Neighborhoods, Criminal Incidents, Race, and Sentencing: Exploring the Racial and Social Context of Disparities in Incarceration Sentences

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As an extra-legal factor, social context is a key contributor to racial/ethnic disparities in incarceration sentences. Neighborhoods may have important, yet underexplored influences on sentencing. This study evaluates whether the social conditions and racial characteristics of communities where defendants allegedly offend affect Black-White sentencing disparities. Three-level multilevel model results suggest larger Black populations in neighborhoods of criminal incident increase the odds of incarceration and, to a lesser extent, lengthen sentences for all defendants. Offending outside one's residential community increases the probability and length of a prison sentence. Neighbourhood effects differ by race, however. Unlike Whites, Blacks receive more punitive sentences for committing offences in disadvantaged areas and less proportionally Black communities. Neighbourhoods thus contribute to racial differences in sentencing outcomes.

Key Words: sentencing, neighbourhood, disparities, context, race

Understanding why racial/ethnic disparities appear in sentencing and incarceration is a priority for scholars and policymakers. In Western countries, people of colour are overrepresented in prisons due to bias associated with minority status, including indigenous (Snowball and Weatherburn 2007; Jeffries and Bond 2012) and national background (see recently, Wermink *et al.* 2015; Brandon and O'Connell 2018; Factor and Gur-Arye 2020). Much of the literature on racial disparities in sentencing focuses on the United States (Weenink 2009), where Black defendants, on average, are more likely to receive incarceration sentences and for longer periods of sentenced time relative to White defendants (Spohn 2000; Mitchell 2005; Franklin 2017). These racial differences in sentencing decisions cannot be entirely attributed to differences in the legal circumstances of cases (Blumstein 1982; Baumer 2013). While the race itself appears to directly affect court decision-making, other extralegal factors contribute to sentencing differ-entials through their indirect associations with race (Zatz 1987; Ulmer 2012).

Social structure and local environment also impact sentence decision-making (Myers and Talarico 1987; Albonetti 1991; Savelsberg 1992). At the macro-level, conflict among groups

can influence sentencing (Liska 1992). Threat, especially along the lines of race/ethnicity (Feldmeyer *et al.* 2015; Wang and Mears 2015), class (Tittle and Curran 1988; Thomas *et al.* 2013), and the prevalence of crime (Cooney and Burt 2008), can produce variation in courts' enforcement of formal social controls. As a result, empirical studies have explored how environmental conditions across court communities (i.e. counties or court jurisdictions) affect incarceration sentencing (Ulmer 2012). At the micro-level, court officials' evaluations of guilt depend on causal stories that emphasize a defendant's personal responsibility or reactions to external stimuli (Heider 1958). Following attribution theory, social conditions in a defendant's environment can then contribute to within-court differences in adjudication and sentencing (Auerhahn 2007; Rodriguez 2007; Lowery and Burrow 2019).

Reflecting macro-level inequalities in society and informing micro-level determinations of criminal responsibility, neighbourhoods may play a key role in incarceration sentence decision-making. Court communities respond to social problems in neighbourhoods by adjusting how they handle cases from these areas (Sudnow 1965; Flemming *et al.* 1992). Prior research has demonstrated that concentrated disadvantage in places where defendants live has had different impacts on sentencing (Donnelly & Asiedu 2020): incarceration sentences became harsher to 'restore' social order in some communities (Wooldredge 2007) or more lenient because courts actors were accustomed to arrestees coming from certain areas (Rodriguez 2007; Auerhahn *et al.* 2017). Defendants frequently offend in different neighbourhoods than where they live, however (Ackerman and Rossmo 2015; Chamberlain and Boggess 2016). Few studies have considered the influence of environmental conditions in places of alleged crimes (Williams and Rosenfeld 2016) and distinctions between a defendant's residence and offence location (Owens *et al.* 2017).

This study explores the social and racial context of incarceration sentencing by examining the impacts of case, person, and neighbourhood characteristics on sentencing decisions. This study analyzes the final disposition of Black and White defendants judicially processed in the U.S. state of Delaware and relies on mapping tools to locate the area where a defendant allegedly offends (i.e. neighbourhood of criminal incident). It then uses attribution theory as a lens to evaluate the influence of neighbourhood context on incarceration sentencing. Because attribution theory only makes broad claims that environments matter in decision-making, this study then introduces racial/ethnic threat, symbolic threat, and prevalence theories as three macro-level perspectives to assess which neighbourhood conditions affect sentencing. Lastly, it compares the effects of neighbourhood conditions on sentence outcomes for Black and White defendants to illuminate potential racial differences in court responses to neighbourhoods. As a result, this study highlights the various ways that community contexts help to forge sentencing differences between racial groups.

THEORETICAL BACKGROUND

A consensus among scholars advances that racial differences in incarceration sentences cannot be completely explained by criminal history and legal factors (Spohn 2000; Ulmer 2012; Franklin 2017; Brandon and O'Connell 2018). It is widely theorized that courtroom actors do not solely rely on formal legal rationalizations when making their decisions (Myers and Talarico 1987; Savelsberg 1992). Attribution theory proposes people create explanations for events based upon individuals and their environments (Heider 1958). Internal attributions distinguish personal factors, such as one's history of criminal involvement or personality traits, while external factors identify aspects of one's social environment, as causes for an outcome (Lowery and Burrow 2019). Judges and prosecutors create narratives to help define a crime and the character of an alleged offender (Eisenstein *et al.* 1988). Internal attributions often drive decisions to

formally handle a case and sanction a defendant (Fontaine and Emily 1978; Rodriguez 2007; Lowery and Burrow 2019). Yet, external information about the case's environment can reduce uncertainty in decision-making and shape final dispositions (Albonetti 1991).

