, especially in severe offenses. I also find that Black and White defendants have very different distributions and averages on many variables and that some of these variables went through seismic changes over the years. This leads me to conclude that Oaxaca-Blinder-Kitagawa decomposition is warranted to examine the gap and its extension developed by Wellington (1999) for the changes in the gap.

### **1) Data**

I use publicly available data from the USSC from fiscal year 2008 to 2017. The dependent variable is the prison sentence each defendant received. Independent variables include the defendants' pretrial detention status, plea agreement, citizenship status, number of dependents, offense type, whether the offense carries a mandatory minimum sentence, final offense level, final criminal history category, *Booker* departure from the Guidelines, and the defendants' demographics such as age, gender, and education attainment. Prison sentences are log-transformed for later analysis. Together, there are 755,115 observations.

I exclude the cases that result in life imprisonment because the sentences are coded as 470 months (the death penalty cases were excluded from the original data file by the USSC). I further limit the cases to specific offense types. These offense types are



defined as "severe offenses" for that the convicted have a high probability of receiving prison sentences, rather than probation or fine, and that the sentences are relatively long. As shown in Table 1, the "severe offenses" are kidnapping, murder, pornography/prostitution, robbery, sexual abuse, drug trafficking, manslaughter, arson, firearm offenses, racketeering/extortion, national defense, auto theft, assault, and money laundering. These offenses have at least 73.8% incarceration rate with at least 40 months of sentences. Some offenses, such as immigration offenses, prison offenses, burglary, and drug possession, though with high incarceration rates, only carry very short sentences.

Since in this paper, I am concerned with the Black-White sentencing, defendants of Hispanic origin, as identified in the MONRACE variable in the USSC data, are excluded from analysis. Observations with missing values are also excluded. There are 182,891 qualified observations.

*Table 1 Distribution of Punishment Types and Average Prison Sentences by Offense Level*

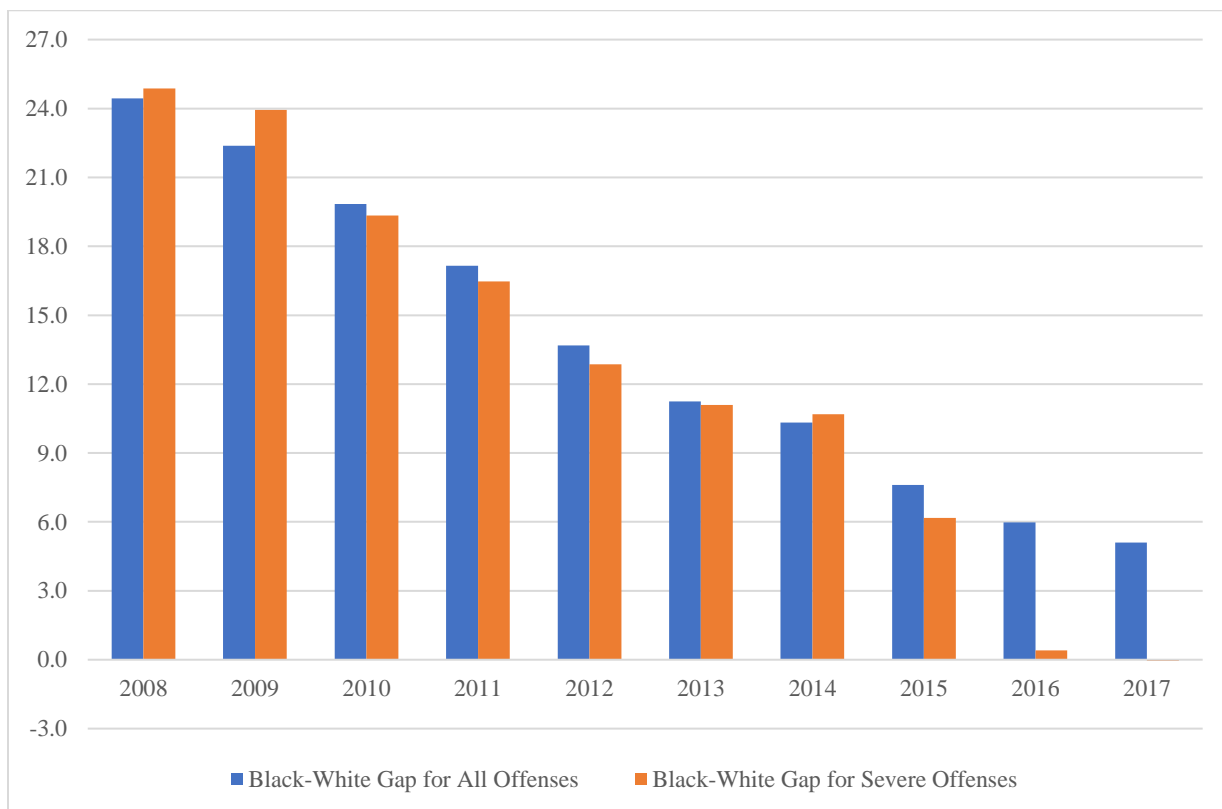
Offense Type	Punishment Type				Average Sentences (in Months)
	Prison Only	Prison & Confinement	Probation & Confinement	Fine Only	
Kidnapping	98.1%	1.3%	0.3%	0.3%	211.9
Murder	97.9%	1.8%	0.3%	0.0%	254.1
Pornography/Prostitution	96.3%	1.9%	1.8%	0.0%	128.6
Immigration Offenses	95.1%	1.0%	3.8%	0.0%	18.4
Robbery	94.6%	2.6%	2.6%	0.2%	83.5
Sexual Abuse	94.6%	3.1%	2.2%	0.0%	121.6
Drug Trafficking	93.5%	2.6%	3.8%	0.0%	77.3
Manslaughter	92.9%	4.3%	2.8%	0.0%	60.8
Arson	92.8%	2.7%	4.2%	0.3%	78.1
Firearm Offenses	92.0%	2.6%	5.3%	0.1%	85.3
Prison Offenses	90.8%	4.3%	4.9%	0.1%	15.6
Racketeering/Extortion	90.1%	2.8%	6.9%	0.1%	93.9
National Defense	84.8%	4.5%	10.2%	0.6%	60.4
Auto Theft	82.7%	4.3%	13.0%	0.1%	72.3
Assault	78.9%	5.3%	14.8%	0.9%	40.2

