RACIAL ANIMOSITY AND INTERRACIAL CRIME*

STEWART J. D'ALESSIO
LISA STOLZENBERG
Department of Criminal Justice
Florida International University

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The primary objective of this study is to determine the effect of a victim's race on the likelihood of him or her being seriously injured during the commission of an interracial crime. We also assess the probability of a homicide occurring during an interracial crime. A multilevel city analysis shows that black offenders are no more apt than white offenders to injure their victims seriously during an interracial robbery or rape. A black offender also does not have a greater proclivity to kill his or her victim during the commission of an interracial crime. Some evidence suggests that white victims are more likely than black victims to suffer serious physical harm during an aggravated assault. Results also reveal that contextual factors related to racial animosity, such as residential segregation, white-to-black economic inequality, and black-to-white unemployment, fail to have any moderating effect on either the severity of victim injury or the likelihood of a homicide occurring during an interracial crime. Overall, the results generated in this study tend to cast doubt on the validity of racial animosity theory. Our findings also lead us to question the veracity of the oftenmade claim that black-on-white crimes are punished more severely because these types of offenses are somehow more heinous in circumstance. At least in regard to serious victim injury and victim death, black-on-white crime is no more violent than white-on-black crime.

The patterning of interracial crime has drawn much interest. One often-reported finding is that black-on-white crime is much more prevalent in

* Direct correspondence to Stewart J. D'Alessio, Department of Criminal Justice, Florida International University, University Park Campus PCA-263B, 11200 SW 8th Street, Miami, FL 33199 (e-mail: dalessi@fiu.edu).

our society than white-on-black crime. Blacks commit about 7.5 times more violent interracial crimes than whites, although whites outnumber blacks by approximately seven to one in the population (New Century Foundation, 1999). Although it is seldom debated that a black offender is generally more apt to victimize a white than the reverse, disagreement persists as to how such a finding should be interpreted. Both racial animosity theory and heterogeneity theory have been advanced to account for this phenomenon.

RACIAL ANIMOSITY THEORY

Racial animosity theory proffers that black offenders specifically target whites to victimize because of their race. The racial discrimination experienced by blacks, coupled with the injustices of slavery, is theorized to act as a catalyst for the development of deep-seated racial animosity that is directed at whites. It is widely reported that black citizens are much more likely than whites to view society, which includes the police (Brunson, 2007), as being biased against them because of their race (Schuman et al., 1997; Sigelman and Welch, 1991). Little doubt exists that most blacks remain incensed over the injustices associated with slavery. As Arceneaux (2005: 141) points out, ". . . it is clear that the ills of slavery still ignite anger and resentment in the heart of Black America." One widely cited survey shows that most black citizens (about 79 percent) support a public apology by the U.S. government for slavery (Dawson and Popoff, 2004). What is interesting about this survey is that whereas most blacks favor a public apology for slavery, only about 30 percent of whites feel that the issuance of a public apology is necessary. In addition, approximately two of three blacks advocate monetary reparations to the descendents of slaves. In contrast, only about 4 percent of whites support a policy of monetary payments to atone for slavery. Compensation for the lingering adverse consequences associated with slavery would include not only cash payments but also debt forgiveness and specifically targeted social welfare programs (Reparations Research and Advocacy Group, 2002). The striking difference between the opinions of blacks and whites regarding apologies and reparations for slavery led Professor Michael Dawson to comment during an interview that:

> These numbers are relatively shocking by any standard. When we talk about gender gaps in American politics, we're talking about gaps of 5 to 15 percent. Here we're talking about gaps of the order of 50 to more than 60 percent (Hodder, 2003: 12).

The finding that many black citizens believe that society is racially biased against them could offer some insight as to why some research shows that blacks are overrepresented in violent criminal behavior

(D'Alessio and Stolzenberg, 2003). Strong theoretical expectations exist to support the argument that intense feelings of being discriminated against can engender criminal activity by weakening a person's commitment to society. When highly visible barriers to achievement and aspirations exist in society, people tend to attribute their personal failures to the injustices endemic in the social system and, as a consequence, frequently disassociate themselves from legally established rules of conduct (Cloward and Ohlin, 1960). Hirschi (1969) advances a similar argument by asserting that people are more inclined to obey laws when they believe that they are morally justified. Hirschi's concept of "belief" is reported to be a fairly good predictor of illegal behavior. When people believe that the rules of society are unjust, they are much more likely to participate in illegal activities (Sherman, 1993).

It is also plausible to speculate that racial injustice may motivate blacks to "seek revenge" against their white oppressors (Cleaver, 1968; Curtis, 1975). Often, homicide and other types of violent crimes are thought to represent an outward expression of grievance against the victim (Black, 1976, 1983). This notion of grievance does not necessarily imply that the victim did anything wrong to the offender, only that the offender believes that the victim deserves punishment. One reason why the offender may feel that punishment is warranted relates to the concept of "collective liability" (Black, 1983: 38). Collective liability manifests when individuals of a given race, ethnicity, or social class are held accountable for the conduct of others within their group. Thus, if a member of one group does something wrong to a member of another group, then the victim's group has the right, and in some instances the obligation, to seek justice through some form of compensation or by victimizing the offender or someone from the alleged wrongdoer's group. The blameworthiness of the victim in these instances also provides the offender with a readily convenient excuse for the transgression, which thereby allows the offender to rationalize his or her behavior (Minor, 1980).

Several empirical studies buttress the view that racial animosity is a precipitating factor in the occurrence of black-on-white crime. Using national victimization data, Wilbanks (1985) found evidence that although most crime tends to be intraracial, black offenders are much more prone to select whites to rob, rape, and assault. He advances the possibility that this finding may be the result of black offenders ". . . expressing hostility toward whites" (Wilbanks, 1985: 125). In another often-cited study, LaFree (1982) observed that in many cases of rape, black offenders victimize white females. His analysis of data drawn from the National Crime Survey showed that black-on-white rapes were more apt to occur away from the home, involve a stranger, and entail some type of theft from the victim. Others also report a similar difference between black-on-white

rapes and rapes that involve other offender/victim racial combinations (LeBeau, 1988). Yet, despite the lack of similarity in the circumstances related to the crime incident, LaFree could not evince evidence that black-on-white rape was any more violent than white-on-white or black-on-black rape (see also LeBeau, 1988).

