Social Disorganization & Violence in Arkansas in 2018

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The focus of this study is violent crime in Arkansas and the role social disorganization has in the occurrence of violent crime. There are several research questions guiding this study that seek to better understand the causes of violent crime. Does social disorganization within communities cause violent crime in Arkansas? Does poverty, specifically, have a statistically significant relationship with violent crime? Do any of the social disorganization components better predict violence? Is poverty more likely to impact violence than the other social disorganization variables? Is there variation in which violent crimes can be predicted by social disorganization or each of its individual components? What crime is racial heterogeneity most significantly related to?

In Arkansas, violent crime rates can vary drastically from place to place. This variance suggests there might be some factor present in areas

with higher crime rates that is not present in areas with lower crime rates. Investigating the disparities among crime rates, specifically in cities and counties in Arkansas, and seeking to identify influences can help us identify causes of violent crime. Moreover, what is different in counties or cities with high violent crime rates from those with low rates? Tables 1 and 2 below demonstrate how drastically violent crime rates vary across counties and cities in Arkansas.

Table 1. Highest and Lowest Violent Crime Rates in <u>Counties</u> in Arkansas in 2018 per 100,000 People. (n=75)

Highest	Lowest
1. Ouachita (4257.13)	66. Calhoun (631.70)
2. Phillips (4223.14)	67. Columbia (520.37)
3. Crittenden (3973.56)	68. Hot Spring (517.34)
4. Pulaski (3819.04)	69. Searcy (506.65)
5. Jefferson (3684.78)	70. Lawrence (501.01)
6. Miller (3471.32)	71. Lincoln (479.14)
7. Mississippi (3262.13)	72. Montgomery (477.82)
8. Crawford (3143.43)	73. Nevada (400.94)
9. Lee (3110.42)	74. Pike (384.07)
10. Arkansas (2685.54)	75. Perry (348.77)

Note: None of these counties are outliers for violent crime rates. See Table 4 for more

information.

Table 2. Highest and Lowest Violent Crime Rates in <u>Cities</u> in Arkansas in 2018 per 100,000 People. (n=50)

Highest	Lowest
1. Little Rock (5458.93)	46. Magnolia w/SAU (778.99)
2. Blytheville (5186.74)	47. Bella Vista (586.85)
3. Pine Bluff/UAPB (5045.62)	48. Lowell (525.10)
4. Jacksonville (4742.38)	49. Malvern (499.68)
5. Camden (4586.40)	50. Fayetteville w/UA (102.29)

Note: None of these cities are outliers for violent crime rates. See Table 4 for more information.

What exactly contributes to the drastic differences we see in violent crime rates? Studying violent crime is a key component in understanding the complex nature of a community and its role within the community. By seeking associations that can be made between violent crime and potential causes, we are better able to tailor our law-making process and safety measures to better assist our communities. This analysis was conducted throughout the course of the spring 2020 semester, spanning mid-January to late April of the same year. Data were collected from the Arkansas Crime Information Center (ACIC) (2018) and the U.S. Census Bureau (2019) to analyze social disorganization components as they relate to violent crime rates.

Literature Review: Empirical Findings

<u>Poverty & Violence.</u>

Sciandra, Sanbonmatsu, Duncan, Gennetian, Katz, Kessler, Kling, and Ludwig (2013) found that crime is disproportionately concentrated in disadvantaged communities and sought to determine if helping youth move out of high-poverty areas would prevent their involvement in crime in the future. They found that criminal behavior is related to current neighborhood conditions, specifically socioeconomic status prevalent in the specific neighborhood. Tcherni (2011) found the same thing; there are structural forces that influence violent crime rates, especially homicide rates, with poverty and low education being the primary influences. Hannon and Defina (2005) sought to test the relationship between the prevalence of poverty in a given neighborhood and violent crime, specifically focusing on any potential variance in the alleviation of violent crime as efforts to reduce poverty were taken in mostly White neighborhoods and in mostly Black neighborhoods. Hannon and Defina (2005) found that regardless of the racial makeup of a neighborhood, the alleviation of poverty resulted in reduced violent crime rates, suggesting that poverty is more strongly associated with violent crime in a neighborhood than racial composition.

Some research indicates that poverty has a way of breaking down individuals until it seems to them there is no other choice than to engage in criminal activity to lessen the consequences of living an impoverished life and potentially improve their well-being. Moreover, Corcoran and Stark (2018) go so far as to suggest the following: "Poverty is said to cause misery as well as envy, and hence people will seek to increase their material well-being by illegal means -- their frustrations also prompting them to violent behavior." This effect is especially prevalent in geographical areas, including specific cities, where both wealthy and impoverished people reside. Ultimately,

poverty relative to others living in the area may incite more violence (Corcoran & Stark, 2018).

Race & Violence.