Burglary	77.4%	10.9%	11.7%	0.0%	22.3
Drug Possession	74.2%	0.4%	21.9%	3.5%	6.5
Money Laundering	73.8%	5.0%	21.1%	0.1%	41.8
Fraud	68.9%	6.5%	24.2%	0.4%	30.8
Forgery	66.5%	6.7%	26.6%	0.2%	21.4
Administration of Justice	65.6%	5.5%	27.8%	1.1%	25.1
Bribery	63.4%	8.1%	28.2%	0.3%	26.9
Civil Rights Offenses	60.2%	4.7%	34.2%	1.0%	49.7
Antitrust	59.7%	8.8%	29.0%	2.5%	17.5
Tax Offenses	50.7%	9.9%	38.9%	0.6%	21.7
Embezzlement	37.0%	10.7%	50.4%	1.9%	16.1
Larceny	36.0%	4.9%	52.8%	6.3%	19.0
Traffic	30.5%	3.0%	49.2%	17.3%	18.1
Gambling	25.6%	8.2%	65.8%	0.4%	11.0
Food and Drugs	25.5%	4.3%	63.4%	6.8%	22.3
Environmental	19.3%	4.2%	66.6%	9.9%	11.9

The selection of offense types can be further justified by the changes in the sentencing gap. As shown in Figure 1, the decreasing trend of the overall sentencing gap is consistent with severe offenses until 2016. The overall gap is around 5 months in 2016 and 2017, whereas, for severe offenses, the gap has decreased to almost 0.

Another trend Figure 1 revealed is that the decrease of the wage gap happens in stages: 2008-2010 as stage 1, 2012-2014 as stage 2, 2016-2017 as stage 3. I then group the years accordingly for easier interpretation of the results from Oaxaca-Wellington decomposition. Data from 2011 and 2015 are dropped from the analysis. The final observation count is 147,734, of which 70,649 is White and 77,085 Black.

Figure 1 Trend of Black-White Sentencing Gap from 2008 to 2017 (in Months)



## 2) Exploratory Data Analysis

Table 2 shows the changes of selected independent variables broken down by race across the stages. The defendants, on average, are getting older. However, Black defendants are younger than White defendants across the years. There has been a consistently higher percentage of Black, as opposed to White, female defendants. The percentage of Black female defendants has remained relatively stable over the years, whereas there has been a 2.7% jump in White female defendants from 2008-2010 to 2012-2014.

The percentage of non-citizen defendants in severe offenses has been decreasing over the years. For White defendants, it has decreased from 7% in 2008-2010 to 2.2% in 2016-2017, while for Black defendants, it has decreased from 3.2% to 2.9%. The

percentage of defendants convicted of charges that carry mandatory minimum sentences has also been decreasing. For White defendants, the decrease is relatively moderate, from 46.7% in 2008-2010 to 41.6 in 2016-2017. On the other hand, for Black defendants, it has decreased from 56.6% to 35.8%.

The pretrial detention rate for White defendants has been increasing, from 72.0% to 78.3%. For Blacks, it has remained around 83% over the years. Plea rate, for both White and Black defendants, has been increasing, though at slightly different rates. For White defendants, it increased from 96.3% to 97.1%, whereas for Blacks, 93.5% to 95.3%.

For *Booker*-related departures, in 2008-2010, the rate of upward *Booker* departures for Whites is 0.1% lower than Blacks. However, in 2016-2017, for Whites, the upward *Booker* departure rate increased to 2.1%, while for Blacks, it doubled to 3.1%. For downward departures, it was 19.0% for Whites in 2008-2010, 3% higher than Blacks. It increased to around 24% for both in 2016-2017.

Table 2 Selected Independent Variables across Time

	2008-2010	2012-2014	2016-2017
Average Age			
White	37.8	38.5	39.3
Black	32.5	33.9	34.0
# of Dependents			
White	1.1	1.1	1.0
Black	1.8	1.7	1.6
Female Defendants %			
White	12.0%	14.7%	14.6%
Black	5.2%	5.5%	5.3%
Non-Citizen Offenders %			
White	7.0%	4.0%	2.2%
Black	3.2%	3.0%	2.9%

Mandatory Minimum %			
White	46.7%	44.9%	41.6%
Black	56.6%	45.5%	35.8%
Pretrial Detention %			
White	72.0%	72.3%	78.3%
Black	83.1%	82.1%	84.2%
Plea %			
White	96.3%	96.6%	97.1%
Black	93.5%	94.6%	95.3%
Upward <i>Booker</i> Departure %			
White	1.4%	1.5%	2.1%
Black	1.5%	2.0%	3.1%
Downward <i>Booker</i> Departure %			
White	19.0%	24.1%	24.3%
Black	16.2%	19.7%	23.3%

Table 2 shows the changes in the defendants' educational attainment. For defendants of both races, there are significant changes over the years. For White defendants, the percentage of those who did not graduate high school has decreased from 27.5% to 18.6%. The percentage of White defendants with high school degrees or some college education has increased about 4% over time. The portion of White defendants with college and graduate degrees has remained steady, around 7% to 8%. For Black defendants, the percentage of those who did not graduate high school has decreased from 43.7% to 36.3%. Despite the decrease, it is still much higher than Whites'. The percentage of those with high school degrees increased moderately from 40.2% to 44.1%. Together, Black defendants with high school or less education make up about 83.9% of the total Black defendants in 2008-2010, and it decreased about 4% in 2016-2017. For Whites, the portion decreased from 70% to 66%. Similarly, the portion of Black defendants with college or graduate degrees has remained stable.

*Table 3 Defendants' Education Attainment across Time*

	2008-2010	2012-2014	2016-2017
Less than High School			
White	27.5%	21.4%	18.6%
Black	43.7%	37.0%	36.3%
High School			
White	43.8%	46.6%	47.4%
Black	40.2%	43.8%	44.1%
Some College			
White	21.5%	24.4%	26.3%
Black	14.6%	17.4%	18.0%
College & Graduate			
White	7.2%	7.6%	7.7%
Black	1.6%	1.8%	1.6%

The distribution of offense types between Black and White defendants differs, as shown in Figure 2. The top two offenses for both races are drug trafficking and firearm offenses, though Blacks' concentration on these two offenses is higher. For the rest of the offenses, there is a relatively higher percentage of Whites than Blacks. The exception is pornography and prostitution offense. For Whites, the percentage of this offense is around 15% to 18%, comparable to firearm offenses, while for Blacks, it is much lower, less than 1.5%.