Additional evidence to support racial animosity theory can be gleaned from research studies on prison rape. Black-on-white rape is far more prevalent than white-on-black rape in confinement facilities, despite the fact that blacks outnumber whites in prison. Ethnic power struggles among inmates are often adduced as the precipitating factor in the occurrence of prison rape and sexual assault (Moss, Hosford, and Anderson, 1979). Scacco (1982) found that most rapes involved multiple black offenders and a white victim, notwithstanding whether the offense occurred in an adult prison or juvenile confinement facility. He speculated that this pattern of black-on-white gang rape represented deep-seated resentment and hostility among blacks toward whites. His thesis that racial animosity is the cause of interracial gang rape is interesting because collective violence is frequently viewed as a mechanism for addressing grievances between ethnic groups (Senechal de la Roche, 2001).

HETEROGENEITY THEORY

Many social scientists remain circumspect of the view that racial animosity explains black-on-white crime because the greater amount of black-on-white violence experienced in our society is also compatible with heterogeneity theory. Contrary to the rationale espoused by racial animosity theory, heterogeneity theory maintains that population dynamics explain why blacks are more likely to victimize whites than the reverse. This theory assumes that the opportunity for greater interaction among different groups, which include dissimilar racial groups, is based to a large degree on the nature of social arrangements in society. The social structure of society can either enhance or attenuate opportunities for contact among dissimilar groups. One salient factor in this regard is relative group size. Blau (1977) maintains that the likelihood of intergroup interaction is dependent on the availability of members from other groups to serve as partners for associations. Members of larger groups naturally have a higher probability of interacting with members of their own group. In contrast, smaller groups have a greater proclivity by simple randomness to form associations with outgroup members because they have fewer members in their own group with which to associate. As Blau (1977: 22) notes, "All minority groups, singly or in combination, are more involved in intergroup relations with a group constituting a majority than the majority group is with them." It logically follows that because blacks comprise a

smaller percentage of the population than do whites, the average black citizen is much more likely to interact with a white than a white is to interact with a black. Such a situation would explain why black-on-white crime is more prevalent than white-on-black crime.

Following the rationale articulated by Blau (1977), several studies have investigated whether racial heterogeneity influences interracial crime. With some exceptions (South and Messner, 1986), most of these research endeavors report evidence to support Blau's assertions. For example, using data drawn from the National Crime Survey Cities Sample, Sampson (1984) observed a strong and robust relationship between racial heterogeneity and the rate of interracial victimization for personal crimes such as rape, robbery, and assault. Messner and South (1986) also evinced support for heterogeneity theory by finding that both racial heterogeneity and racial residential segregation influenced interracial robbery rates. Applying similar logic, O'Brien (1987) demonstrated that the apparent tendency for black offenders to seek out white victims to victimize was simply a function of relative group size. He noted that violent crimes were far more apt to be intraracial than interracial given the prevailing racial distributions in the population. South and Felson (1990) also found that interracial rape was influenced strongly by opportunities for contact between blacks and whites.

In another study, Messner and South (1992) analyzed data drawn from 154 cities and found that the frequency of interracial homicide was related to racial heterogeneity. Other contextual factors, such as population size, density, unemployment, and residential racial segregation, were also linked to the occurrence of interracial homicide. Wadsworth and Kubrin (2004) also examined the influence of city-level structural factors on interracial homicide. They found little evidence that economic deprivation among blacks or racial inequality engendered interracial homicide. Based on their results, they concluded that opportunities for social interaction provided a much better explanation for interracial homicide than racial animosity.

Other reasons besides racial heterogeneity cast doubt on the role of racial animosity in engendering black-on-white crime. For example, if whites are more lucrative targets for robberies and burglaries because of their higher incomes, then the greater incidence of black-on-white crime might be entirely explicated by dissimilarities in the socioeconomic standing of whites relative to blacks (Wadsworth and Kubrin, 2004; Wilbanks, 1985). This same logic of target attractiveness is also applicable to a nonmonetary crime, such as rape. Black-on-white rape is more prevalent than white-on-black rape. One plausible reason for this situation is that white females in our society are often portrayed by the media as the standard by which we define beauty (LaFree, 1982). If this is the case, then one should

not be surprised to find that black-on-white rape occurs with greater frequency than white-on-black rape.

Others also question whether blacks have a strong incentive to injure seriously or kill white victims during the commission of a crime because of the enhanced probability of them receiving a severe criminal sentence or a death sentence if convicted. Numerous studies furnish evidence that black offenders are sanctioned more severely than white offenders for crimes such as robbery, rape, assault, and illegal drugs (Mitchell, 2005). A black who murders a white is also much more likely to be executed than is a white who murders a black (U.S. General Accounting Office, 1990). To illustrate, since 1976, black offenders and white victims accounted for 7.4 percent of homicides and 20.3 percent of executions, whereas white offenders and black victims comprised 2.6 percent of all homicides and 1.4 percent of all executions (FBI, 2005; NAACP, 2007). If people are free-will actors who rationally weigh the probable benefits and potential liabilities before engaging in a criminal offense as deterrence proponents argue, then it makes little sense that blacks would specifically target whites to victimize.

CURRENT STUDY

Advocates of racial animosity theory and proponents of heterogeneity theory continue to debate each other because prior research has been unable to establish clearly which of these theoretical perspectives can best account for the higher incidence of black-on-white crime. Some studies support racial animosity theory, whereas others buttress the claims associated with heterogeneity theory. Prior studies on this topic have typically employed one of two different research strategies. The first entails the use of data drawn from the Federal Bureau of Investigation's (FBI's) Supplemental Homicide Reports (SHR) to analyze the effect of population heterogeneity and other contextual factors on interracial homicide. This strategy, however, has a couple of weaknesses. One chief limitation is that homicide occurs relatively infrequently, especially interracial homicide. As a consequence, the use of interracial homicide as the dependent variable necessitates some form of statistical adjustment, such as the pooling of interracial homicides across several time periods to generate a sufficient number of homicide incidents for analysis. Of concern is that the pooling of data across several time periods requires that certain statistical assumptions be met (Parker and McDowall, 1986). Additionally, information that pertains to the offender's race and other demographic characteristics are often missing because SHR data tend to be submitted to the FBI by law enforcement agencies at the early stages of homicide investigations (Pampel and Williams, 2000). Although the use of SHR data raises these

methodological issues, a theoretical concern pertains to the use of a relatively infrequently occurring event like interracial homicide as a proxy measure for interracial crime. Because the logic that underlies racial animosity theory is that a feeling of racial injustice among black citizens engenders black-on-white crime, it seems reasonable to argue that the ideal measure of interracial crime is not interracial homicide but rather one that captures most forms of crime that occur between blacks and whites.