Boggess (2017) discusses how "racial/ethnic churning," a concept she describes in reference to increases in racial heterogeneity at the neighborhood and community level, often results in an increase in crime rates, as well. According to Boggess (2017), "racial/ethnic churning is a specific type of residential instability that may be especially detrimental to neighborhoods, and this is particularly the case for violent crime"
(p. 38-39).

Feldmeyer, Steffensmeier, and Ulmer (2013) found that racial and ethnic composition of a given area was associated with higher rates of violent crime. Areas were sorted based on the prevalence of African American residents and Latino residents, and findings held consistent for both. Specifically, the more racially heterogeneous an area was, the higher the prevalence of violent crime (Feldmeyer et al, 2013). However, Shaw and McKay (1969) found that certain residential communities exhibited continuously high crime rates despite changes in racial or ethnic composition and claimed there were more significant neighborhood factors capable of influencing crime rates than specific characteristics of residents (Kubrin & Weitzer, 2003). Therefore, though racial composition may be capable of influencing criminal behavior in neighborhoods, it is likely that there are other factors at play that are more strongly associated with impacting crime rates.

Residential Stability & Violence.

One component of social disorganization theory proposed by Shaw and McKay (1969) is residential stability (Sampson & Groves, 1989). When considering the relationship between social disorganization and violence, collective efficacy of a neighborhood is an important concept to examine. Brown and Weil (2020) found that decreasing

marginalization and improving collective efficacy reduced violence in neighborhoods. Corcoran and Stark (2018) claim that though many different factors are related to collective efficacy in neighborhoods, gender inequality and residential instability at the community-level are most largely associated with violent crime. Henry, Gorman-Smith, Schoeny, and Tolan (2014) suggest individual families may function differently depending on the social organization (or lack thereof) of the neighborhood, specifically noting the stability of the neighborhood and the cohesion through which residents are able to relate and interact with one another. Henry et al (2014) tested this relationship with their "Neighborhood Matters" scale to determine the role of residential stability in influencing crime and found that neighborhoods with less stability did have more run-ins with police, specifically finding that social cohesion was significantly correlated with violent crime.

Sciandra et al (2013) sought to determine if Sampson's "situational" neighborhood effects or "developmental" neighborhood effects better predicted criminal behavior, finding that current neighborhood conditions (situational effects) were more strongly related to crime than past conditions (development effects). Moreover, the current stability of a neighborhood is significantly associated with criminal behavior among residents. Specifically, mobility was examined as a facet of residential stability, and Sciandra et al (2013) confirmed that the lower the rates of mobility in a neighborhood, the lower the prevalence of crime.

Literature Review: Theoretical Assumptions

Rather than focusing on deficiencies or variations among *people* that lead to criminal behavior as many criminological theories have done, social disorganization theory focuses on deficiencies and variations among *places* that impact crime rates (Kubrin & Weitzer, 2003). Social disorganization theory explains how both the physical

environment and social conditions of a community or neighborhood can experience broken down and ineffective social control, in turn releasing residents to offend (Shaw & McKay, 1969; Sampson & Groves, 1989). Though many researchers have contributed to our understanding of social disorganization over the years, Shaw and McKay are credited with being the founders of the theory. While researching social factors and their potential impact on crime, they found that certain community-level factors seemed to play a role in determining which residential areas would have higher crime rates. Shaw and McKay (1969) claimed that communities with high concentrations of poverty, residential instability, and racial heterogeneity were socially disorganized, which in turn led to increased crime rates (Sampson & Groves, 1989).

Social disorganization theory best explains how poverty, race, and residential stability, my independent variables, have the potential to impact violence, my dependent variable, in a community. According to Sampson and Groves (1989), "Low economic status, ethnic heterogeneity, residential mobility, and family disruption lead to community social disorganization, which, in turn, increases crime and delinquency rates" (p. 774). Through their own research, Sampson and Groves (1989) were able to support Shaw and McKay's (1969) original model for the theory and conclude that community structural characteristics impact criminal victimization and offending. Specifically, social disorganization refers to "the inability of a community structure to realize the common values of its residents and maintain effective social controls" (Sampson & Groves, 1989, p. 777). Henry, Gorman-Smith, Schoeny, and Tolan (2014) were able to support the findings of Sampson & Groves, confirming that there are external factors at play within neighborhoods that influence residential behavior, including crime rates.

Essentially, social disorganization theory accounts for both social conditions and the physical environment to explain how social control

can become broken down in communities and, therefore, release the individuals living within those communities to offend. High rates of residents living below the poverty line, high rates of heterogeneity in regards to race, high rates of residential mobility, and residential instability, in general, all have the potential to greatly impact the social organization of a community. These factors tend to prevent inhabitants from finding common ground over which to bond and from creating strong social ties. Therefore, the residents of socially disorganized communities tend to lack the desire to preserve or protect their community, which is shown in higher violent crime rates. According to Sun, Triplett, and Gainey (2004), Sampson and Groves proposed a model while attempting to test social disorganization theory that was able to predict "that social disorganization limits the capacity of neighborhoods to regulate and control behavior, which contributes to higher rates of crime and delinquency," (p. 1). Moreover, various factors, such as poverty, residential stability, and racial heterogeneity, contribute to social disorganization within a community. In communities where there is more social disorganization, residents typically live as strangers rather than fellow community members (Corcoran & Stark, 2018). In these circumstances, individuals do not experience the social ties and bonds that keep a healthy level of social control in place, and thus open the community up to a heightened presence of criminal activity.