Neighbourhoods associated with a case can provide a basis for external attributions. As Sudnow (1965: 261) observed, 'Knowing where an offence takes place… is knowledge of the likely persons involved, the kind of scene in which the offence occurred, and the pattern of activity characteristic of such a place'. Court communities come to know about neighbourhoods through their routine processing of cases (Sudnow 1965; Eisenstein et al. 1988; Frohmann 1997). Most case records include information about an alleged criminal incident, including the address, scene, and police agency responding to the call (Williams and Rosenfeld 2016; Owens et al. 2017). At hearings, attorneys tell stories about how, where, and why a defendant committed an alleged crime (Frohmann 1997). Sometimes, court officials (e.g. probation officers) make explicit comments about a defendant's environment in case records to structure sentencing recommendations (Rodriguez 2013). Court actors resultantly form stereotypes of neighbourhoods (Eisenstein et al. 1988). Strong neighbourhood perceptions even appear among court actors who do not reside in the communities where cases come from (Auerhahn et al. 2017), as simply processing a large number of cases from these areas can set forth 'extra-neighbourhood processes' that change the outlooks of non-residents (Galster 2003: 899).

Under the umbrella of external attributions, neighbourhoods can influence criminal proceedings in different ways. Consider two potential roles of economic disadvantage in sentencing. Criminologically, economic deprivation increases deviance as opportunities for achieving culturally valued goals disappear (Bursik and Grasmick 1993). To prevent more serious forms of crime and 'restore' social order, court officials may overly rely on formal legal controls (Meares and Fagan 2008). Conversely, economic inequalities may lead to leniency. Because the justice system often ignores unfair structural arrangements in society, legal scholars assert economic disadvantage in one's community should be seen as an 'excusing condition' for alleged crimes (Hart 2008: 51).

Attribution theory, therefore, has two major limitations as a theoretical framework for evaluating the role of neighbourhoods in sentencing. While it suggests court officials take neighbourhood context into account, the perspective does not instruct which neighbourhood conditions will enter into decisions. As highlighted by the example of economic disadvantage, attribution theory also does not propose whether a neighbourhood condition will produce more punitive or lenient outcomes.

We propose that attribution theory can be supplemented with three macro-level perspectives: racial/ethnic threat, symbolic threat, and prevalence theories. Although normally tested at higher geographic levels (e.g. counties, states or federal court districts in the United States), these frameworks help to distinguish the conditions in neighbourhoods that may shape sentencing. In the following, we discuss each of these theories. Specifically, we identify the relevant contextual conditions offered by the theory, consider how these conditions disparately impact defendants from racial/ethnic minority groups and summarize previous studies of neighbourhood conditions and their effects on judicial processing (i.e. sentencing as well as other court decision-making stages).

Racial/ethnic threat theory

External attributions may first be related to the racial/ethnic composition of a community and conflict among racial/ethnic groups therein. Racial/ethnic threat theory suggests that Whites, as a historically powerful group, use formal social controls as mechanisms to monitor large or growing racial/ethnic minority populations that threaten existing power relations (Blalock 1967; Eitle et al. 2002; Dollar 2014). In turn, perceived threats from racial/ethnic minority

groups in a community may cause courts to more harshly sanction all defendants from that area. Racial/ethnic threat, however, may interact with the race/ethnicity of defendants (Caravelis *et al.* 2011). Although coming from the same context, defendants of colour can face even greater social controls than White defendants due to their minority group membership.

Sentencing studies have offered mixed results that large racial/ethnic minority populations prompt more severe incarceration sentence outcomes, especially for people of colour (Wang and Mears 2010, 2015; Feldmeyer and Ulmer 2011; Feldmeyer *et al.* 2015). For example, Wang and Mears (2015) found that increases in the proportion of a U.S. state's Black population led to longer incarceration sentences for defendants. Conversely, Feldmeyer and Ulmer (2011) determined that neither the percent Hispanic nor percent Black populations in U.S. federal district court jurisdictions changed the imposition of prison sentences. These same studies of racial/ethnic threat have sometimes found evidence that the racial/ethnic composition of an area disparately impacted defendants of colour, as estimated by cross-level interactions with race. For instance, incarceration was more probable for Black defendants processed in places with larger or growing Black populations (Feldmeyer *et al.* 2015; Wang and Mears 2015, but see Feldmeyer and Ulmer 2011 for null interaction effects).

Despite these empirical tests of racial/ethnic threat at high levels of geography, studies examining the role of neighbourhoods in judicial processing have infrequently considered the effects of a community's racial/ethnic composition (Donnelly and Asiedu 2020). Several multilevel studies (i.e. studies adjusting for individual- and neighbourhood-level characteristics) have incorporated the size of Black and/or Latino populations in neighbourhoods via a concentrated disadvantage index (Wooldredge and Thistlethwaite 2004; Wooldredge 2007; Auerhahn *et al.* 2017), therefore collapsing the economic, social and demographic effects of neighbourhoods on sentencing into a singular estimate. Two studies aggregating sanctions for drug offences in census tracts in U.S. cities revealed more prosecutions (Petersen *et al.* 2018) and incarceration sentences in areas with larger Black and Latino populations (Omori 2017). Sentencing studies have yet to determine whether a *neighbourhood's* racial/ethnic makeup alters the processing of individual defendants.

Symbolic threat theory

Alternatively, a neighbourhood's economic affluence or deprivation may enter into the judicial decision-making process. Symbolic threat theory proposes conflict emerges from perceived differences between the poor and middle to upper classes (Thomas *et al.* 2013; Lowery and Burrow 2019). Under this framework, crime is a behavioural and cultural response to a concentrated disadvantage that threatens middle-class values (Tittle and Curran 1988). As a middle-class institution, the courts protect the interests and safety of more privileged groups through the imposition of sentences as a form of social control (Liska 1992).

Symbolic threats may disproportionately impact the processing of defendants of colour. 'Underclass' behaviours—identified by Wilson (1987) as welfare receipt, single motherhood, joblessness and criminal involvement—underpin stereotypes of African American neighbourhoods, despite similar behaviours being exhibited within White American neighbourhoods (Alex-Assensoh 1995). This myth may thus prompt greater threats and, consequently, more punitive responses for cases involving lower-income, Black defendants relative to those involving similarly disadvantaged White defendants (Blumer 1971).

Almost all studies of neighbourhood effects in judicial processing have evaluated the role of economic disadvantage in decision-making (Wooldredge and Thistlethwaite 2004; Rodriguez 2007; Williams and Rosenfeld 2016; Auerhahn *et al.* 2017; Omori 2017). A landmark study of incarceration sentencing by Wooldredge (2007) found that felony defendants living in more socio-economically deprived census tracts faced greater odds of incarceration, but received

similar sentence lengths to those from more advantaged tracts. Here, neighbourhood characteristics were less influential in sentence length decision-making because these decisions required more rationale (e.g. offence details or legislative sentencing enhancements) for why a longer sentence was needed. No interactions appeared between race and socioeconomic disadvantage, meaning that economic deprivation in one's residence similarly impacted sentencing decisions involving Black and White defendants.