A second strategy used in previous research entails the analysis of victimization data, especially victimization data drawn from the National Crime Survey Cities Sample. This approach is adopted by Messner and South (1986), Sampson (1984), South and Felson (1990), and South and Messner (1986). Although this strategy circumvents many problems associated with the use of homicide data, the use of victimization data does have some limitations, such as the exclusion of crimes committed against businesses, the government, religious organizations, and commercial enterprises. In addition, because the National Crime Survey Cities Sample is restricted to only the central city, potential victims of interracial crimes such as "commuters, tourists and other transients are excluded from the sampling frame . . ." (Lizotte, 1985: 177). Other drawbacks of the data set include the unrepresentativeness of the sample of cities and the substantial amount of measurement error among the cities that can be attributed to interviewer effects (Bailey, Moore, and Bailar, 1978). Previous studies that analyzed data drawn from the National Crime Survey Cities Sample are vulnerable to these criticisms.

We believe that the most expedient way to advance the literature in this area is to model more accurately an offender's decision-making process during the commission of a crime. The ability to model an offender's actions during the course of a criminal event is theoretically germane because racial animosity and heterogeneity theory make divergent predictions regarding the effect that an offender's race will have on victim injury and victim death that occurs during the commission of an interracial crime. According to racial animosity theory, black offenders should be more inclined than white offenders to seriously injure or kill their victims. However, heterogeneity theory maintains that a victim's race has little influence on whether he or she is seriously injured or killed during an interracial crime.

This study also considers whether the severity of victim injury varies across social contexts. For instance, one can certainly make a reasonable argument that racial animosity is more pronounced in areas where economic inequality exists between blacks and whites. Economic inequality or the unequal distribution of wealth, money, and other economic resources among racial groups is reported to be a strong predictor of the violent

crime rate (Stolzenberg, Eitle, and D'Alessio, 2006). Other contextual factors, such as residential racial segregation, may also cause racial animosity by breeding cynicism and perceptions of legal injustice. Thus, we believe it is important that investigators concentrate their efforts on conducting multilevel studies to determine whether black-on-white crime is more likely to involve serious victim injury in areas plagued by economic inequality and/or residential racial segregation.

In the multilevel analysis that follows, we use data derived from the National Incident-Based Reporting System (NIBRS) and the U.S. Census to test the validity of racial animosity theory. NIBRS and U.S. Census data are appropriate for this undertaking because we can employ these data to determine the severity of victim injury and the likelihood of a homicide transpiring during the commission of an interracial crime in U.S. cities. NIBRS data can be used to examine how victim injury is influenced by factors such as weapon usage and the relationship between the victim and the offender. This information is not contained in the Uniform Crime Reports. Additionally, a determination can be made as to whether contextual factors such as racial segregation and/or economic inequality influence victim injury during the commission of an interracial crime. We address the following general questions in this study. Are black-on-white crimes more violent in regard to injury than white-on-black crimes? Are black-on-white crimes more likely than white-on-black crimes to result in the victim being killed by the offender? Are black-on-white crimes more apt to result in victim injury in cities where economic disparities between blacks and whites are greatest? Racial animosity theory answers "yes" to these questions, whereas heterogeneity theory answers "no."

DATA AND METHODS

The incident-level data were obtained from the NIBRS for 134 cities in 24 states during 2005 (FBI, 2007). All of the 134 cities have an overall population of at least 50,000 people. Table 1 shows the states and the population ranges of the 134 cities included in this study. The NIBRS is an incident-based reporting system for crimes known to the police. For each crime incident coming to the attention of law enforcement, a variety of data is collected about the incident. These data include the nature and types of specific offenses in the incident, characteristics of the victim(s) and offender(s), types and value of property stolen and recovered, and characteristics of persons arrested in connection with a crime incident. As of September 2007, 31 states have been certified to report NIBRS to the FBI, and four additional states and the District of Columbia have individual agencies that submit NIBRS data. Approximately 25 percent of the population is covered by NIBRS reporting, which represents 26 percent of

the nation's reported crime and 37 percent of law enforcement agencies. Another eight states and four federal agencies are currently in the testing phase, whereas the NIBRS is still in the developmental stage in seven states or territories. According to the FBI, only five states currently have no formalized plan to report incident-based data.

Table 1. Population Ranges for the 134 NIBRS Cities

State Represented	NIBRS Cities	Minimum Population	Maximum Population
Arkansas	4	55,515	80,268
Colorado	6	76,930	554,636
Connecticut	3	82,951	123,626
Delaware	1	72,664	72,664
Idaho	4	50,730	185,787
Iowa	9	50,731	198,682
Kansas	2	80,098	344,284
Louisiana	1	56,461	56,461
Massachusetts	13	54,653	172,648
Michigan	21	53,364	951,270
Montana	3	56,690	89,847
New Hampshire	1	86,605	86,605
North Dakota	2	55,532	90,599
Ohio	10	52,717	711,470
Oregon	2	63,154	136,924
Rhode Island	3	72,958	85,808
South Carolina	4	56,002	116,278
South Dakota	1	123,975	123,975
Tennessee	8	55,469	650,100
Texas	15	50,702	563,662
Utah	8	57,439	181,743
Virginia	11	63,677	425,257
West Virginia	1	53,421	53,421
Wisconsin	1	596,974	596,974
24 States	134 Cities	50,702	951,270

In 2005, a total of 12,179 interracial robberies (28.7 percent of all robberies), 1,440 incidents of interracial rape (16.0 percent), and 8,289 interracial aggravated assaults (11.2 percent) were reported to the police in the 134 cities analyzed in this study. Our study is restricted to these three offenses because a victim is confronted by the criminal offender in these crimes and, as a consequence, can identify the offender's race and other demographic characteristics. Additionally, serious victim injury may occur

in these types of crimes. In crime incidents that involve multiple offenders and/or multiple victims, the race of the first offender and the race and injury status of the first victim reported in the NIBRS are used in the analysis. In most co-offending incidents, the offenders were of the same race (Stolzenberg and D'Alessio, 2008). Additionally, because friendship networks are usually intraracial, it is also not surprising to find that in most crime incidents that involved multiple victims, the victims were of the same race.