Hypotheses

Over the course of this paper, the relationship between social disorganization and violent crime rates in Arkansas (in 2018) will be thoroughly examined. Several variables will be analyzed to fully evaluate this potential relationship, and criminological theories will be used to explain each. Specifically, this research will test the following hypotheses:

H1: Communities with more social disorganization are expected to have higher rates of violent crime. Social disorganization theory argues that the presence of social disorganization factors, such as poverty, residential instability, and racial heterogeneity, lead to more violent crime (Shaw & McKay, 1969; Sampson & Groves, 1989).

H2: Social disorganization will better predict violent crime at the city level than the county level. Social disorganization theory was originally derived with smaller geographic areas, or cities, in mind, as seen by the concentric zone model derived by Shaw and McKay (1969) (Roh & Choo, 2008). Therefore, it is reasonable to assume that social disorganization theory will better predict violent crime at the city level than the county level.

H3: Poverty will be more strongly associated with rates of violent crime than residential stability or racial heterogeneity. Hannon and DeFina's (2005) findings suggest that poverty is more strongly associated with violent crime than racial composition is. Overall, residential stability is most often measured using neighborhoods as the comparative unit (Sampson & Groves, 1989; Boggess & Hipp, 2010). Therefore, applying the same expectations of collective efficacy to cities and counties as the comparative units may reveal a less significant relationship, suggesting residential stability is not the component of social disorganization most related to violent crime.

H4: Racial heterogeneity will be more strongly associated with aggravated assault than murder, simple assault, or total violent crime. Areas with a high degree of segregation seem to consolidate large sums of people facing multiple disadvantages, such as monetary or educational opportunities, into one condensed region, leading to increased violence; Akins (2009) explored this community dynamic and found that segregation

was most positively and significantly associated with aggravated assault.

Methods

<u>Data and Measures</u>

The analytical procedure for this study was conducted using the Statistical Package for the Social Sciences (SPSS). This study utilized existing statistics from the U.S. Census Bureau, Arkansas Crime Information Center (ACIC), and American Community Survey (ACS Census). The units of analysis are cities (n = 50) and counties (n = 75) in Arkansas. In terms of cities, only the fifty largest were used in this analysis. The was used for all data analysis. The data was collected by a group of students; each person in the group collected and recorded data from the sources mentioned above. The data was then compiled to an SPSS file to be used as the basic data set. The file was then adapted to reflect the specific research focus of this project and the corresponding variables being used.

Specific variables were analyzed in an attempt to answer the previously stated research questions. Data related to violent crime were analyzed. In order to further examine violence, data on murder, aggravated assault, simple assault, and violent crime overall was collected and later transformed into rates. These rates of violent crimes are the dependent variables. Data related to concepts of poverty, residential stability, and racial heterogeneity were analyzed to measure social disorganization. These factors of social disorganization are the independent variables. Refer to Table 3 below to see the measurement, coding details, and descriptive statistics of each variable.

Table 3. Summary of Variables in the Study.