The distribution of offense types for both races has changed relatively little over time, except for drug trafficking and firearm offenses. There has been a decline in the percentage of both Black and White drug trafficking defendants but an increase for firearm offenses. It is worth noting that for White defendants, the increase is moderate, from 19.6% to 20.5%, whereas for Blacks, it is significant, from 33.3% to 40.1%.

The distribution of final offense levels is shown in Figure 3. Black and White defendants started with Whites slightly skewing to the left from Blacks. That is, in 2008-

2010, White defendants were generally sentenced at slightly lower offense levels than Black defendants. For example, about 20% of White defendants were sentenced at offense level 17 or lower in 2008-2010, whereas for Black defendants, it was less than 17%. Their differences become smaller at higher offense levels. 15% of White defendants were sentenced at level 32 or higher, and 16% Blacks were.

The distribution underwent major changes over the years. In 2012-2014, Black and White defendants' distribution "switched." That is, 2012-2014 Black defendants' distribution has skewed to the left, similar to 2008-2010 White defendants', and 2012-2014 White defendants to the right, similar to 2008-2010 Black defendants'. In 2016-2017, Black defendants' distribution skewed further left and White defendants further right. For example, White defendants sentenced at offense level 17 or lower make up 16% of the total, a 4% decrease from 2008-2010, while Black defendants make up 24%, a 7% increase. This contrast becomes even larger at higher offense levels. 22% White defendants were sentenced at level 32 or higher, and only 11% Blacks were.