The NIBRS data are useful for our intentions because information related to the crime incident is provided along with geocode information that can be employed to identify the city where each crime incident occurred. These geographic identifiers are used to match crime incidents with contextual variables drawn from the 2000 U.S. Census that are theorized to be associated with serious victim injury (U.S. Census Bureau, 2000).

DEPENDENT VARIABLES

Our first dependent variable measures whether the victim sustained a serious injury during the commission of a robbery, forcible rape, or aggravated assault (1 = serious injury and 0 = no serious injury). A serious injury includes apparent broken bone(s), possible internal injury, severe laceration, unconsciousness, loss of teeth, and other severe injury. The second dependent variable measures whether an interracial crime culminated in the victim being killed by the offender. This variable is coded 1 if a murder or non-negligent manslaughter occurred during the commission of an interracial crime and 0 otherwise.[1]

INCIDENT-LEVEL VARIABLES

Several variables related to the crime incident are included in the analysis. The independent variable of theoretical interest pertains to the race of the offender and victim. Crimes that involve a black offender and white victim are coded 1, whereas crimes that involve a white offender and black victim are coded 0.[2] The offender's race is determined by the victim,

1. These crimes include kidnapping/abduction, robbery, aggravated assault, arson, burglary/breaking and entering, motor vehicle theft, destruction/damage/vandalism of property, drug/narcotic violations, and weapon law violations.
2. Asians are not included in this study because they represent less than 1 percent of all offenders identified in the NIBRS during 2005. Additionally, NIBRS does not differentiate Hispanics from either whites or blacks for reported offenses. In a crime incident, the race of the offender is usually reported to the police by the victim. In most cases, it is unlikely that the victim could discern whether the offender was Hispanic. The Hispanic variable is available for arrestees because it is self-reported.

Table 2. Descriptive Statistics and Definitions for the Incident-Level Variables

	Robbery *n* = 12,179	Forcible Rape *n* = 1,440	Aggravated Assault *n* = 8,289	Homicide *n* = 22,041	Definition
Serious victim injury	.06 (.23)	.08 (.28)	.24 (.43)	—	Coded 1 if the victim suffered a serious injury, 0 otherwise.
Homicide	—	—	—	.00 (.05)	Coded 1 if murder or nonnegligent manslaughter occurred during the commission of an interracial crime, 0 otherwise.
Black-on-white crime	.95 (.22)	.88 (.33)	.75 (.43)	.87 (.34)	Coded 1 if the offender is black and the victim is white, 0 if the offender is white and the victim is black.
Deadly weapon use	.58 (.49) M = 3.1%	.09 (.29) M = 4.2%	.66 (.47) M = 2.0%	.57 (.49) M = 2.7%	Coded 1 if the offender used a deadly weapon, 0 otherwise.
Offender-victim relationship	.90 (.30) M = 34.4%	.30 (.48) M = 16.7%	.36 (.48) M = 17.8%	.60 (.49) M = 27.3%	Coded 1 if the victim is a stranger to the offender, 0 otherwise.
Crime location	.17 (.38)	.64 (.48)	.38 (.49)	.28 (.45)	Coded 1 if the crime occurred in a residence, 0 otherwise.
Multiple offenses	.05 (.21)	.08 (.28)	.14 (.35)	.09 (.29)	Coded 1 if the offender reportedly committed multiple crimes, 0 otherwise.
Multiple offenders	.46 (.50)	.16 (.37)	.21 (.41)	.34 (.48)	Coded 1 if there were multiple offenders, 0 otherwise.
Multiple victims	.21 (.41)	.03 (.17)	.21 (.41)	.20 (.40)	Coded 1 if there were multiple victims, 0 otherwise.
Offender's age	24.66 (8.68) M = 21.2%	29.57 (10.36) M = 14.3%	28.80 (11.90) M = 10.7%	26.66 (10.43) M = 16.8%	Age of the offender in years.
Offender's sex	.96 (.19) M = .2%	.99 (.09)	.83 (.37) M = .1%	.92 (.28) M = .2%	Coded 1 if the offender is male, 0 otherwise.
Victim's age	34.89 (15.89) M = .6%	25.69 (12.09) M = .3%	31.15 (12.77) M = 1.8%	32.90 (14.80) M = 1.0%	Age of the victim in years.
Victim's sex	.72 (.45)	.01 (.08)	.65 (.48)	.64 (.48)	Coded 1 if the victim is male, 0 otherwise.

NOTE: Standard deviations are in parentheses.
ABBREVIATION: M = missing data.

whereas the victim's race is self-reported to the police. The offender was reported to be black in 95 percent of the interracial robberies, 88 percent of the interracial forcible rapes, and 75 percent of the interracial aggravated assaults. Although the validity of these figures relies on the victim's

accuracy in identifying the offender's race, the determination of an offender's racial characteristics by victims is believed to be fairly accurate (Hindelang, 1981). It is also improbable that any measurement error caused by the inaccurate reporting of an offender's race and other demographic characteristics to the police varies to any large degree by a victim's demographic characteristics (Greenberg, 1985).