Concept	Measure	Coding Details	Characteristics
Murder Rate [MurdRATE18] (dependent variable)	NIBRS defines murder (in 2018) as "the willful killing" of another humanb being. Median rates of murder in 2018 were calculated for the cities and counties in the sample.	Continuous variable: By county, rates range from 0 to 69.95 per 100,000 By city, rates range from 0 to 76.36 per 100,000	County: N = 75; Mean of 7.44 (s.d., 11.14); Median 3.69 City: N = 50; Mean of 9.73 (s.d., 17.14); Median 0
Aggravated Assault Rate [AARATE18] (dependent variable)	NIBRS defines aggravated assault (in 2018) as "an unlawful attack by one person upon another wherein the offender uses a weapon…" Median rates of aggravated assault in 2018 were calculated for the cities and counties in the sample.	Continuous variable: By county, rates range from 37.47 to 1265.82 per 100,000 By city, rates range from 83.15 to 1658.02 per 100,000	County: N = 75; Mean of 338.51 (s.d., 233.85); Median 261.69 City: N = 50; Mean of 481.84 (s.d., 348.65); Median 381.19
Simple Assault Rate [SimpARATE18] (dependent variable)	NIBRS defines simple assault (in 2018) as "an unlawful physical attack" in which the offender does not display a weapon. Median rates of simple assault in 2018 were calculated for the cities and counties in the sample.	Continuous variable: By county, rates range from 38.75 to 1879.61 per 100,000 By city, rates range from 63.60 to 2750.41 per 100,000	County: N = 75; Mean of 744.38 (s.d., 434.75); Median 724.50 City: N = 50; Mean of 1101.28 (s.d., 651.57); Median 979.48
Violent Crime Rate [VTotRATE18] (dependent variable)	We examined the concept of violence (in 2018) as the combination of all the NIBRS "Crimes Against Persons" listed in their "Offenses By Contributor: 2018" publication.	Continuous variable: By county, rates range from 348.77 to 4257.13 per 100,000 By city, rates range from 102.29 to 5458.93 per 100,000	County: N = 75; Mean of 1686.14 (s.d., 980.07); Median 1547.97 City: N = 50; Mean of 2386.44 (s.d., 1383.46); Median 1996.61
Percent in Poverty [PctPoor] (independent variable)	The U.S. Census Bureau measures the percent of persons in poverty (in 2018) by determining if the family's total income is less than the family's threshold.	Continuous variable: By county, PctPoor ranges from 8.10% to 43.00%. By city, PctPoor ranges from 4.50% to 41.70%.	County: N=75; Mean of 19.71% (s.d. 5.51); Median 18.70% City: N=50; Mean of 19.80% (s.d. 8.52); Median 20.90%
Mobility Rate [Mobility16] (independent variable)	The U.S. Census Bureau defines mobility (in 2018) as the percent of persons living in the same residence as 1 year ago.	Continuous variable: By county, Mobility16 ranges from 76.00% to 94.40% By city, Mobility16 ranges from 66.40% to 93.20%	County: N=75; Mean of 85.81% (s.d. 3.78); Median 85.70% City: N=50; Mean of 85.81% (s.d. 5.97); Median 81.25%
Percent White Alone [PctWhite] (independent variable)	The U.S. Census Bureau defines White alone, not Hispanic or Latino (in 2018) as individuals who reported "White" as their only entry regarding race.	Continuous variable: By county, PctWhite ranges from 34.60% to 97.10% By city, PctWhite ranges from 19.80% to 95.50%	County: N=75; Mean of 76.12% (s.d. 17.19); Median 81.30% City: N=50; Mean of 66.24% (s.d. 21.74); Median 69.25%
Poverty Indexes [PovertyIndexCOUNTY, PovertyIndexCITY] (independent variable)	Weighted, composite indexes that include: percent of persons in poverty (PctPoor), median household income (in 2016 dollars) 2014-2018 (MedHHInc)	Ordinal variable: Ranges from 2 (lowest prevalence of poverty) to 6 (highest prevalence of poverty).	County: N=75; Mean of 3.99. City: N=50; Mean of 3.98.
Residential Stability Indexes [ResStabilityCOUNTY, ResStabilityCITY] (independent variable)	Weighted, composite indexes that include: owner-occupied housing unit rate 2014-2018 (PctHomeOwn), percent of persons age 1+ year living in same house 1 year ago 2014-2018	Ordinal variable: Ranges from 2 (most stable) to 6 (least stable).	County: N=75; Mean of 4.01. City: N=50; Mean of 3.98.

	(Mobility16)		
Racial Heterogeneity Proxies [PctMinorRANKCOUNTY, PctMinorRANKCITY] (independent variable)	PctMinor is used as a proxy for racial heterogeneity. PctMinor is as follows: (100 - PctWhite).	Ordinal variable: Ranges from 1 (least racially heterogeneous) to 3 (most racially heterogeneous).	County: N=75; Mean of 2.00. City: N=75; Mean of 2.00.
Social Disorganization Indexes [SocDisorgNDXCounty, SocDisorgNDXCity] (independent variable)	Measured by combining the Poverty Index, Residential Stability Index, and Racial Heterogeneity Index.	Ordinal variables: County index ranges from 6 (least socially disorganized) to 14 (most socially disorganized). City index ranges from 7 to 14.	County: N=75; Mean of 10.00. City: N=50; Mean of 9.96.

Note: Table 3 includes partial definitions. The complete definitions of each concept as defined by the National Incident-Based Reporting System (NIBRS) and the U.S. Census Bureau follow.

Dependent Variables

     Violence was examined using data on murder, aggravated assault, simple assault, and total violent crime, as measured by the Arkansas Crime Information Center (ACIC) and defined by the National Incident-Based Reporting System (NIBRS). According to the ACIC (2018), NIBRS defines murder as "the willful (nonnegligent) killing of one human being by another." NIBRS defines aggravated assault "an unlawful attack by one person upon another wherein the offender uses a weapon or displays it in a threatening manner or wherein the victim suffers obvious severe or aggravated bodily injury involving apparent broken bones, loss of teeth, possible internal injury, severe laceration, or loss of consciousness (ACIC, 2018). This also includes assault with disease (as in cases when the offender is aware that he/she is infected with a deadly disease and deliberately attempts to inflict the disease by biting, spitting, etc.)." NIBRS defines simple assault as "an unlawful physical attack by one person upon another where neither the offender displays a weapon nor the victim suffers obvious severe or aggravated bodily injury involving apparent broken bones, loss of teeth, possible internal injury, severe laceration, or loss of consciousness" (ACIC, 2018). The concept of violent crime (in 2018) is examined as the combination of all the NIBRS "Crimes Against