Moreover, the influences of economic disadvantage on sentencing may depend on whether a defendant offends in his/her home community (Wooldredge and Thistlethwaite 2004). For instance, looking at felony firearms offences, Williams and Rosenfeld (2016) determined that more economic affluence in a *census tract of criminal incident* increased bail amounts and prison sentencing. Their study concluded that 'neighbourhood economic status, and not merely community protection, is a key focal concern of legal actors' (Williams and Rosenfeld 2016: 396). Whether these estimated effects of economic disadvantage in places of criminal incident hold for an analytic sample of cases featuring more offence types and levels of severity is an empirical question.

Prevalence theory

Judicial actors may likewise respond to the prevalence of crime in a community as they process a case. Inspired by Durkheim's (1965) work on the normalcy of crime, prevalence theory posits that court actors hand down the harshest sanctions in low-crime areas. These new and unusual cases jolt the judicial system to hold offenders accountable and prevent similar incidents in these protected areas. Officials meanwhile become inured to issuing sanctions in places where crime is a common occurrence. Courts try to manage crime at a certain level there as deterrence has limited value (Cooney and Burt 2008).

Crime levels in a community might also interact with the race/ethnicity of the defendant. While more extreme than patterns of residential segregation in Europe (Andersson *et al.* 2018) or Australia (Markham and Biddle 2016), Whites, Blacks, Latinos, and other ethnoracial groups reside in distinct places in the United States (Intrator *et al.* 2016). Due to socioeconomic stratification, Blacks and Latinos are more likely than Whites to offend in high-crime neighbourhoods (Peterson and Krivo 2010). Offending outside of one's assumed community might be an uncommon event warranting additional scrutiny. For instance, Gaston (2018) recently showed that White drug arrest rates grew fastest in predominantly Black neighbourhoods, underscoring punitive responses for those being allegedly 'out of context'.

A few studies of neighbourhoods and judicial processing consider the effects of local crime rates on sentencing. In an aggregate study of neighbourhood sentencing outcomes, Omori (2017) showed that higher violent crime rates elevate the number, but not the length of prison, jail and probation sentences for defendants living in crime-prone areas. In a juvenile justice context, Rodriguez (2007) found that the prevalence of delinquency in a community changed detention decisions for Latino, but not Black or White, youth. Namely, Latinos living in high-crime neighbourhoods experienced lower odds of detention relative to Latinos in low-crime neighbourhoods. Multilevel studies have yet to assess the tenets of prevalence theory (i.e. more crime, less severe sanctions) in an adult sentencing setting.

PRESENT STUDY

This present study assesses how the social and racial characteristics of neighbourhoods where defendants offend affect incarceration sentencing and racial disparities in sentencing outcomes. It examines the criminal sentences of adults offending across the entire U.S. state of Delaware. Situated in the mid-Atlantic region between Philadelphia, Pennsylvania and Washington D.C.,

Delaware is the country's second-smallest state with a population of less than a million residents (U.S. Census Bureau 2019). The state features a mid-sized city (Wilmington) in the north and a small capital city (Dover) in its centre. The southern part of the state is largely rural and contains several beach communities. The state then features a broad range of neighbourhoods.

Delaware has three counties (i.e. New Castle, Kent and Sussex), but its criminal justice operations are largely unified across the state. It has a single prosecutor's office (Delaware Attorney General 2020) and a single public defender's office (Delaware Office of Defense Services 2020). About twenty judges oversee trials for more serious offences in three superior courts (Delaware Courts 2020). There is a single prison system, meaning there are no county jails and the state runs all correctional facilities (State of Delaware 2017).

The state also has longstanding problems of minority overrepresentation in its criminal justice system (Eichler 2000; Delaware Statistical Analysis Center 2011; Boyer and Ratledge 2013). A report published by the Access to Justice Commission estimated that Blacks represented about 21 percent of Delaware's general population, but contributed to 42 percent of its arrests, 51 percent of convictions, and 51 percent of incarceration sentences (MacDonald and Donnelly 2016). Previous studies indicated that sentencing disparities could be attributed to factors other than race, including pretrial detention and criminal history (MacDonald and Donnelly 2019). Studies have yet to incorporate neighbourhood context into empirical assessments of the state's sentencing practices.

The contributions of this study are four-fold. First, it analyzes the roles of neighbourhoods (defined as census tracts) in incarceration sentence decision-making for defendants facing felony and misdemeanour offences. Previous works on neighbourhood context have looked at highly specific types of cases (e.g. see Wooldredge 2007 for felony cases; Wooldredge and Thistlethwaite 2004 for misdemeanour assault cases; Auerhahn *et al.* 2017 for felony homicide cases). Second, it evaluates changes in criminal sentencing in response to neighbourhoods of criminal incident. Most studies focus on neighbourhoods of residence (Rodriguez 2007; Wooldredge 2007; Auerhahn *et al.* 2017). Third, this study makes use of information related to the defendant's residence to determine whether the defendant offends in the same area. In a report, Owens and colleagues (2017) found that 86 percent of indigent defendants in San Francisco, CA *did not* offend in the same census tracts as their homes. We expand our study to urban and non-urban neighbourhoods and approximate whether a defendant should be seen as an 'insider' or 'outsider' to the neighbourhood of criminal incident. Finally, this study takes into account the social and racial dimensions of neighbourhoods, as attributions of guilt may depend on the racial/ethnic composition, economic resources and crime level of communities. In all, this study then assesses how neighbourhood conditions as extralegal considerations affect incarceration sentencing and inequalities in sentencing outcomes.

The study tests five main hypotheses related to attribution theory and the three macro-level frameworks. The first hypothesis broadly evaluates the role of neighbourhoods in sentencing.

H_1: Neighborhoods introduce variation in the probability and length of an incarceration sentence beyond a defendant's case circumstances and individual characteristics.