Figure 2 Distribution of Black and White Defendants' Offense Types

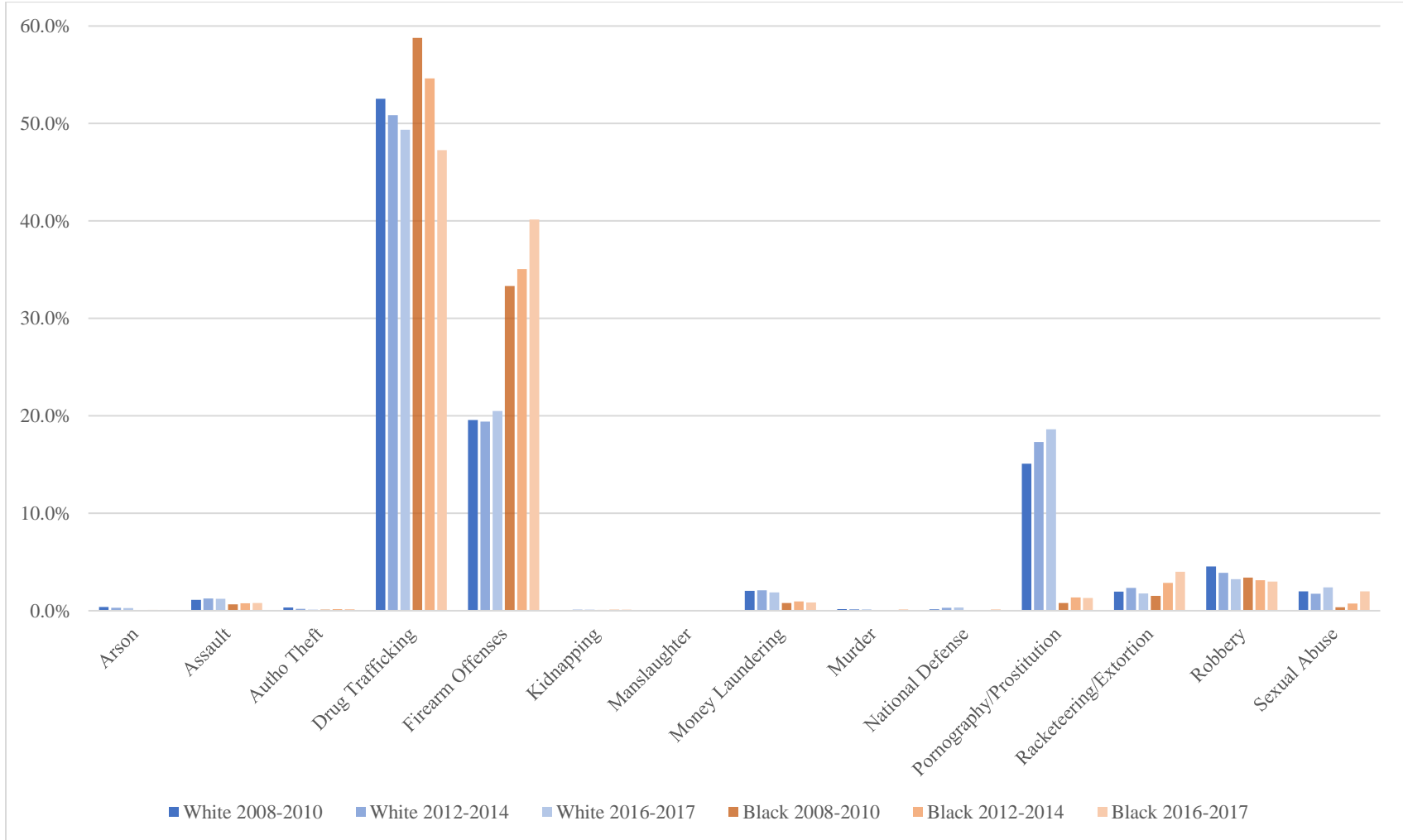


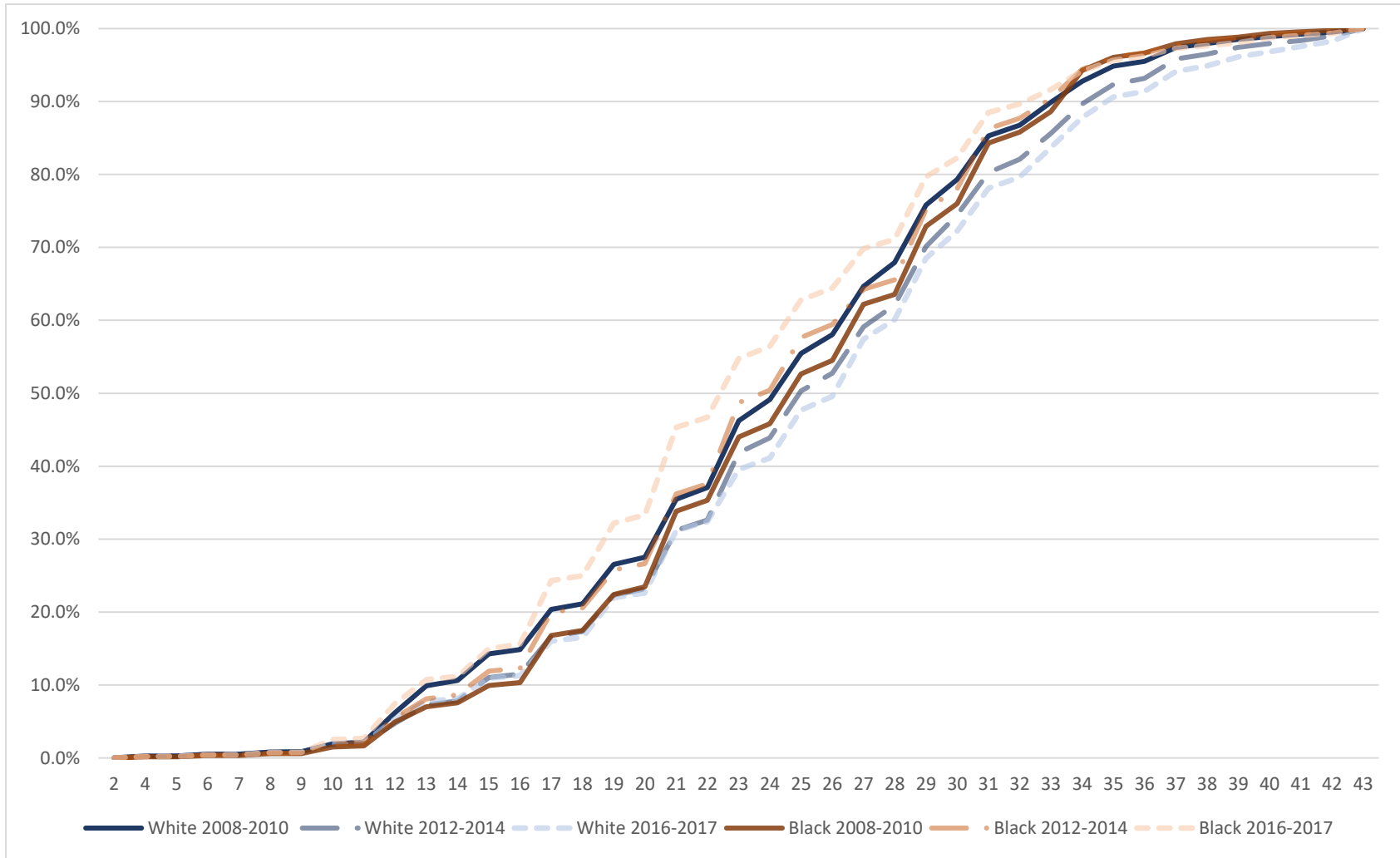


Figure 4 shows the distribution of the defendants' criminal history categories. The majority of White defendants have been sentenced at category 1 and 2, whereas black defendants at 4 to 6. For White defendants, the portion of defendants sentenced at category 1 has decreased from 48% in 2008-2010 to 37% in 2016-2017. The portion of White defendants sentenced at categories 4 to 6 has increased. For Black defendants, the distribution changed very little over the years. There has been a slight decrease in category 1, from 21% to 18%, and category 6, 26% to 24%.

In the exploratory data analysis, I observe fundamental differences between Black and White defendants in the mean and distribution of relevant independent variables. In variables that have been found to be increasing prison sentences, such as mandatory minimum, low education attainment, pretrial detention, upward *Booker* departure, and high offense level, Black defendants have higher rates than White defendants, whereas, in those that have been found to mitigate sentences, such as being female, accepting pleas, and having higher education attainments and lower criminal history category, White defendants usually have an advantage.

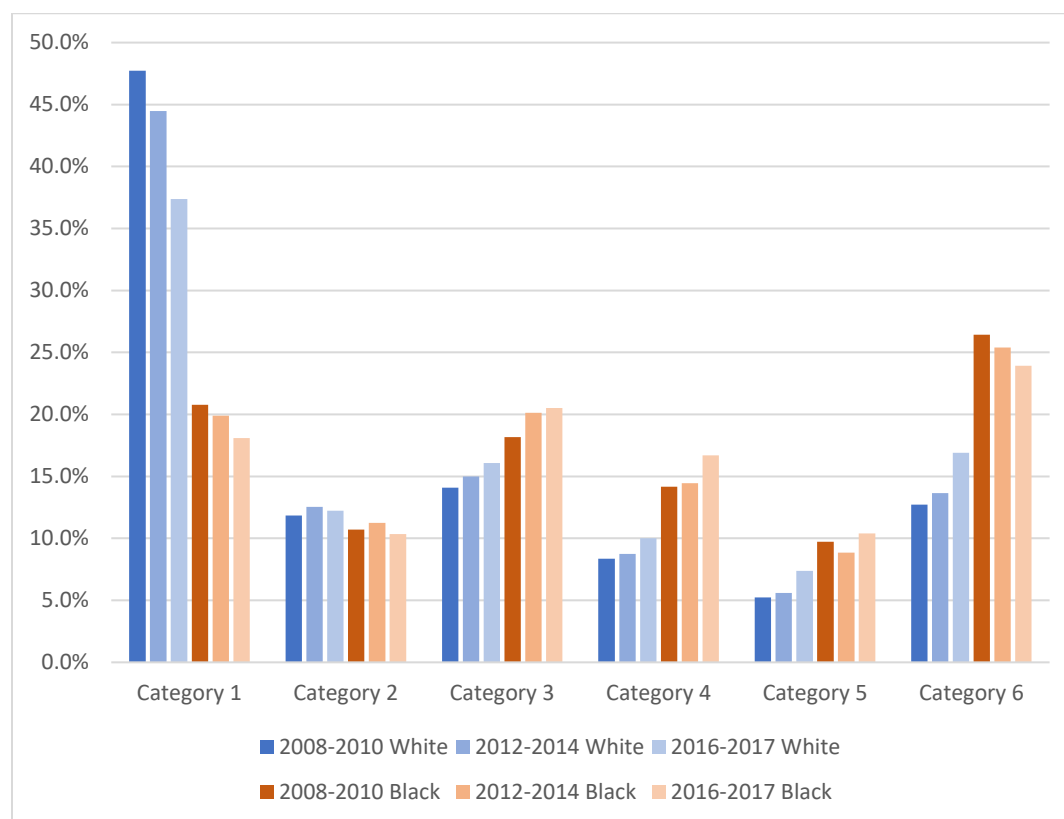
However, I also observe tectonic shifts over the years in some of the variables. The most noticeable one is the final offense level determined by the court. Black defendants are experiencing a leftward shift while White defendants rightward. Given that the final offense levels directly affect final sentences, this change could directly contribute to the dramatic decrease in the sentencing gap between Black and White defendants. The shifts seem perplexing at first because changes in other variables do not suggest them. However, if we adopt the assumption that there have been no major changes in the severity of Black offending, as indicated the lack of major changes in the distribution of offense types (the decrease in drug trafficking offense mostly shifted to firearm offense), the reasonable explanation is that either