Other incident-level variables measure criminal offense, criminal offender, and victim characteristics. Criminal offense characteristics include whether the offender used a deadly weapon, the relationship between the offender and the victim, and the location of the crime. Criminal offense characteristics also include whether the offender perpetrated multiple offenses and whether the incident involved multiple offenders and victims. The variables that measure the offender's characteristics include the age and sex of the offender. The variables that measure victim characteristics include the victim's age and sex. Table 2 displays the summary statistics and definitions for the incident-level variables included in the study.[3]

CITY-LEVEL VARIABLES

Prior research suggests that several contextual factors may influence the likelihood of a victim sustaining a serious injury during the commission of an interracial crime. Economic inequality is one such factor. The Gini index is used as a general measure of economic inequality in the analysis (Greenberg, Kessler, and Loftin, 1985; Jacobs, 1979). The larger the Gini score, the more economic inequality present within a given city. Additionally, because the Gini index is perceived to be racially insensitive (Jacobs and Helms, 1999), we deemed it appropriate to include two race-specific economic inequality measures in the analysis. The first of these variables measures white-to-black household income, and the second captures black-to-white unemployment. The black-to-white unemployment measure also helps us to consider the possibility that economic inequality has more dimensions than simply income differences (Jacobs and Wood, 1999).

In addition to the economic inequality variables, we also included in the analysis variables to measure the relative size of the black population and the degree of racial segregation present in each city. The relative size of the black population, which is a commonly used measure of racial threat,

3. Other potentially salient incident-level variables, such as prior criminal history of the offender and the degree of victim resistance during the commission of the crime, could not be included in the analysis because the NIBRS does not collect this information.

Table 3. Descriptive Statistics and Definitions for the City-Level Variables

	Robbery *n* = 126	Forcible Rape *n* = 119	Aggravated Assault *n* = 131	Homicide *n* = 134	Definition
Economic inequality	.29 (.04)	.28 (.04)	.29 (.05)	.29 (.05)	A measure of the distribution of household income for all residents (the Gini coefficient). Ranges from 0 to 1, 0 representing perfect equality and 1 total inequality.
Ln white-to-black income	.34 (.22)	.36 (.23)	.34 (.22)	.34 (.23)	A measure of the differences between the median white and black household incomes (logged).
Black-to-white unemployment	2.19 (1.00)	2.21 (1.03)	2.18 (1.01)	2.19 (1.01)	Ratio of black-to-white unemployment rates.
Percent black population	16.32 (17.58)	16.86 (17.91)	15.80 (17.48)	15.57 (17.37)	Percent of the population that is black or African American.
Racial segregation	47.63 (13.36)	48.20 (13.04)	47.30 (13.43)	47.15 (13.32)	The white-black dissimilarity index ranges from 0, indicating complete integration, to 100, indicating complete segregation.
Crime rate	960.35 (401.24)	999.70 (376.55)	949.86 (399.52)	934.37 (410.35)	Number of crimes incidents reported to the police divided by the city population and multiplied by 10,000.
Population density	3,128.48 (2,307.51)	3,141.68 (2,360.37)	3,106.84 (2,275.17)	3,095.33 (2,251.37)	Population per square mile of land area.
Percent male population ages16–24	7.35 (2.97)	7.52 (2.99)	7.39 (2.92)	7.38 (2.90)	Percent of the population prone to criminal activity (ages 16-24).
Southern city	.35 (.48)	.36 (.48)	.34 (.48)	.34 (.47)	A dummy variable coded 1 if the city is located in the South, 0 otherwise. Controls for the possibility of a southern subculture of violence and crime.
City disadvantage	.00 (1.00)	.00 (1.00)	.00 (1.00)	.00 (1.00)	Factor scores from principal component analysis of 3 variables: 1) percent of the population (ages 25+) that dropped out from high school, 2) percent of households headed by a single female with children, and 3) percent of households that receive public assistance income. Larger scores indicate greater disadvantage.

NOTE: Standard deviations are in parentheses.

assesses whether interracial crime is influenced by the degree of racial balance in the population (Jackson and Carroll, 1981). The index of dissimilarity is an often-used measure of residential segregation between two groups, and it reflects the relative distributions of blacks and whites across neighborhoods within the same city or metropolitan area. The dissimilarity index, which measures the percentage of blacks that would have to move across neighborhoods to be distributed evenly, varies between 0 and 100. A dissimilarity index of 0 indicates a condition of total integration, whereas a dissimilarity index of 100 reflects a situation of total segregation. Findings of an inverse relationship between racial segregation and interracial crime might be interpreted as supportive of heterogeneity theory because racial segregation should help to attenuate interracial contact (Messner and Golden, 1992).

Several other contextual variables are also included in the analysis. Because each variable is posited to affect victim injury, to include them as controls permits better estimates of racial animosity and heterogeneity effects. These variables encompass the crime rate, population density, the percentage of the male population between 16 and 24 years old, and a dummy-coded variable to indicate whether the city is located in the South, given past scholarship on regional differences in violent crime (Liska and Chamlin, 1984). A city disadvantage variable is also included in the analysis. This variable was constructed from a principal components analysis of the following three indicators of city disadvantage: 1) the percent of the population (aged 25 years and over) that dropped out from high school, 2) the percent of households headed by a single female with children, and 3) the percent of households that receive public assistance income. A high score on this composite variable indicates a greater level of city disadvantage. The means, standard deviations, and definitions for all city-level variables used in this study are displayed in table 3.

ANALYSIS AND FINDINGS

We began the analysis by examining whether black-on-white crime is more likely to result in serious victim injury than white-on-black crime for robbery, forcible rape, and aggravated assault.[4] We also attempted to determine whether a homicide is more apt to occur during the commission of a black-on-white crime. Visual inspection of the data depicted in table 4 shows that a consequential relationship does not exist between the race of the offender and the likelihood of a serious injury occurring during the

4. We used the EM method in SPSS 16.0, which applies maximum likelihood estimation, to impute missing data values (SPSS Inc., 2007). Nearly identical results were also achieved whether listwise deletion or mean substitution was used to handle the missing data.

course of an interracial robbery, as 5.5 percent of the robberies with black offenders/white victims and 6.8 percent of the robberies with white offenders/black victims resulted in a serious injury to the victim. Table 4 also shows that black-on-white rapes are no more violent in regard to victim injury than white-on-black rapes. Only for the crime of aggravated assault do white victims have an enhanced proclivity of being seriously injured by the offender. White victims have about a 5 percent greater chance than black victims of being seriously injured during an interracial aggravated assault. Visual examination of table 4 also reveals that blacks are no more likely to kill whites during the commission of a crime than are whites to kill blacks. There is less than a 1 percent chance that a black-on-white crime or a white-on-black crime will end in the victim being killed by the offender.[5]

Table 4. Percentage of Crime Incidents Resulting in Serious Victim Injury or Homicide

	Black-on-White	White-on-Black	Chi-Square	*p*-Value
Robbery	5.5%	6.8%	1.664	.197
	(11,542)	(637)		
Forcible rape	8.4	8.0	.022	.883
	(1,266)	(174)		
Aggravated assault	25.2	20.4	20.283	.000
	(6,192)	(2,097)		
Homicide	.2	.2	.011	.918
	(19,116)	(2,925)		

NOTE: Crime incidents are in parentheses.