Persons" listed in "Offenses by Contributor: 2018," and the crimes are as follows: murder, negligent manslaughter, justifiable homicide, kidnapping/abduction, forcible rape, forcible sodomy, sexual assault w/object, forcible fondling, incest, statutory rape, aggravated assault, simple assault, intimidation, human trafficking commerical sex acts, and human trafficking involunatry servitude (ACIC, 2018).

Murder. To operationalize murder, each individual count for a geographical area (county/city) was converted to a rate to control for variance in populations of each jurisdiction. The number of murders (in 2018) in a given geographical area was divided by the population of the area (county/city), which was collected from the Arkansas Crime Information Center (2018) and was then multiplied by 100,000 in order to convert the counts of the offense to a rate (MurdRATE18) to be further analyzed.

Since there is a set minimum of zero for all crime rates, distributions will be gauged with this distinction in mind. At the county level, the most frequent murder rate is zero. Beyond that, the murder rates are positively skewed. There are twooutliers for murder rates at the county level: Phillips County and Crittenden County. At the city level, the most frequent murder rate is zero. The murder rates are positively skewed with five outliers: Helena/West Helena, West Memphis, El Dorado, Blytheville, and Pine Bluff/UAPB. See Table 4 below for more information regarding outliers.

Aggravated Assault. To operationalize aggravated assault, each individual count for a geographical area (county/city) was converted to a rate to control for variance in populations of each jurisdiction. The number of aggravated assaults (in 2018) in a given geographical area was divided by the population of the area (county/city), which was collected from the Arkansas Crime Information Center (2018) and was then multiplied by 100,000 in order to convert the counts of the offense to a rate (AARATE18) to be further analyzed.

Since there is a set minimum of zero for all crime rates, distributions will be gauged with this distinction in mind. At the county level, aggravated assault rates somewhat follow a normal distribution curve, but there is also evidence of a positive skew in the data. Aggravated assault rates at the county level show two outliers: Phillips County and Crittenden County. At the city level, the distribution for aggravated assault rates are slightly more normally distributed than at the county level. Aggravated assault rates at the city level show one outlier: West Memphis. See Table 4 below for more information regarding outliers.

Simple Assault. To operationalize simple assault, each individual count for a geographical area (county/city) was converted to a rate to control for variance in populations of each jurisdiction. The number of simple assaults (in 2018) in a given geographical area was divided by the population of the area (county/city), which was collected from the Arkansas Crime Information Center (2018) and was then multiplied by 100,000 in order to convert the counts of the offense to a rate (SimpARATE18) to be further analyzed.

Since there is a set minimum of zero for all crime rates, distributions will be gauged with this distinction in mind. At the county level, simple assault rates are roughly normally distributed. At the county level, simple assault rates show one outlier: Pulaski County. Simple assault rates are roughly normally distributed at the city level, as well. There are no outliers at the city level in regards to simple assault. See Table 4 below for more information regarding outliers.

Violent Crime Total. To operationalize total violent crime, each individual count for a geographical area (county/city) was converted to a rate to control for variance in populations of each jurisdiction. The number of total violent crimes (in 2018) in a given geographical area was divided by the population of the area (county/city), which was collected from the Arkansas Crime Information Center (2018) and was

then multiplied by 100,000 in order to convert the counts of the offense to a rate (VTotRATE18) to be further analyzed.

Violent crime overall roughly mirrors a normal distribution at the county level, though the distribution more closely follows the normal distribution curve at the city level. There are no relevant outliers in regards to total violent crime rates at the county or city level. See Table 4 below for more information regarding outliers.

Table 4. Outlier Data Information.

	Counties		Cities	
	IRQ Values	Outliers	IRQ Values	Outliers
Murder Rates (2018) (MurdRATE18)	Q1: 0.00 Q3: 11.72 IQR: 11.72 OV: 17.58 TO: +29.30	- Phillips (69.96) - Crittenden (43.51)	Q1: 0.00 Q3: 12.69 IQR: 12.69 OV: 19.04 TO: +31.73	- Helena/West Helena (76.36) - West Memphis (64.86) - El Dorado (50.23) - Blytheville (43.34) - Pine Bluff/UAPB (35.55)
Aggravated Assault Rates (2018) (AARATE18)	Q1: 194.85 Q3: 478.60 IQR: 283.75 OV: 425.63 TO: +904.23	- Phillips (1136.66) - Crittenden (1265.82)	Q1: 246.27 Q3: 665.10 IQR: 418.83 OV: 628.25 TO: +1293.35	- West Memphis (1658.02)
Simple Assault Rates (2018) (SimpARATE18)	Q1: 424.68 Q3: 947.43 IQR: 522.75 OV: 784.13 TO: +1731.56	- Pulaski (1879.61)	Q1: 631.31 Q3: 1517.69 IQR: 886.38 OV: 1329.57 TO: +2847.26	N/A
Violent Crime Total (2018) (VTotRATE18)	Q1: 917.93 Q3: 2314.19 IQR: 1396.26 OV: 2094.39	N/A	Q1: 1431.47 Q3: 3499.85 IQR: 2068.38 OV: 3102.57	N/A