Figure 3 Cumulative Distribution of Final Offense Levels



judge has been adjusting Black defendants' offense levels through discretion afforded by Chapter Two and Three of the Guidelines or that prosecutors have been charging Black offenders with less serious crimes. The latter explanation seems more likely since the percentage of Black defendants charged with crimes that carry mandatory minimum sentences has also decreased by a third.

Figure 4 Distribution of Defendants' Criminal History Categories



In other variables, I also observe shifts that could lead to less punitiveness. All defendants were becoming more educated, though not at the college level, entering more pleas and downward *Booker* departures and fewer charges that carry mandatory minimum sentences. This shift, however, was at different degrees between Black and White defendants. My inquiry is to determine how much the differences in the shift, among other factors, contributed to the general decreasing trend of the sentencing gap. The suitable methodology, I conclude, is the Oaxaca-

Blinder-Kitagawa decomposition (Blinder, 1973; Kitagawa, 1955; Oaxaca, 1973) (hereafter Oaxaca) and its extension by Wellington (1999)

### 3) Methodology

Oaxaca decomposition was originally developed by sociologist Evelyn Kitagawa to examine the differences in labor mobility in different cities. This method was then used separately by Oaxaca and Blinder in 1973 to examine wage differentials in the labor market. It has since become a popular tool to attribute the differences in wage between two groups to the differences in the groups' characteristics and an unexplained part. Further extensions of Oaxaca decomposition were developed to examine the changes in the wage gap (Kroger and Hartmann, 2021). Outside of economics, it has been applied to other topics such as happiness (Arrosa and Gandelman, 2016), obesity (Sen, 2014; Taber et al., 2016), and test scores (Munir and Winter-Ebmer, 2018). Here, I illustrate how this method can be applied to sentencing gaps.

In examining the sentencing gap between Black and White defendants, I denote the sentencing gap as  $\Delta S$  such that  $\Delta S = E(S^W) - E(S^B)$ , where  $E(S)$  is the average value of the sentences received by one group. Note that here,  $\Delta S$  would be negative since the average sentences of White defendants are lower than those of Black defendants. Though it is tempting to reverse the order to  $E(S^B) - E(S^W)$ , in the standard economics literature, the term being subtracted from usually indicates the group experiencing disadvantages in the relevant characteristics and the returns to them. Given the history of the American criminal justice system, the sentencing gap, under the Oaxaca decomposition method, can be only expressed as  $E(S^W) - E(S^B)$ , indicating that Black defendants experience "positive disadvantages" in federal sentencing.

Based on the linear model

$$S_l = X_l' \beta_l + \varepsilon_l, \quad E(\varepsilon_l) = 0 \quad l \in (B, W)$$

where  $X$  is the vector of the independent variables and  $\beta$  is the vector of corresponding coefficients. Since  $E(S_l) = E(X_l' \beta_l + \varepsilon_l) = E(X_l' \beta_l) + E(\varepsilon_l) = E(X_l)' \beta_l$ , we can rewrite the sentencing gap as:

$$\Delta S = E(X_W)' \beta_W - E(X_B)' \beta_B$$

This can be rearranged to identify the contribution of the differences of characteristics between the Black and White defendants in threefold as:

$$\Delta S = \{E(X_W) - E(X_B)\}' \beta_B + E(X_B)' (\beta_W - \beta_B) + \{E(X_W) - E(X_B)\}' (\beta_W - \beta_B)$$

where the first term,  $\{E(X_W) - E(X_B)\}' \beta_B$ , is the endowments effect, which measures how much of the sentencing gap can be attributed to the differences in the independent variables between Black and White defendants. That is, if Black defendants were to have the same characteristics as White defendants, this expression stands for how much shorter their sentences would be. The second term,  $E(X_B)' (\beta_W - \beta_B)$ , measures the extent to which the differences in the coefficients between the two groups contribute to the gap. That is, if Black defendants were treated the same way as White defendants, this term represents how much shorter their sentences would be. The third term,  $\{E(X_B) - E(X_W)\}' (\beta_B - \beta_W)$ , is an interaction term that captures the differences in both endowments and coefficients between the two groups.

Since the third interaction term in the threefold decomposition is difficult to interpret, an alternative is a twofold decomposition:

$$\Delta S = \{E(X_W) - E(X_B)\}' \beta_W + E(X_B)' (\beta_W - \beta_B)$$

The first term,  $\{E(X_W) - E(X_B)\}'\beta_W$ , is the explained part of the gap. That is, the amount of the gap that could be attributed to the differences in the variables between the Black and White defendants. As I observed in the exploratory data analysis, Black and White defendants have major differences in many variables. How much these differences contribute to the sentencing gap in a given time period could then be captured by the explained part of the decomposition.

The second term,  $E(X_B)'(\beta_W - \beta_B)$ , is the unexplained part of the gap, to which the differences in the coefficients between the groups contribute. In economic literature, because Oaxaca decomposition is usually applied to wage gaps between two groups, the unexplained portion of the gap is the result of differences in the returns on characteristics. That is, it examines whether the labor market on average rewards one group for certain characteristics, such as educational attainment or work experience, more than the other, and if so by how much. The results are then interpreted as the labor market discrimination experienced by the disadvantaged group.