We next employed the Laplace procedure in hierarchical linear modeling to generate parameter estimates because the data are multilevel and the dependent variables are dichotomous (Raudenbush, Yang, and Yosef, 2000; Raudenbush et al., 2001). The Laplace procedure is advantageous in that it affords us the ability to calculate a likelihood ratio test that can be used to compare how well the same data set fits alternative models. More specifically, the likelihood ratio test compares the deviance statistic generated in a restrictive model with the deviance statistic produced in a more general alternative model. The deviance statistic is a measure of the lack of fit between the model and the data. The larger the deviance statistic, the poorer the model fits the data. If the change in deviance is statistically significant, then one can conclude that the more complex general model

5. Data derived from the NIBRS also show that the proportion of crime incidents with serious victim injury is similar for both interracial and intraracial crime. This finding suggests that interracial crime is no more serious than intraracial crime.

fits the data better than the simpler restrictive model. However, if no substantive difference is observed between the two deviance scores, then the simpler restrictive model should be accepted by the researcher as appropriate because it is more parsimonious. In our case, we used the likelihood ratio test to compare how well the fixed and random models fit the data for the intercept and for the black-on-white crime equations. The other incident-level variables were modeled as fixed because between-city variation for these variables was not of interest in this study. The incident and city-level variables were centered by subtracting their grand means, so that the mean of each variable was zero across all cases. The centering of a variable helps to reduce multicollinearity and to facilitate interpretation when it becomes the dependent variable in the city-level model. Centering allows the intercept to be interpreted as the mean level of serious victim injury for the sample of cities, after adjusting for the incident-level variables. The black-on-white crime coefficient can be interpreted as the average gap in injury probabilities between black-on-white and white-on-black crime incidents among the cities. This variability between cities is the outcome variable in the between-city model.

The results generated from the likelihood ratio tests showed that a significant change in deviance occurred between the fixed and random models for all the estimated intercept equations: robbery (22,318.55, $p = .000$), forcible rape (2,632.55, $p = .000$), aggravated assault (14,543.29, $p = .000$), and homicide (40,506.28, $p = .000$). Somewhat surprisingly, the change in deviance for the black-on-white crime equation was not statistically significant for any of the offense categories: robbery (2.51, $p = .284$), forcible rape (1.10, $p > .500$), aggravated assault (2.66, $p = .263$), and homicide (.20, $p > .500$). These findings are interesting in that they suggest that the incident-level, fixed-effects model is superior to the random-effects model in explaining black–white differences in serious victim injury. The conclusion that can be drawn from this preliminary analysis is that although both black-on-white crime and white-on-black crime may be more violent in certain cities, black-on-white crime is no more or less likely to be violent in a given city than is white-on-black crime. For example, if black-on-white crime is more violent in Detroit than in other cities, then white-on-black crime will also be more violent in Detroit than in other cities. Such a finding is incongruous with racial animosity theory because it suggests that, controlling for the incident-level variables, contextual factors have similar impacts on both black-on-white crime and white-on-black crime. Based on these preliminary findings, our between-city-level model only investigates why serious victim injury or death that occurs during an interracial crime varies among the cities.

Table 5 presents the multilevel models for the likelihood of serious victim injury and homicide that occurred during the crimes of robbery, forcible rape, and aggravated assault.[6] Model 1 in table 5 estimates the effects of the black-on-white crime variable and the control variables on the likelihood of serious victim injury transpiring during a robbery. The small and nonsignificant effect of the black-on-white crime variable can be interpreted as evidence against racial animosity theory. It seems that black offenders are no more likely than white offenders to harm their victims seriously during an interracial robbery, controlling for other factors. One salient effect in this model is whether the victim was a male. The presence of a male victim elevates the odds of serious injury for robbery by approximately 90 percent. The coefficients for multiple offenses, multiple victims, multiple offenders, sex of the offender, and age of the victim are also noteworthy in this equation. A victim is more apt to sustain a serious injury during a robbery that had other crimes committed, that had fewer victims, and that had multiple offenders. Additionally, in robberies with older victims, serious injury was more likely to occur. For the aggregate model, only two variables are statistically significant: the crime rate and the percent of the population that is black. In cities with a high crime rate and in cities with a small black population, robberies are more apt to result in serious victim injury. None of the other city-level variables are statistically significant in this equation.

The results for model 2 again fail to show a discernible relationship between the black-on-white crime variable and the likelihood of serious victim injury occurring during a forcible rape. This finding also fails to support racial animosity theory because black offenders are no more likely to physically harm their white victims during a rape than are white offenders to seriously injure their black victims. Only two variables directly impact the likelihood of a serious victim injury occurring during a forcible rape at the incident level. The probability of a victim being physically harmed during a forcible rape is greater when multiple offenders are involved in the crime and when the victim is older. "Southern city" is the only contextual variable that is statistically significant in this equation.

A visual inspection of model 3 reveals that the likelihood of serious victim injury occurring during a black-on-white aggravated assault is greater than for a white-on-black assault, net of other factors. A black-on-white incident heightens the odds of serious victim injury for aggravated assault by about 13 percent. Although this finding is most important substantively, the effects of several other independent variables are also noteworthy. Net

6. We calculated Variance Inflation Factors (VIFs) for all the estimated models. The VIFs did not exceed 2.0 for any of the models, which thereby indicates that multicollinearity did not influence our results adversely.

of controls, the presence of multiple offenses during the crime incident, multiple victims, deadly weapon use, and stranger crimes all decrease the odds of a serious victim injury occurring. In contrast, multiple offenders, male offenders, and male victims increase the likelihood of a serious injury transpiring during the commission of an aggravated assault. No contextual variables reach statistical significance in this model.