The next three hypotheses evaluate the core tenets of racial/ethnic threat, symbolic threat and prevalence theories.

H_2: The likelihood of receiving an incarceration sentence and the length of the sentence will increase for defendants offending in areas with larger Black and Hispanic populations.

H_3: Incarceration sentences will become more punitive (i.e. more probable and longer) when defendants commit crimes in areas of concentrated disadvantage.

H$_4$: Incarceration sentences will become more severe (i.e. more probable and longer) in areas of low-crime.

A final hypothesis seeks to evaluate the interactive effects of race and neighbourhood context. Namely, neighbourhood conditions may have different impacts on the sentencing of White defendants relative to Black defendants.

H$_5$: The effects of a neighbourhood's racial/ethnic composition, economic disadvantage, and prevalence of crime on the likelihood and length of an incarceration sentence will vary by the race of the defendant.

DATA

The study's sample derives from criminal processing records from Delaware's criminal justice information system. It includes cases with misdemeanour and felony charges among adults (i.e. persons aged 18 and over) processed between 2014 and 2016. State records begin at the arrest stage and follow individuals until their final dispositions. The sample features 76,968 cases involving 40,586 persons. Some people are then processed multiple times during this period of analysis. The sample also includes information about defendants' criminal histories based on previous contacts with Delaware's justice system.

These records also document the geolocation information for criminal incidents. Before analysis, the records' original fields of latitude and longitude of the most serious criminal offence per case were transformed into spatial data points and placed onto a spatial polygon layer of census tracts. This process yielded the census tract area where offences occurred. The study refers to this location as the *neighbourhood of criminal incident*.If a defendant had multiple cases in multiple census tracts, we identified the census tract where offences most frequently occurred and dropped all cases involving other census tracts. This approach effectively eliminates issues of travel among persons (see Johnson 2006 on addressing travelling in three-level models). Offences occurred in all of the state's census tracts (n = 214).

Outcomes

Sentencing is operationalized as a set of two outcomes: the *in/out* decision and the *sentence length* decision. This study measures the in/out decision as a dichotomous variable, denoting whether a defendant was sentenced to incarceration for any time (=1) or given a community-based sanction of home confinement or probation (=0). It measures sentence length as the log of the number of months sentenced to prison. To avoid issues of selection bias, the study retains defendants from the in/out sample in the sentence length sample by assigning non-incarcerated defendants an incarceration sentence of '0' logged months. The study excludes life sentences from the analysis. Due to Delaware's unified correctional system (State of Delaware 2017), there are no substantive distinctions between an incarceration sentence of less than one year and a sentence of one year or more.

Case-level variables

The study measures the legal conditions of a case based on the number, severity and types of charges in a case. *Number of charges* gives a count of the number of charges a defendant faces in the present case. *Charge severity* reports the most serious charge in a case based on the 10 most-to-least serious felony and misdemeanour categories of Delaware's Criminal Code (i.e. Felony A–G; Misdemeanor A, B and Unclassified, respectively). Four variables measure the types of

charges in a case. Three count variables give the number of *violent, drug,* and *weapon charges* in a case. *Probation violation* measures whether a defendant is being processed for violating a previous sentencing order of probation (1 = yes, 0 = no). Three additional variables measure other key aspects of the case. Criminal history is captured by *prior arrests*, a count variable noting a defendant's number of previous arrests before a case. Legal representation is captured by whether a defendant used a *public defender* (1=yes, 0=no). *Pretrial detention* measures whether a defendant was detained at any point before trial (1=yes, 0=no).

Person-level variables

The study then considers three person-level variables. *Black* is a dichotomous variable noting whether a defendant was identified by police officers in arrest records as White (=0) or Black (=1). These racial categories are used because Blacks and Whites represent over 90 percent of arrestees in Delaware.[1] *Male* identifies the defendant's sex based on official records (1 = male, 0 = female). *Age* is a categorical variable that ranges from '18–21' to '65 & over' in approximately five-year increments.

Neighbourhood-level variables

The study then evaluates the importance of four neighbourhood conditions in sentencing. As per racial/ethnic threat theory, it introduces two variables related to the racial/ethnic makeup of a census tract. *Percent Black* provides the proportion of the population identifying as Black or African American and *percent Hispanic* gives the proportion of the population identifying as Hispanic or Latino according to the 2010 Census.

Next, to test symbolic threat theory, an *economic disadvantage index* is introduced. This index is a regression-based factor score based on five variables measuring economic conditions in a census tract: percent of the population living below the poverty line, percent of the civilian labour force that is unemployed, percent of the population using public assistance (i.e. Supplemental Nutrition Assistance Program/food stamps receipt), percent of the households with a single-female head and children living below the poverty line, and the log of the median household income. The economic disadvantage index resembles a Z-score, as it has a mean of 0 and a standard deviation of 1 for all defendants. Index values above 0 indicate there is more economic disadvantage while index values below 0 indicate there is more economic affluence.

The study evaluates prevalence theory by estimating the underlying crime level and police activity within a community. *Crime rate* measures the number of criminal incidents reported to police in the previous year per 1,000 population. These incidents involve any type of offence (e.g. violent, property or drug) and do not have to be cleared by an arrest.

Moreover, this study considers the relationship of the defendant with a community. Case records contained the zip code where a defendant reported living at the time of an arrest. The study denotes whether the defendant allegedly committed a criminal incident in the same zip code as his/her zip code of residence given at arrest (1 = yes, 0 = no). Because zip codes are larger than census tracts, the measure allows for some movement while still serving as a proxy for whether the defendant could be considered as an 'insider' or 'outsider' to the neighbourhood of criminal incident.

Multicollinearity among the measures of neighbourhood conditions was not a major concern, as all variance inflation factor (VIF) values ranged from 1.01 to 1.06, falling below the conservative value of 2.50 for collinearity problems (Allison 2012). All correlations between

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1 This measure of race may be biased, as a person coming into contact with law enforcement may self-identify with another race/ethnicity than what a police officer determines.

neighbourhood factors and the race of a defendant were low to moderate, falling below the correlation coefficient of 0.30.