	TO: +4408.58		TO: +6602.42	

Note: While examining the data, outliers were detected using the standard procedure of establishing an objective cutoff value based on the interquartile range (IQR). The outlier cutoff values were determined by multiplying IQR by 1.5 and adding it to the 3rd quartile value (or subtracting it from the 1st quartile value).

Extreme outlying values were found for some of the crime rates examined at the county and city level. In order to ensure these values were not mistakes, each outlier found using the compiled dataset was identified on the Arkansas Crime Information Center (ACIC) (2018) Offense by Contributor publication for 2018 and was checked to ensure accuracy. No mistakes were found. To ensure the data collectors and reporters at ACIC did not make a mistake when inputting these values into the published document, the Offense by Contributor publications for 2017 and 2016 were pulled, as well. The corresponding values in these publications were compared to any extreme outlying value found in the 2018 publication. Through this comparison, it was determined that it is likely no mistakes were made by the ACIC data collectors and reporters when entering these values because they did not vary unreasonably from the corresponding values in the previous two publications.

Independent Variables

Social disorganization was measured in various ways using multiple concepts as defined and measured by the U.S. Census Bureau. First, each exogenous factor of social disorganization, including poverty, residential stability, and racial heterogeneity, was individually examined:

Poverty. To examine poverty, the percent of persons in poverty in 2018 (PctPoor) was first used independently. The U.S. Census Bureau (2019) determines who is considered to be in poverty by using income

thresholds, set by the Office of Management and Budget's (OMB) Statistical Policy Directive 14, that vary by family size and composition. Moreover, "If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty" (U.S. Census Bureau, 2019). However, the role of poverty as an exogenous factor of social disorganization seemed to urge for a more complete picture rather than relying on one variable. Therefore, the median household income (in 2016 dollars) from 2014-2018 (MedHHInc) was included as another indicator of poverty. The U.S. Census Bureau (2019) defines the median household income as "specified owner-occupied housing units--one-family houses on less than 10 acres without a business or medical office on the property," which excludes mobile homes, houses on properties with business or medical offices, housing on property of 10 or more acres, and multi-unit structures. A poverty index was created that combined the percent of persons in poverty in 2018 (PctPoor) with the median household income (in 2016 dollars) from 2014-2018 (MedHHInc). All data regarding poverty used in the analysis were collected from the U.S. Census Bureau (2019).

Residential Stability. To examine residential stability, the percent of persons aged 1+ year living in the same house one year ago 2014-2018 (Mobility16) was first used independently. According to the U.S. Census Bureau (2019), listed residence of one year prior was used "in conjunction with location of current residence to determine the extent of residential mobility of the population and the resulting redistribution of the population across various states, metropolitan areas, and regions of the country." However, once again, the role of this exogenous factor of social disorganization called for a more complete picture, meaning more than one variable should be used to encapsulate residential stability. Therefore, owner-occupied housing unit rate, 2014-2018 (PctHomeOwn) was included as another indicator of residential

stability. According to the U.S. Census Bureau (2019), "A housing unit is owner-occupied if the owner or co-owner lives in the unit, even if it is mortgaged or not fully paid for." To determine the homeownership rate, the number of owner-occupied housing units was divided by the number of occupied housing units or households. A residential stability index was created that combined the percent of persons aged 1+ year living in the same house one year ago 2014-2018 (Mobility16) with the owner-occupied housing unit rate 2014-2018 (PctHomeOwn). All data regarding residential stability used in the analysis were collected from the U.S. Census Bureau (2019).

Racial Heterogeneity. To examine racial heterogeneity, the percent of persons White alone, not Hispanic or Latino was first used independently. The percent of persons White alone was defined as an individual "having origins in any of the original peoples of Europe, the Middle East, or North Africa"...including "people who indicate their race as 'White' or report entries such as Irish, Geman, Italian, Lebanese, Arab, Moroccan, or Caucasion" per the U.S. Census Bureau (2019). Then, a proxy for racial heterogeneity (PctMinor) was created using the following equation: 100 - PctWhite. All data regarding racial heterogeneity used in the analysis were collected from the U.S. Census Bureau (2019).