The analyses presented in the first three models focused on serious victim injury, but one has to wonder whether black-on-white crimes are more apt than white-on-black crimes to result in the victim being killed by the offender. Our results using homicide as the outcome of interest mirror our previous findings. Although these findings are much more unstable because of the relatively small number of homicides that occurred during the commission of an interracial crime, the results presented in model 4 still show that a black-on-white crime is no more likely than a white-on-black crime to result in a homicide. Results for this model also show that an interracial homicide is more likely to transpire for crime incidents that involve multiple victims, for crime incidents in which a deadly weapon was used, for incidents that occurred within a residence, for incidents in which younger offenders were involved, and for crime incidents that involved older victims. In over 82 percent of the homicides, a firearm was the deadly weapon used by the offender. Although the use of a firearm during the commission of a crime is reported to decrease victim injury because a victim is much more apt to concede to the armed offender's demands, the likelihood of a death occurring is much greater for crimes with firearms than for crimes that involve other weapons, such as knives, either because of the lethal intent of the offender or the lethality of a firearm as a weapon (Kleck, 1997). Our results mirror this common assertion because the use of a deadly weapon by the offender is only positive and substantive in the homicide equation. In the other three models, either no relationship or a negative relationship is observed between deadly weapon use and serious victim injury. Only the population density variable reaches statistical significance in this equation. As population density decreases, interracial homicide declines.

Overall, the results presented in table 5 show little support for racial animosity theory. Our findings reveal that black offenders are no more likely than white offenders to injure their victims seriously during an interracial robbery or forcible rape. Our findings also furnish little empirical evidence that racial animosity explains black-on-white homicide because black-on-white crimes are no more apt than white-on-black crimes to culminate in the victim being killed by the offender. We do find some evidence that black-on-white crimes are more violent for aggravated assault. This finding contravenes the results generated in the other models.

Table 5. Nonlinear Hierarchical Models Estimating the Probability of Serious Victim Injury and Homicide

	Model 1 Robbery		Model 2 Forcible Rape		Model 3 Aggravated Assault		Model 4 Homicide	
	Coefficient	*t*-Value	Coefficient	*t*-Value	Coefficient	*t*-Value	Coefficient	*t*-Value
Incident Level								
Black-on-white crime	–.183	(–.905)	.049	(.173)	.120**	(2.967)	–.321	(–.914)
Deadly weapon use	.102	(1.203)	.157	(.541)	–.809***	(–7.155)	1.292***	(3.626)
Offender-victim relationship	–.185	(–1.200)	.084	(.299)	–.171**	(–2.617)	–.406	(–1.107)
Crime location	.083	(.668)	–.109	(–.584)	.036	(.704)	.679*	(2.007)
Multiple offenses	.752***	(3.370)	–.096	(–.401)	–.319***	(–3.581)	—	—
Multiple offenders	.319***	(3.602)	.533*	(2.361)	.359***	(5.401)	.331	(1.257)
Multiple victims	–.485***	(–3.730)	.450	(.963)	–.468***	(–6.384)	2.387***	(6.129)
Offender's age	–.002	(–.322)	–.006	(–.538)	.002	(.824)	–.044**	(–2.931)
Offender's sex	.744**	(2.490)	—	—	.198*	(2.263)	1.541	(1.640)
Victim's age	.010***	(4.664)	.018*	(2.347)	.003	(1.338)	.031**	(3.023)
Victim's sex	.644**	(2.858)	—	—	.507***	(7.805)	.115	(.353)
n incidents	12,179		1,440		8,289		22,041	
City Level								
Economic inequality	.034	(.016)	–.204	(–.051)	3.450	(1.658)	3.507	(.921)
Ln white–to–black income	–.610	(–1.298)	.524	(.584)	.277	(.487)	–1.809	(–1.154)
Black–to–white unemployment	–.166	(–1.180)	–.398	(–1.373)	–.118	(–1.100)	.213	(.462)
Percent black population	–.013**	(–2.566)	.008	(.690)	–.004	(–.629)	.018	(1.182)
Racial segregation	–.004	(–.453)	–.003	(–.230)	.014	(1.556)	.008	(.491)
Crime rate	.001***	(3.635)	.001	(1.264)	.223e–3	(.759)	.013e–3	(.021)
Population density	–.078e–3	(–1.176)	.032e–3	(.338)	–.026e–3	(–.497)	–.364e–3*	(–2.389)
Percent male population 16–24	.006	(.197)	–.119	(–1.882)	.019	(.773)	–.073	(–.489)
Southern city	–.053	(–.282)	.784**	(2.634)	–.337	(–1.614)	–.567	(–1.302)
City disadvantage	.082	(.662)	–.004	(–.014)	–.179	(–1.338)	.027	(.092)
n cities	126		119		131		134	

NOTES: Results are estimated from population-average models with robust standard errors. Because of insufficient variation, the offender's sex and the victim's sex variables were eliminated from the forcible rape equation, and the multiple offenses variable was excluded from the homicide equation.

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$ (two-tailed tests).

One plausible explanation for this contradictory finding that merits some consideration relates to the intent of the offender in an aggravated assault and to some physical differences between whites and blacks. Unlike the crimes of robbery and rape, the intent of the offender in an aggravated assault is to injure the victim. For instance, Felson and Steadman (1983) found that many assaults follow a systematic pattern in that people first engage in a verbal conflict over some often trivial issue that ultimately escalates into a physical attack. Retaliation is recognized as a salient factor in the escalation of violence because the intent of the offender is to injure the victim. In contrast, although robbery is also considered a violent crime, the primary intent of a robber is to obtain money rather than to injure the victim. In a study of active armed robbers, for example, Wright and Decker (1997) found that people turned to robbery as an easy and expedient means to alleviate their financial problems that were often engendered by excessive gambling, alcohol, and drug abuse. Robbers claimed that they only resorted to physical violence when the victim failed to comply with their demands. As Wright and Decker (1997: 113) note, "faced with a recalcitrant victim, most offenders responded with severe but nonlethal violence in the hope of convincing the person to cooperate." Injuring the victim is also not the main objective of the offender during the commission of a rape. Rather the intent of the offender in a rape is to exert control over the victim and/or to derive sexual gratification.