METHOD

This study takes a three-level hierarchical generalized linear modelling (HGLM) approach to explain variation in decisions to incarcerate and set the length of time in prison. The method responds to nesting within the data: cases are nested in persons, who are nested in census tracts where criminal incidents allegedly occurred. Nesting violates the assumption of independence among observations due to shared traits in clusters and contributes to misspecified standard errors (Woltman *et al.* 2012). The HGLM approach provides a random intercept for each person and each census tract of criminal incident, thus adjusting for residual errors due to correlations within clusters (Raudenbush and Bryk 2002).

This study uses a multilevel logistic model to predict in/out decisions as a dichotomous outcome. It then specifies a multilevel linear model to predict sentence length decisions as a continuous measure of logged months. To acknowledge the interrelationship between in/out and sentence length decisions, we retain all defendants to model the length of a defendant's incarceration sentence.[2] The study's level 1 estimates refer to case conditions, level 2 estimates to personal characteristics and level 3 estimates to neighbourhood conditions.

The study's analytic strategy takes two steps. First, three-level multilevel models of sentencing decisions are run to examine the direct effects of case, person and neighbourhood characteristics for all defendants. The study then introduces cross-level interactions between race and neighbourhood conditions. These models distinguish the relative impacts of neighbourhood conditions on sentencing outcomes for Black and White defendants.

RESULTS

Table 1 presents summary statistics for sentencing outcomes, case and person characteristics, and neighbourhood conditions by the race of the defendant. The pooled sample shows that 10.6 percent of defendants are sentenced to incarceration and receive a sentence of 1.33 months. About 45 percent of the sample is Black and 55 percent is White. Most defendants are male (72.2 percent), face misdemeanour charges (66.5 percent), use a public defender (59.8 percent), and are detained before trial (45.0 percent). Importantly, almost three-quarters of defendants (72.1 percent) offend outside of their zip codes of residence. This pattern affirms making distinctions between a defendant's neighbourhood of criminal incident and place of residence.

The table shows marked racial differences in case characteristics. On average, 12.1 percent of Black defendants receive an incarceration sentence compared to 9.4 percent of White defendants. The lengths of prison sentences are also longer for Blacks (1.49 months) than Whites (1.29 months). Black-White differences are also apparent in case circumstances. Black defendants face more serious cases and numerous charges related to violent, weapon and drug offences. White defendants have more overall charges. Pretrial detention and representation by a public defender are less common for Whites defendants. Both groups are similar in incurring violation of probation charges.

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2 As a robustness check, we also ran our three-level multilevel models to predict sentence lengths among the defendants who were sentenced to incarceration. Our level 1 and level 2 coefficients in the sample of incarceration-sentenced defendants have similar magnitudes and directions as those from the entire sample of defendants. Percent Black population, economic disadvantage and same zip code have no discernible impact on sentence length decisions in the incarceration-sentenced sample, but have effects in the all-defendant sample.

Table 1 *Summary statistics of case, person and neighbourhood conditions by race*

	All (N = 76,968)		White (N = 42,588)		Black (N = 34,380)	
	Mean	SD	Mean	SD	Mean	SD
Incarceration Sentence	10.62%	-	9.43%	-	12.10%	–
Sentence Length (Logged Months)	0.32	0.94	0.26	0.82	0.40	1.08
Level 1: Case Conditions						
Number of Charges	2.25	3.76	2.29	4.33	2.20	2.88
Most Serious Charge						
Felony A	0.45%	–	0.28%	–	0.67%	–
Felony B	6.95%	–	4.32%	–	10.21%	–
Felony C	2.64%	–	1.73%	–	3.77%	–
Felony D	8.29%	–	6.94%	–	9.96%	–
Felony E	3.04%	–	2.87%	–	3.23%	–
Felony F	4.09%	–	5.04%	–	2.90%	–
Felony G	8.07%	–	8.48%	–	7.55%	–
Misdemeanor A	26.84%	–	28.55%	–	24.72%	–
Misdemeanour B	6.89%	–	7.88%	–	5.65%	–
Misdemeanor Unclassified	32.74%	–	33.88%	–	31.32%	–
Number of Violent Charges	0.06	0.66	0.06	0.73	0.07	0.57
Number of Drug Charges	0.32	0.96	0.30	0.88	0.35	1.05
Number of Weapon Charges	0.09	0.69	0.05	0.47	0.15	0.88
Violation of Probation Case	0.35	0.48	0.35	0.48	0.34	0.47
Prior Arrests	16.91	17.28	15.83	16.58	18.25	18.02
Public Defender	59.80%	–	58.68%	–	61.19%	–
Pretrial Detention	45.04%	–	43.33%	–	47.16%	–
Level 2: Person Characteristics						
Black	44.7%	–	–	–	–	–
Male	72.20%	–	69.20%	–	76.00%	–
Age at Arrest						
18– <21	12.26%	–	9.70%	–	15.43%	–
21– <25	17.44%	–	15.99%	–	19.23%	–
25– <30	19.95%	–	19.89%	–	20.03%	–
30– <35	14.95%	–	16.41%	–	13.14%	–
35– <40	10.53%	–	11.11%	–	9.81%	–
40– <45	7.43%	–	7.87%	–	6.89%	–
45– <50	6.59%	–	6.95%	–	6.15%	–
50– <55	5.47%	–	5.90%	–	4.95%	–
55– <60	3.04%	–	3.35%	–	2.66%	–
60–<65	1.35%	–	1.56%	–	1.09%	–
65+	0.97%	–	1.27%	–	0.61%	–

Table 1 *Continued*

	All (N = 76,968)		White (N = 42,588)		Black (N = 34,380)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Level 3: Neighborhood Conditions						
Percent Black	24.22	20.49	18.47	14.55	31.34	24.20
Percent Hispanic	10.14	8.10	9.80	7.73	10.57	8.51
Economic Disadvantage	0.00	1.00	−0.21	0.78	0.26	1.16
Criminal Incident Rate	46.80	33.24	44.18	33.08	50.04	33.15
Same Zip Code	27.93%	–	27.79%	–	28.11%	–

Note: Mean = mean; SD = standard deviation. For ease of interpretation, percents are reported for dummy or categorical variables in the mean columns.