In the sentencing scheme, since judges consider many factors relevant to the defendants' culpability to the convicted crimes in determining their sentences, it is important to interpret the unexplained part under this approach. In estimating the defendants' culpability, the coefficients produced from the regression analysis can then be analyzed as to how much these factors contribute to the judges' determination of the defendants' culpability. The unexplained part from the Oaxaca decomposition, calculated as the differences in the coefficients between Black and White defendants, is interpreted as whether judges, in general, find Black defendants more or less culpable to their crimes comparing to White defendants.

Since my inquiry also relates to the changes in the sentencing gap, an extension of the Oaxaca decomposition is then considered. Consider two time points ,  $t$  and  $s$  with  $t > s$ , in sentencing. The change in the sentencing gap between Black and White defendants and between two time points is then denoted as:

$$\Delta S_{t-s} = \Delta S_t - \Delta S_s$$

This change can then be rearranged as:

$$\begin{aligned} \Delta S_{t-s} &= (S_t^W - S_t^B) - (S_s^W - S_s^B) \\ &= S_t^W - S_t^B - S_s^W + S_s^B \\ &= (S_t^W - S_s^W) - (S_t^B - S_s^B) \\ &= \Delta S_{t-s}^W - \Delta S_{t-s}^B \end{aligned}$$

That is, this gap can also be expressed as the differences of group changes over time. There are many versions of extension to examine the changes in the gap. The most popular ones are the Simple Subtraction Method (SSM) (DeLeire, 2000), Smith and Welch (1989), Wellington (1993), Makepeace et al. (1999), and Kim (2010). Here, I choose the Wellington (1993) extension for two reasons: (1) comparing to other extensions, the results from the Wellington extension are easier to interpret, and (2) its group-wise overtime property fits more to our data (Kroger and Hartmann, 2021). It is derived as:

$$\Delta S_{t-s} = WL1 + WL2 \text{ where}$$

$$WL1 = [E(X_t^W) - E(X_s^W)]' \beta_t^W - [E(X_t^B) - E(X_s^B)]' \beta_t^B$$

$$WL2 = (\beta_t^W - \beta_s^W) E(X_s^W)' - (\beta_t^B - \beta_s^B) E(X_s^B)'$$

*WL1* offers a way to address the following question: if the coefficients of the independent variables for Black and White defendants were constant at  $t$  levels, what portion of the change in the sentencing gap can be accounted for by the changes in these variables between the two groups and between the two time points (Wellington, 1993). *WL2* answers the following question that if the independent variables were constant for Black and White defendants at  $s$  level, what portion of the change in the sentencing gap can be accounted for by the changes in the coefficients. The terms here mimic the twofold Oaxaca decomposition. *WL2* here is the unexplained part, which indicates whether the courts have become more or less positively discriminatory towards Black defendants.

Note that the terms here capture the changes within the universe of Black defendants between two time points subtracted from the changes within White defendants in the same time period (i.e., the group-wise over time property). As I observe that both Black and White defendants have experienced similar changes in the independent variables over time, but at different rates, this method is the most fitting.

The analytical strategy is structured as the following: I first run Oaxaca decomposition on the sentencing gap in 2008-2010. Then, Oaxaca-Wellington decomposition is performed on the changes in the sentencing gap between 2008-2010 and 2012-2014 and between 2008-2010 and 2016-2017. To calculate the results from Oaxaca-Wellington decomposition, I ran separate linear regressions for each group and each period. The results are attached in Appendix A



## IV. Results

Table 4 shows the results of the Oaxaca decomposition of the Black-White sentencing gap in 2008-2010. I observe that the average log sentences of White defendants are 0.4026 shorter than that of Black defendants. The decomposition reveals that of the 0.4026 differences, 0.3236, i.e., 80%, can be attributed to the differences in the characteristics between Black and White defendants. That is, if the White defendants had the same characteristics as the Black defendants, their average log sentences would have been 0.3236 longer. In a more detailed analysis, I observe that criminal history categories and final offense levels are the top two factors contributing to the differences. Together they contributed to 0.2384 of the 0.3236 endowment effects. The differences in pretrial detention rates between the Black and White defendants is the third important factor, up to 0.0504. In contrast, the unexplained part is relatively small, accounting for 0.0790 of the 0.4026 gaps, about 20%. However, it is significant. Although this approach does not capture the racial disparity, as in comparing sentence differences between similarly situated Black and White defendants with linear regression models, it reflects the sentencing deficits resulted from the positive discriminatory treatments Black defendants receive as a whole comparing to White defendants.

*Table 4 Results of Oaxaca Decomposition between Black and White Defendants in 2008-2010*

<b>Average Log Sentences for White Defendants</b>	<b>3.8284</b>
<b>Average Log Sentences for Black Defendants</b>	<b>4.2310</b>
$\Delta S$	<b>-0.4026</b>
<b>Unexplained</b>	<b>-0.0790</b>
<b>Explained</b>	<b>-0.3236</b>
Age	0.0696 **
Age squared	-0.0698 **
Non-Citizen	-0.0031 **
Female	-0.0116 **
Trial	-0.0067 **
# of Dependents	0.0039

Mandatory Minimum	-0.0222 **
Education Attainment	-0.0040
Detention	-0.0504 **
Upward <i>Booker</i>	-0.0010
Downward <i>Booker</i>	-0.0093 **
Offense Types	0.0191
Criminal History Categories	-0.1737
Offense Levels	-0.0647
<i>Offense Levels 4-20</i>	0.0260
<i>Offense Levels 21-43</i>	-0.0908

Results of the Oaxaca-Wellington decomposition of the changes in the sentencing gap are presented in Table 5. For expediency, the three time periods are denoted as  $T_1$ ,  $T_2$ , and  $T_3$ . As shown, the gap is -0.4026 in  $T_1$ , -0.2126 in  $T_2$ , and 0.0012 in  $T_3$ . The change in the gap is 0.1900 between  $T_1$  and  $T_2$ , 0.4038 between  $T_1$  and  $T_3$ , and 0.2114 between  $T_2$  and  $T_3$  (changes between  $T_2$  and  $T_3$  are here as reference rather than the focus of the analysis).