Social Disorganization. To examine social disorganization overall, an index including the three exogenous factors listed above was created. Reverse coding was used as needed to ensure all three factors could be combined cohesively. The three independent variables were found to effectively "hang together" under the umbrella term of social disorganization. Therefore, in order to operationalize them, indexes were created to represent each individual independent variable, meaning a poverty index, residential stability index, and racial heterogeneity. Then, the three individual indexes were combined into one inclusive index representing social disorganization, as a whole.

Limitations

Though there are many benefits to the type of analysis being performed on this specific data set, there are some limitations, as well. As with any national data that relies on arrest records and reporting from law enforcement, this data does not capture the hidden/dark figure of crime. Any criminal incidents that were not reported to law enforcement agencies will be missing from this data set and from this analysis, as a result. However, the most commonly unreported crimes are sexual in nature (Scurich & John, 2018). Therefore, choosing not to include any sex crimes, specifically, as a measure of violence helps to avoid the hidden figure of crime as much as possible.

In addition, since all the data being used has been reported and worked its way through various channels, there is room for error in that capacity, as well. When law enforcement is gathering information regarding an incident, there is always the potential for reliability errors to be made during the reporting process. Mistakes could also be made when coding the information received and transmitting it through the various proper channels. Though there are working operational definitions for crimes in place, there is the possibility that one person codes a particular incident in a way that varies from how someone else would code the same incident.

However, generally speaking, national crime data is the most accessible data to obtain and use in statistical analyses, especially given the time constraint of this specific project. This project, from collecting data to create a data set to working on finalizing the manuscript, was conducted over the course of one academic semester. Moreover, time was a very limited resource. Therefore, the best available dataset with the most inclusive information that applied to this particular area of research interest was selected.

Analytical Strategy Used in the Main Analysis

In order to examine the relationship between the independent variables (poverty, residential stability, and racial heterogeneity) and the dependent variables (murder, aggravated assault, simple assault, and total violent crime), a multi-level analytical approach was utilized.

To begin, Pearson correlations were run between the dependent variables and the basic independent variables used to represent each exogenous factor of social disorganization: percent of persons in poverty (PctPoor), percent of persons 1+ years old living in the same house as one year ago (Mobility16), and percent of persons White alone, not Hispanic or Latino (PctWhite). The dataset was split by city indicator, meaning tests were run separately for both counties and cities in Arkansas.

Then, in order to better examine each social disorganization component, the following indexes were created: a poverty index, a residential stability index, and a racial heterogeneity proxy. To create the indexes, several factors that could potentially contribute to the concepts of poverty and residential stability were examined by running Pearson correlations between them. These correlations were conducted to determine which factors naturally grouped together best and which could later be combined to create each index. Median household income (in 2016 dollars) from 2014-2018 (MedHHInc) was determined to be a good addition for the poverty index. Additionally, the owner-occupied housing unit rate, 2014-2018 (PctHomeOwn) would be a good addition for the residential stability index.

Next, in order to actually create these two indexes, three cut-off values (ranks) of equal proportion were determined for each independent variable in order to recode them into rank variables. This process was done twice for each concept so that the county and city analysis could continue being done separately. For example, PctPoor data was recoded, using the rank values, into RankPctPoorCOUNTY

and RankPctPoorCITY (and so on for the other three variables: MedHHInc, Mobility16, PctHomeOwn). Ranks were reverse coded as needed to ensure each variable was oriented uniformly in regards to the concept of social disorganization. The racial heterogeneity proxy was created by using the following equation: 100 - PctWhite. This proxy was called PctMinor. Cut-off values (ranks) of equal proportion were determined for PctMinor, as well, and reverse coding of the rank variables was done as needed.

Then, the poverty indexes and residential stability indexes were created. The poverty index for the county level (PovertyIndexCOUNTY) was created by combining the percent of persons in poverty rank by county variable (RankPctPoorCOUNTY) and the median household income (in 2016 dollars) from 2014-2018 rank by county variables (RankMedHHIncCOUNTY). The same process was repeated with the city versions of each variable to create the poverty index for the city level (PovertyIndexCITY). The residential stability index for the county level (ResStabilityCOUNTY) was created by combining the percent of persons 1+ years old living in the same house as one year ago rank by county variable (RankMobilityCOUNTY) and the owner-occupied housing unit rate, 2014-2018 rank variables (RankPctHomeOwnCOUNTY). The same process was repeated with the city versions of each variable to create the residential stability index for the city level (ResStabilityCITY). The process of reverse coding that was followed for some variables was done on an as needed basis to ensure all of these concepts could be combined cohesively and so each variable was oriented uniformly in regards to the concept of social disorganization, which would then mean each index was oriented as such, as well. Pearson correlations were run at both the county and the city level to test the relationship between each individual index or proxy and each dependent variable. These correlations were conducted to

evaluate the relationships between the exogenous factors of social disorganization independently and each crime rate examined.