Racial differences likewise appear in the typical conditions of offence neighbourhoods. Despite similarities in offending outside of one's residential zip code, more Black defendants allegedly offend in areas with proportionally larger Black and Hispanic populations. White defendants tend to commit offences in more economically advantaged, less crime-prone neighbourhoods relative to Black defendants who tend to offend in economically disadvantaged, higher crime areas.

Neighbourhood conditions effects on sentencing for all defendants

Table 2 presents three-level multilevel model estimates of case, person and neighbourhood characteristics' effects on in/out and sentence length decisions for all defendants. Diagnostically, multilevel models are preferred to an ordinary logistic regression model of in/out decisions (likelihood ratio test = $p < 0.01$) and an ordinary linear regression model of sentence length decisions (likelihood ratio test = $p < 0.01$). There is support for hypothesis 1 that neighbourhoods help to predict sentences, as the cluster effects for persons and census tracts in the in/out and sentence length models (i.e. intraclass correlation coefficients = 0.22 and 0.05; 0.60 and 0.008, respectively) are smaller than the corresponding design effects (Hoffman 2016).[3]

Looking closer at in/out decision-making (Model 1), incarceration is more probable in cases featuring more serious and numerous charges. Consistent with expectations, pretrial detention, prior arrests and public representation increase the odds of receiving an incarceration sentence. Individual characteristics affect incarceration decisions as well. Blacks face marginally higher odds of incarceration relative to similarly situated Whites (a 7.9 percent increase). Being male is associated with greater odds (42.0 percent) of imprisonment too.

Neighbourhood conditions also influence the decision to incarcerate a defendant. A one percent increase in the Black population of an area of criminal incident increases a defendant's likelihood of incarceration by about 11.0 percent. Percent Hispanic population, economic disadvantage and criminal incident rates do not appear to strongly affect in/out decisions. More strikingly, offending in the same zip code is associated with a 16.0 percent reduction in the odds of receiving an incarceration sentence. Put differently, committing an offence outside of one's residential community increases one's chances of going to prison.

Similar factors influence sentence length decisions. Model 2 shows legal factors, such as offence severity and type of charges, increase time sentenced to incarceration. Blacks receive similar sentence lengths to Whites, holding constant all other factors. Larger Black populations in

3 The intraclass correlation for neighbourhoods in the sentence length model is smaller than in the in/out sentence model, supporting claims that neighbourhood effects are less influential in prison time decisions (Wooldredge 2007).

Table 2 *Estimated case, person, & neighbourhood conditions effects on incarceration sentence decisions*

	In/Out (Model 1)		Sentence Length (Model 2)	
	OR	SE	B	SE
Level 1: Case Conditions				
Number of Charges	1.028**	0.004	0.004**	0.001
Most Serious Charge				
Felony B	0.430**	0.068	−2.371**	0.049
Felony C	0.345**	0.060	−2.662**	0.052
Felony D	0.285**	0.047	−2.913**	0.049
Felony E	0.403**	0.070	−2.953**	0.051
Felony F	0.282**	0.049	−3.038**	0.051
Felony G	0.313**	0.052	−3.110**	0.050
Misdemeanor A	0.222**	0.036	−3.156**	0.049
Misdemeanor B	0.171**	0.031	−3.181**	0.050
Misdemeanor Unclassified	0.176**	0.029	−3.105**	0.049
Number of Violent Charges	1.091**	0.023	0.005	0.004
Number of Drug Charges	1.082**	0.016	0.000	0.003
Number of Weapon Charges	1.261**	0.025	0.096**	0.004
Violation of Probation	2.608**	0.104	0.177**	0.007
Prior Arrests	1.011**	0.001	0.003**	0.000
Public Defender	1.199**	0.043	0.023**	0.006
Pretrial Detention	6.173**	0.246	0.204**	0.006
Level 2: Person Characteristics				
Black	1.079*	0.036	0.011	0.008
Male	1.420**	0.057	0.076**	0.008
Age at Arrest				
21– <25	0.931	0.055	−0.025	0.013
25– <30	0.941	0.055	−0.025	0.013
30– <35	0.973	0.061	−0.039**	0.014
35– <40	1.010	0.070	−0.039**	0.015
40– <45	1.036	0.079	−0.035*	0.017
45– <50	0.883	0.072	−0.059**	0.017
50– <55	0.940	0.081	−0.086**	0.018
55– <60	0.945	0.104	−0.068**	0.021
60–<65	1.184	0.180	−0.033	0.029
65+	0.716	0.158	−0.086**	0.032
Level 3: Neighbourhood Conditions				
Percent Black	1.011**	0.003	0.002**	0.001
Percent Hispanic	1.003	0.005	−0.0002	0.001
Economic Disadvantage Index	0.900	0.054	−0.026**	0.010
Criminal Incident Rate	0.996*	0.001	−0.0003	0.0002
Same Zip Code	0.840**	0.034	−0.031**	0.008

Table 2 *Continued*

	In/Out (Model 1)		Sentence Length (Model 2)	
	OR	SE	B	SE
Constant	0.024**	0.005	3.038**	0.054
Random Effects Parameter Estimates				
Variance (Persons)	0.715	0.046	0.349	0.003
Variance (Census Tracts)	0.225	0.034	0.005	0.001
Variance (Residual)	–	–	0.240	0.002
N	76,968		76,968	

Notes: * $p < 0.05$, ** $p < 0.01$; OR = odds ratio, B = beta, SE = standard error. Three-level multilevel models are estimated.

areas of criminal incident elongate incarceration sentences. Defendants have moderately shorter sentences due to economic disadvantage in offence neighbourhoods. Once again, offending inside one's residential zip code yields more lenient sentences.

Neighbourhood conditions effects on sentencing for Black and White defendants

Next, this study considers the distinct impacts of neighbourhood conditions on sentencing decisions in cases involving Black defendants and those involving White defendants. Table 3 presents estimates from cross-level interactions among neighbourhood conditions (i.e. Level 3) and race in three-level multilevel models of in/out and sentence length decision-making. The main effects for neighbourhood conditions can be interpreted as the effects of neighbourhood conditions on sentencing outcomes for Whites while the interaction effects can be understood as the effect of neighbourhood conditions on sentencing decisions for Blacks. Case conditions (i.e. Level 1) and other individual characteristics (i.e. Level 2) are not reported, but remain in these models.