In the Oaxaca-Wellington decomposition analysis, it shows WL2 accounts for less than 0.002 of the changes in the gap. The results from WL2 reveals that judges' tendencies in finding Black defendants more culpable than White defendants in their sentencing decisions have changed very little. Combined with results from Table 4, it can be argued that Black defendants' average log sentences would have been approximately 0.08 lower over the years had the courts treated them the same as White defendants.

Table 5 Results of the Oaxaca-Wellington Decomposition

	2008-2010 ( $T_1$ )	2012-2014 ( $T_2$ )	2016-2017 ( $T_3$ )
<b>White</b>	3.8284	3.8881	4.0281
<b>Black</b>	4.2310	4.1007	4.0269
$\Delta S$	-0.4026	-0.2126	0.0012
	$T_2 - T_1$	$T_3 - T_1$	$T_3 - T_2$
$\Delta S_{t-s}$	0.1900	0.4038	0.2114

<b>WL2</b>	-0.0159	0.0020	0.0159
<b>WL1</b>	0.2060	0.4017	0.1977
Age	0.0039	0.021	0.008
Age Squared	0.0014	-0.013	-0.005
Non-Citizen	0.0022	0.003	0.001
Female	-0.0025	-0.003	-0.001
Trial	0.0018	0.002	0.001
# of Dependents	0.0004	0.000	0.000
Mandatory Minimum	0.0345	0.077	0.033
Education Attainment	-0.0015	-0.002	-0.001
Detention	0.0068	0.028	0.021
Upward <i>Booker</i>	-0.0012	-0.005	-0.004
Downward <i>Booker</i>	-0.0048	0.004	0.007
Criminal History	0.0189	0.0477	0.0311
Offense Types	-0.0061	-0.0153	-0.0101
Offense levels	0.1521	0.2576	0.1157
<i>Level 4-26</i>	-0.2803	-0.3791	-0.1577
<i>Level 27-43</i>	0.4325	0.6368	0.2734

WL1, on the other hand, accounts for almost all of the changes in the gaps. As I anticipated in preparing the exploratory data analysis, the changes in the offense levels account for most of the WL1. In  $T_2 - T_1$ , changes in the offense levels contribute 0.1521, out of 0.2060, to WL1. In  $T_3 - T_1$ , the changes contribute 0.2576, out of 0.4017. Details within the offense levels reveal that, compared to White defendants, more Black defendants are sentenced at levels 4-26 and far fewer at levels 27-43. Other major variables are the rate of defendants charged with mandatory minimum offenses, criminal history, and pretrial detention rate. Surprisingly, though I observed changes in the rate of female offenders, education attainment, and plea rate in both races over time, they contributed very little to the overall changes in the gap or the sentencing gap in  $T_1$ . *Booker* departures, downward or upward, did not make any meaningful contribution either.

## V. Conclusions

The sentencing gap between Black and White defendants has changed significantly since *Booker*. In severe offenses, it has become nonexistent. This major change, however, has gone unnoticed by scholars. In this paper, I examined the data from the USSC from 2008 to 2017 with exploratory data analysis and Oaxaca decomposition. I also utilized its Wellington extension to determine what factors drive the change.

In the exploratory analysis, I observe major differences in the distribution and, on average, of almost all the variables between Black and White defendants, especially in criminal history, pretrial detention rate, and mandatory minimum rate. I also observe significant changes in these variables over the years. The most noticeable change is the distribution of offense levels. Black defendants in 2016-2017 were sentenced at much lower offense levels by comparison with White defendants in 2008-2010. White defendants in 2016-2017 were sentenced at higher levels than they were in 2008-2010. As later decomposition analysis reveals, the change in offense levels accounts for most of the change in the sentencing gap.

Oaxaca decomposition analysis reveals that of the 0.4026 long sentencing gap, the endowment effect accounted for 0.3236 in 2008-2010. The differences in Black and White defendants' criminal history were the major component contributing to the endowment effect. However, changes in the criminal history contributed very little to the changes in the gap. Differences in other variables such as offense level and pretrial detention rate also contributed to the endowment effects. Another significant result in the Oaxaca decomposition is the unexplained part of the gap, which is about 0.0790. This is the result of the judges finding Black defendants, in general, more culpable to their offenses than White defendants.

Changes in the gap, as revealed by the Oaxaca-Wellington analysis, were mostly due to the changes in the characteristics of Black defendants. Changes in the Black defendants' offense levels and mandatory minimum charges were the main source of the changes in the sentencing gap. The unexplained part of the gap has changed very little over the years. Together, the results suggest that prosecutors' charging decisions on the Black defendants play the most important role in decreasing the Black-White sentencing gap. Judges' sentencing behaviors, on the other hand, have changed very little over the years. These are, of course, speculations since prosecutors charging decisions are not included, nor were the judges'.

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## Appendix

### A. Results of Linear Regressions for Black and White Defendants in Each Time Period

	White Defendants			Black Defendants		
	2008-2010	2012-2014	2016-2017	2008-2010	2012-2014	2016-2017
<b>Age</b>	0.013 **	0.019 **	0.010 **	0.002	0.008 **	-0.004
<b>Age squared</b>	0.000 **	0.000 **	0.000 **	0.000 *	0.000 **	0.000
<b>Non-Citizen</b>	-0.084 **	-0.080 **	-0.062	-0.066 **	-0.071 **	-0.059 *
<b>Female</b>	-0.172 **	-0.148 **	-0.132 **	-0.381 **	-0.427 **	-0.340 **
<b># of Dependents</b>	-0.005	-0.006	0.002	0.003	0.000	0.002
<b>Mandatory Minimum</b>	0.224 **	0.228 **	0.295 **	0.388 **	0.347 **	0.436 **
<b>Detention</b>	0.452 **	0.526 **	0.529 **	0.403 **	0.523 **	0.515 **
<b>Upward Booker</b>	0.766 **	0.803 **	0.782 **	0.610 **	0.660 **	0.677 **
<b>Downward Booker</b>	-0.326 **	-0.224 **	-0.203 **	-0.254 **	-0.185 **	-0.209 **
<b>Trial</b>	0.236 **	0.256 **	0.211 **	0.246 **	0.228 **	0.224 **
<b>Education Attainment</b>						
High School	0.008	-0.032 **	0.000	-0.011	-0.030 **	0.018
Some College	-0.040 **	-0.082 **	-0.053 **	-0.012	-0.036 **	-0.038 **
College	-0.023	-0.073 **	-0.045	-0.013	0.004	0.070
<b>Offense Type</b>						
Arson	0.105	0.218 **	0.020	-0.079	0.009	-0.015
Auto Theft	0.234 **	0.034	-0.271	0.272 **	-0.030	0.188
Drug Trafficking	-0.171 **	-0.184 **	-0.117 **	-0.119 **	-0.177 **	-0.113 **
Firearms	0.182 **	0.161 **	0.131 **	0.209 **	0.151 **	0.156 **
Kidnapping	0.253	0.139	-0.015	0.347 **	0.059	0.441 **
Manslaughter	0.460	0.360	0.082	0.376	0.538	0.523
Money Laundering	-0.163 **	-0.092 **	-0.048	0.043	-0.092 *	0.173 **