It is also important to recognize that some physical differences exist between blacks and whites that may increase the likelihood that a white victim will be injured by a black offender during the commission of an aggravated assault, in which the intent of the offender is to injure the victim. For instance, studies show that blacks are on average more mesomorphic than whites (Wagner and Heyward, 2000; Wilson and Herrnstein, 1985). Racial differences in bone mass, bone size, and bone mineral density may also lead to a lower incidence of bone fractures in black than in white assault victims (Farmer et al., 1984; Gilsanz et al., 1998; Griffin et al., 1992). Consequently, if the goal of an offender in an aggravated assault is to injure the victim physically and if physical differences between blacks and whites increase the odds that a white victim will be physically harmed during an aggravated assault, then it would not be all that surprising to find that black-on-white aggravated assaults result in more serious victim injury.[7] However, only future research designed to test this hypothesis can ascertain whether it is more than merely plausible and actually produces the pattern observed for aggravated assault in this study.

7. Another possibility for this finding is the wide variety of events that are categorized as aggravated assault, as compared with the crimes of robbery and rape.

CONCLUSION

Explaining interracial crime remains a topic of enduring interest to social scientists. A large and varied research literature has been assembled that attempts to understand the patterning of interracial crime in our society. The sweeping conclusion reached by these empirical studies is that black-on-white crime occurs with much greater frequency than white-on-black crime, although whites outnumber blacks in the population. Both racial animosity and heterogeneity theory have been proffered to explain this phenomenon. Each perspective offers divergent conceptualizations of the causal factors responsible for the difference between whites and blacks in their likelihood to perpetrate an interracial crime, but differentiating between them has proven difficult. This uncertainty is probably the result of data constraints. Researchers have often approached the study of interracial crime by analyzing aggregate data, although drawing inferences about individual-level processes from such data remains problematic.

To furnish a more appropriate test of racial animosity theory, we argued that data were needed that could be used to model an offender's decision-making process during the commission of a crime. Our approach here is different from previous research in that we tried to model the actions of an offender during a crime to ascertain whether black-on-white crimes are more violent than white-on-black crimes, while accounting for many factors related to the crime incident. We also sought to determine whether a homicide is more apt to occur during the commission of a black-on-white crime than a white-on-black crime. The assumption here is that both white and black victims are equally likely to being seriously injured or killed by the offender during an interracial crime. Crime incidents were also nested within cities to determine whether contextual factors played a role in the severity of victim injury.

Generally, our results are not in accord with the tenets of racial animosity theory and speak to the veracity of the claim that blacks specifically target whites to victimize because of the injustices associated with past slavery and racial discrimination. The findings show that a white or black victim has roughly the same odds of being seriously injured during the commission of an interracial robbery or forcible rape. White and black victims also have approximately the same odds of being murdered during an interracial crime.

Our finding that blacks are generally no more or less likely to harm seriously or kill white victims during the commission of an interracial crime also bears directly on current debates about racial bias in criminal sentencing and in the imposition of the death penalty. Social scientists have amassed a large body of research to show that a victim's race plays an influential role in predicting the severity of criminal sanctions (Spohn,

2002). Others have also reported racial bias in the imposition of the death penalty, particularly in the prosecution of homicides that involve a black offender and a white victim (U.S. General Accounting Office, 1990). Despite the consistency of these findings, a recent study undertaken by the RAND Corporation reports little evidence of racial discrimination in the use of the death penalty (Klein, Berk, and Hickman, 2006). Although the authors of this study found that the death penalty was sought more often against defendants who murdered white victims, they concluded that the heinousness of the crime rather than the racial characteristics of the offender or victim were most salient in determining the imposition of the death penalty in federal cases.

The belief that black offenders are sentenced more severely because their crimes are endemically more serious in nature than similar offenses perpetrated by white offenders, particularly in instances where the offender is black and the victim is white, has become relatively commonplace in the literature (Kleck, 1981). Indirect support for this view can be garnered from research studies that find qualitative differences in the specific circumstances surrounding homicides (Parker and Smith, 1979; Smith and Parker, 1980). The findings reported here, however, lead one to doubt this position. If a black offender is no more apt than a white offender to injure seriously or kill his or her victim during the commission of an interracial crime, then one must question the belief that qualitative differences, at least in regard to offense seriousness, explain why blacks are sentenced more harshly than are whites. Considering our results, it seems that heterogeneity theory probably offers a better explanation for why black-on-white crime is more prevalent than white-on-black crime.

The current study is preliminary. Although we are mindful of potential limitations, we believe the analyses conducted here furnish a starting point for future research in this area. A weakness of the current study was our inability to measure the racial attitudes of offenders. Although it would be extremely difficult if not impossible to determine whether an offender actually harbored feelings of racial animosity at the time of the interracial crime, data sets are available to researchers that contain information on the attitudes and beliefs that one racial group holds for another within different U.S. cities. Social scientists may find it advantageous to merge these data sets with data on interracial crime to determine whether the level of racial animosity within a given city predicts interracial crime, holding constant other factors. Undertaking these types of analyses will only help to shed additional light on the validity of racial animosity theory.

By no means conclusive, the goal of this study was to develop a deeper understanding of interracial crime. Our data afforded us the unique opportunity to investigate whether black offenders are more likely than

white offenders to seriously injure or kill their victims during the commission of an interracial crime. The results generated in this study challenge the belief that racial animosity explains black-on-white crime.

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Stewart J. D'Alessio is an associate professor in the Department of Criminal Justice at Florida International University. He received his B.A.

in history from Stetson University and his M.S. and Ph.D. in criminology from Florida State University.

Lisa Stolzenberg is a professor and chair of the Department of Criminal Justice at Florida International University. She received her B.A. in criminal justice from the University of Florida and her M.S. and Ph.D. in criminology from Florida State University. Her research examines disparity and discrimination in criminal justice decision making.