Table 3 highlights racial differences in how neighbourhood conditions influence sentence outcomes. For White defendants, more economic disadvantage in an area where an alleged crime occurs decreases their odds of incarceration (−14.7 percent) and reduces the length of their prison sentences. The opposite is true for Black defendants, as offending in less advantaged communities increases their likelihood of going to prison (11.3 percent) and sentenced time. The racial/ethnic composition of a neighbourhood also introduces distinctions in sentencing by race. A White defendant's odds of incarceration grow in areas with larger Black populations while those for a Black defendant decrease in these places. Offending in one's residential zip code diminishes the odds of incarceration for Whites alone, but has little influence on sentence length decisions for any group. Once again, the prevalence of crime in an area is not associated with any changes in sentencing outcomes. Taken together, neighbourhood conditions then have race-specific impacts on sentencing. These findings also suggest that the leniency effects of economic disadvantage and the punitive effects of the percent Black population on sentences for all defendants are driven by decisions affecting White defendants, as these conditions play a different role in the sentencing of Black defendants.

DISCUSSION

To begin to address the disproportionate confinement of people of colour in the United States and other Western countries, scholars have intensively sought to identify the size and sources of racial/ethnic disparities at sentencing (Snowball and Weatherburn 2007; Wermink *et al.* 2015; Franklin 2017; Brandon and O'Connell 2018). Neighbourhoods may contribute to sentencing

Table 3 *Cross-level interaction effects of neighourhood conditions and race on incarceration sentence decisions*

Neighbourhood Conditions	In/Out (Model 1)		Sentence Length (Model 2)	
	OR	SE	B	SE
Black	1.305**	0.130	0.024	0.022
Percent Black	1.016**	0.003	0.002**	0.001
Percent Black x Black	0.993**	0.002	−0.0004	0.001
Percent Hispanic	1.001	0.006	−0.001	0.001
Percent Hispanic x Black	1.003	0.005	0.002*	0.001
Economic Disadvantage Index	0.853*	0.057	−0.038**	0.011
Economic Disadvantage x Black	1.113*	0.058	0.024*	0.011
Criminal Incident Rate	0.997	0.002	−0.0002	0.0002
Criminal Incident Rate x Black	0.999	0.001	−0.0003	0.0002
Same Zip Code	0.868*	0.048	−0.019	0.011
Same Zip Code x Black	0.949	0.074	−0.028	0.016
Constant	0.022**	0.005	3.026**	0.055
Random Effects Parameters				
Variance (Person)	0.714	0.046	0.349	0.003
Variance (Census Tracts)	0.225	0.034	0.005	0.001
Variance (Residual)			0.240	0.002
N	76,968		76,968	

Notes: * *p* < 0.05, ** *p* < 0.01. OR = odds ration, B = beta, SE = standard error. Main and cross-level interaction effects for Level 3 neighbourhood conditions and race are reported for three-level multilevel models of in/out and sentence length decisions. Estimates for case conditions (Level 1) and other person characteristics (Level 2) effects are included in these models, but are not reported.

inequalities, as court officials make 'geographically-based attributions' of criminal responsibility among defendants (Auerhahn *et al.* 2017: 43; Sudnow 1965; Flemming *et al.* 1992). Previous neighbourhood-based studies of sentencing in the United States situate defendants in their residential communities, noting characteristics of these areas can diminish (Rodriguez 2007; Auerhahn *et al.* 2017) or enhance the severity of incarceration sentences (Wooldredge 2007). With a few exceptions (Williams and Rosenfeld 2016; Owens *et al.* 2017), neighbourhoods and sentencing research does not recognize that defendants may offend in different neighbourhoods than their homes. Using attribution, racial/ethnic threat, symbolic threat and prevalence theories, this study assessed how conditions in neighbourhoods of criminal incident affected incarceration/community-based sanctions and incarceration sentence length decisions. It further considered whether these community conditions had different effects on sentencing based on the race of the defendant.

Results of the study's multilevel analysis revealed several neighbourhood effects on sentencing; however, the estimates do not entirely support traditional theories. For all defendants, the percent Black population of census tracts where alleged criminal incidents took place increased the likelihood of going to prison and lengthened prison sentences. There was little association between the percent Hispanic population and sentencing decisions. These results thus provide partial support for hypothesis 2 and accord with previous studies of racial/ethnic threat where any defendant from a community with a large racial/ethnic minority population received a longer and more probable incarceration sentence (e.g. Feldmeyer *et al.* 2015; Wang and Mears

2015). In contrast to hypothesis 3 and symbolic threat theory, more economic disadvantage in a place was associated with shorter sentences. This finding of leniency follows previous neighbourhood studies examining outcomes for specific offences (Wooldredge and Thistlethwaite 2004; Rodriguez 2007; Williams and Rosenfeld 2016). Nonsupport is found for prevalence theory (hypothesis 4), as criminal incident rates did not appear to influence the likelihood or length of an incarceration sentence.

The study also determined that a defendant's relationship to a neighbourhood of criminal incident shapes sentencing. Offending in the general area of one's residence carried less severe sanctions than offending outside his/her home community. Sanctioning 'outsiders' more harshly might help to reinforce existing social relations and affirm penalties for persons being 'out-of-context' (Gaston 2018). Again, this effect was stronger at the in/out vs. sentence length stage, suggesting there may be more discretion in incarceration/community-based sanction decisions (Wooldredge 2007).

More importantly, neighbourhood context had race-specific impacts. Providing support for hypothesis 5, race had an interactive effect with key neighbourhood conditions. For Black defendants, incarceration sentences became marginally more probable and longer in economically disadvantaged areas. Penalties decreased when Blacks allegedly committed offences in predominantly Black neighbourhoods. For White defendants, reportedly offending in economically deprived areas reduced sanctions while doing so in predominantly Black communities produced longer and more probable incarceration sentences. Whites alone had lower likelihoods of incarceration by offending in their zip codes of residence. Across race, the criminal incident rate did not alter sentencing outcomes. Neighbourhood effects then varied as a result of the defendant's race; however, such cross-level interactions do not necessarily follow theoretical expectations (e.g. racial/ethnic and symbolic threat would anticipate that Black defendants receive harsher sentences in racially/ethnic diverse and impoverished neighbourhoods, respectively).