Murder	0.090	0.115	-0.137	-0.218	0.139	-0.214
National Defense	-0.269 **	-0.250 **	-0.422 **	-0.263	-0.540 **	-0.327 **
Pornography/Prostitution	0.203 **	0.152 **	0.116 **	0.049 *	0.059	0.067
Robbery	0.108 **	0.140 **	0.127 **	0.171 **	0.070 **	0.124 **
Sexual Abuse	0.283 **	0.334 **	0.198 **	-0.010	0.003	-0.003
<b>Offense Level</b>						
Level 4	-0.667 *	-0.472	1.248 **	1.550 **	3.514 **	0.345
Level 5	-0.234	0.550	1.182	0.000 **	2.849 **	-1.581 **
Level 6	0.020	0.345	1.225 **	1.148 *	3.456 **	0.180
Level 7	-1.316 **	-0.788	1.407 **	1.028	2.711 **	0.373
Level 8	-0.191	0.107	1.489 **	1.247 *	3.339 **	0.043
Level 9	0.414	0.731	1.209 *	0.048	3.628 **	0.496
Level 10	0.253	0.722	2.292 **	1.535 **	3.663 **	0.681
Level 11	0.041	0.404	1.738 **	1.495 **	3.334 **	0.701
Level 12	0.448	0.724	2.367 **	1.590 **	3.715 **	0.810
Level 13	0.633 *	0.821 *	2.526 **	1.842 **	3.929 **	0.978
Level 14	0.869 **	1.124 **	2.779 **	1.880 **	4.165 **	1.251 *
Level 15	1.051 **	1.155 **	2.698 **	2.014 **	4.223 **	1.264 *
Level 16	1.168 **	1.414 **	2.985 **	2.141 **	4.424 **	1.442 **
Level 17	1.214 **	1.480 **	2.908 **	2.161 **	4.373 **	1.385 **
Level 18	1.449 **	1.621 **	3.200 **	2.299 **	4.640 **	1.562 **
Level 19	1.457 **	1.602 **	3.176 **	2.400 **	4.597 **	1.641 **
Level 20	1.641 **	1.905 **	3.175 **	2.645 **	4.781 **	1.747 **
Level 21	1.659 **	1.861 **	3.337 **	2.617 **	4.745 **	1.846 **
Level 22	1.846 **	2.031 **	3.492 **	2.780 **	4.941 **	2.034 **
Level 23	1.921 **	2.110 **	3.496 **	2.781 **	4.965 **	1.953 **
Level 24	1.940 **	2.140 **	3.601 **	2.902 **	5.121 **	2.144 **
Level 25	2.089 **	2.281 **	3.660 **	2.913 **	5.094 **	2.129 **
Level 26	2.184 **	2.400 **	3.839 **	3.064 **	5.258 **	2.345 **
Level 27	2.271 **	2.470 **	3.865 **	3.133 **	5.269 **	2.311 **

Level 28	2.330 **	2.547 **	3.903 **	3.188 **	5.379 **	2.498 **
Level 29	2.443 **	2.633 **	4.038 **	3.288 **	5.423 **	2.476 **
Level 30	2.496 **	2.648 **	4.121 **	3.248 **	5.397 **	2.423 **
Level 31	2.583 **	2.725 **	4.148 **	3.320 **	5.484 **	2.473 **
Level 32	2.713 **	2.948 **	4.250 **	3.595 **	5.740 **	2.682 **
Level 33	2.692 **	2.925 **	4.323 **	3.465 **	5.676 **	2.690 **
Level 34	2.832 **	3.009 **	4.351 **	3.545 **	5.661 **	2.574 **
Level 35	2.904 **	3.096 **	4.505 **	3.630 **	5.812 **	2.871 **
Level 36	3.045 **	3.201 **	4.576 **	3.850 **	6.081 **	2.827 **
Level 37	3.084 **	3.237 **	4.665 **	3.769 **	5.911 **	2.974 **
Level 38	3.210 **	3.481 **	4.771 **	3.990 **	6.172 **	3.174 **
Level 39	3.283 **	3.476 **	4.808 **	3.978 **	6.172 **	2.985 **
Level 40	3.392 **	3.563 **	4.944 **	3.956 **	6.241 **	3.198 **
Level 41	3.531 **	3.624 **	4.852 **	3.988 **	6.182 **	3.206 **
Level 42	3.403 **	3.657 **	5.029 **	4.211 **	6.225 **	3.120 **
Level 43	3.593 **	3.738 **	5.136 **	4.155 **	6.327 **	3.343 **
<b>Criminal History Category</b>						
Category 2	0.269 **	0.282 **	0.146 **	0.248 **	0.242 **	0.192 **
Category 3	0.384 **	0.400 **	0.302 **	0.325 **	0.343 **	0.275 **
Category 4	0.539 **	0.553 **	0.460 **	0.475 **	0.478 **	0.417 **
Category 5	0.689 **	0.705 **	0.610 **	0.592 **	0.611 **	0.562 **
Category 6	0.719 **	0.719 **	0.647 **	0.647 **	0.658 **	0.591 **
<b>Intercept</b>	1.046 **	0.623	-0.647	0.452	-1.866 **	1.275 *
<b>N</b>	29,614	27,361	13,674	32,487	28,808	15,790
<b>R<sup>2</sup></b>	0.5627	0.5505	0.5921	0.581	0.5719	0.5943