The study's findings point to three conclusions about neighbourhoods and sentencing. Most directly, context matters in shaping sentencing *within* the criminal courts. Neighbourhoods associated with cases vary in character, meaning contextual studies at higher levels of aggregation ignore potential responses of court communities to local environments. Attribution theory serves as a key theoretical link for neighbourhoods and sentencing, as court actors reflect upon the personal agency of defendants and their environments. Perceptions of neighbourhoods will shape external attributions, especially if prosecutors and judges do not live in the same places as the modal defendant (Galster 2003). The study's results suggest external attributions do not necessarily diminish the guilt of the defendant, especially when 'outsiders' to communities tend to receive more severe sanctions (Liska 1992).

Next, this study emphasizes further review of the relationships between neighbourhoods of residence and neighbourhoods of criminal incident. This study of urban/non-urban areas showed defendants usually engaged in offences outside their residential communities, as seen in cities (Owens et al. 2017). The mobility of defendants is underappreciated in studies examining neighbourhoods of residence. Of course, distance-to-crime from one's residence may depend on offence type: violent offences tend to occur closer to home as victims often know the perpetrators (Wooldredge and Thistlethwaite 2004) and property crimes tend to occur in more resource-rich areas (Chamberlain and Boggess 2016). Understanding where defendants go and assessing their relationships with communities may be important in disentangling neighbourhood effects in sentencing.

Finally, racial differences in sentencing may be partially driven by court perceptions of neighbourhoods. For instance, the pattern of White defendants who offended in economically disadvantaged areas and received shorter sentences could be driven by different orientations towards defendants and environments. Namely, this effect could appear if court officials believed White

defendants, while deserving of prison, still acted in response to their impoverished environment. Black defendants may not have received this benefit, as court actors attributed crimes to personal choices. At the same time, this study showed that White defendants committed offences in wealthier areas than Black defendants. Greater willingness and resources of victims to pursue a case in the courts might have then placed greater sanctions on White defendants offending in affluent communities. Although this study cannot test causal pathways, it underscores the importance of incorporating facts about defendants' and victims' communities in studies of sentencing. Scholarship on sentencing should continue to evaluate neighbourhood context as a means of producing 'contours of justice' (Eisenstein *et al.* 1988).

This study has a few limitations. First, we do not have complete information about the personal characteristics of defendants. To fully test attribution theory, additional information about a defendant's internal traits (e.g. personality or remorsefulness) would be required. Next, some court officials may weigh environmental concerns more heavily in their decisions than others, especially judges at the sentencing stage (Johnson 2006). Neighbourhood effects in this study could be both overestimated and underestimated, as the direction of omitted variable bias associated with this information is not clear. Content analysis or ethnographies may be instructive to illuminate the mechanisms of neighbourhood effects. For instance, Rodriguez (2013) used court records to identify what aspects of neighbourhoods entered into court proceedings and how these references to the environment were biased along race/ethnicity and class lines.[4] The study is also limited by not breaking down sentencing patterns by offence type. For example, violent offences, especially domestic violence, tend to occur in areas in close proximity to an alleged offender's residence (Ackerman and Rossmo 2015). A more granular approach would consider how the location of a criminal incident and neighbourhood effects on sentencing change across different types of offences. Furthermore, this study would benefit from replication in non-U.S. contexts. To the extent that racial/ethnic minority groups live in distinct parts of cities and towns compared to majority groups in other countries (Fong and Wilkes 2003; Markham and Biddle 2016; Andersson *et al.* 2018), crimes will take place in distinct places and considerations of space may be contributing to known sentencing disparities. Taken these limitations together, we recommend that future studies (A) further explore internal attributions of criminal responsibility with more data, (B) measure the weight and mechanisms of neighbourhood considerations, (C) break down sentencing patterns by offence type and (D) assess neighbourhood effects in areas outside of the United States.

Lastly, the study's findings of neighbourhood effects point to three policy implications. Similar reforms have appeared as responses by the Black Lives Matter movement to redress discrimination in criminal processing (The Sentencing Project 2020) and address structural problems that contribute to punitive sanctions like incarceration (Porter 2016). Court officials must first strive to recognize biases in case processing. Implicit bias training has emerged as a popular tool to underscore that court actors do not make decisions as impartially as they suggest (Rachlinski and Johnson 2009). Unfair or blatantly false stereotypes of defendants further widen racial differences in court outcomes, as recently demonstrated in an experimental setting (Levinson *et al.* 2017). Recognizing these biases tied to individuals and their communities may help to curb differences in court actors' treatment of defendants facing similar legal situations.

Next, evidence that neighbourhood considerations can disparately impact defendants from different racial/ethnic groups encourages the reconsideration of the place of neighbourhood context in decision-making tools. Risk assessments and evidence-based sentencing practices

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4 For example, one juvenile court official said the following about a Hispanic male and his neighbourhood in a sentence recommendation: 'He lives in a very poor, high-risk neighbourhood and most of his associates use alcohol and other drugs... He understands that he must work an active program recovery and avoid places that would cause him to relapse' (Rodriguez 2013: 204).

can explicitly distinguish neighbourhoods and their conditions as decision-making criteria (Vîlcică and Goldkamp 2015; Dobbie and Yang 2019). While attempting to 'standardize' judicial processing, these tools may exacerbate racial, ethnic and class disparities in court decisions, insofar that defendants experience life in segregated spaces (Starr 2014). This study then raises questions about the incorporation of neighbourhood context into these decision-making tools for punitive purposes.

Most importantly, understandings of neighbourhoods, sentencing disparities and criminal justice involvement would support the goals of justice reinvestment (Porter 2016; The Sentencing Project 2020). Court actors should seek to utilize neighbourhood context to strengthen communities by distributing resources related to diversion and reentry via neighbourhoods (Starr 2014; Maroun 2019). As per the Black Lives Matter movement, broadly investing in evidence-based social interventions affecting education, jobs, green space and health care in neighbourhoods can help to augment informal social controls and reduce crime, especially in communities disproportionately affected by incarceration (Porter 2016). Conducting empirical assessments of the importance of neighbourhoods in judicial decision-making can then inform the potential use of these environments in efforts to reduce incarceration, improve public safety and address racial injustice.

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