Finally, the social disorganization indexes, for both the county and city levels, were created. The social disorganization index for the county level (SocDisorgNDXCounty) was created by combining the county level versions of the poverty index, residential stability index, and racial heterogeneity proxy. The same process was repeated using the city level versions of the poverty index, residential stability index, and racial heterogeneity proxy to create the social disorganization index for the city level (SocDisorgNDXCity). Pearson correlations were conducted between the social disorganization indexes (at the county and city level) and the following crime rates: murder, aggravated assault, simple assault, and total violent crime.

Analysis and Results

In order to test each of the hypotheses specified, the steps of the analytical strategy were conducted.[1] The results are broken down into tables that best display the findings for each specific hypothesis. All other findings that resulted from these analyses will be included in table format in Appendix B.

In the first hypothesis, the following claim was made: Communities with more social disorganization are expected to have higher rates of violent crime. A Pearson correlation was conducted with the social disorganization indexes and the four rates of violent crime examined: murder, aggravated assault, simple assault, and total violent crime. The analysis was conducted at both the county and city level. See Table 5 for the statistical findings of the analysis.

In the second hypothesis, the following claim was made: Social Disorganization will better predict violent crime rates in cities than in

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[1] The sample was examined for outliers, and it was concluded that none of the extreme values were errors. Therefore, these cases were preserved in the dataset.

counties in Arkansas. A Pearson correlation was conducted with the social disorganization indexes and the four rates of violent crime examined: murder, aggravated assault, simple assault, and total violent crime. The analysis was conducted at both the county and city level. See Table 5 for the statistical findings of the analysis.

Table 5. The Relationship Between Social Disorganization and 2018 Violent Crime Rates in Arkansas.

	r							
	County Level				**City Level**			
	Murder	Aggravated Assault	Simple Assault	Violent Crime	Murder	Aggravated Assault	Simple Assault	Violent Crime
Social Disorganization	.231*	.165	.127	.115	.430**	.428**	.389**	.352*

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Overall, these findings suggest that there is a relationship between social disorganization and violent crime. However, the relationship is much stronger and more significant at the city level rather than the county level. At the county level, there is only a statistically significant relationship between social disorganization and murder (r = .231*), whereas there are statistically significant relationships between social disorganization and all four violent crimes studied at the city level. The relationship between social disorganization and murder at the city level is the strongest relationship found (r = .430**). All correlations found are positive. Ultimately, there is support

for both hypothesis one and two. Social disorganization is significantly related to violent crime, though it is important to specify that this cannot be applied to all geographic areas. Social disorganization theory is supported in regards to cities in Arkansas.

At the city level, the relationships between social disorganization and each specific crime rate are positive and range from weak to moderate. The relationship between social disorganization and violent crime overall (r = .352*) was positive and moderate in strength, suggesting that social disorganization is likely more related with some specific offenses than others. The strongest relationship found is between social disorganization and aggravated assault (r = .409**), though the relationship between social disorganization and simple assault was close behind (r = .389**). The weakest relationship found was with murder (r = .319*), though it was still relatively moderate.

In the third hypothesis, the following claim was made: Poverty will be more strongly associated with rates of violent crime than residential stability or racial heterogeneity. A Pearson correlation was conducted with the poverty index and the four rates of violent crime examined: murder, aggravated assault, simple assault, and total violent crime. The analysis was conducted at both the county and the city level. See Table 6 for the statistical findings of the analysis.

In the fourth hypothesis, the following claim was made: Racial heterogeneity will be more strongly associated with aggravated assault than murder, simple assault, or total violent crime. Pearson correlations were conducted with the social disorganization indexes and four rates of violent crime examined: murder, aggravated assault, simple assault, and total violent crime. The analysis was conducted at both the county and the city level. See Table 6 for the statistical findings of the analysis.

Table 6. The Relationships Between Components of Social Disorganization and 2018 Violent Crime Rates in Arkansas. County level: (n = 75). City level: (n = 50).

| | r | | | | | | | |
| | County Level | | | | City Level | | | |
	Murder	Aggravated Assault	Simple Assault	Violent Crime	Murder	Aggravated Assault	Simple Assault	Violent Crime
Poverty	.139	.094	.122	.087	.388**	.385**	.425**	.357
Residential Stability	-.041	-.118	-.192	-.184	-.179	-.224	-.270	-.254
Racial Heterogeneity	.309**	.328**	.277*	.304**	.521**	.597**	.505**	.525**

** Correlation is significant at the 0.01 level (2-tailed).
 * Correlation is significant at the 0.05 level (2-tailed).

The findings of the analysis do not support the third hypothesis, as there is no evidence suggesting that violent crime is more strongly associated with poverty than with the other two components of social disorganization examined. In fact, racial heterogeneity is the only component that was found to be significantly related to every crime rate examined at both the county and city level. In terms of poverty, which was only found to have significant relationships at the city level, the strongest relationship found was with murder (r = .388**). All significant relationships found between poverty and crime rates were positive and moderate. All relationships found between racial heterogeneity and violent crime rates were positive and ranged from weak to strong. The most significant relationship found was at the city level with aggravated assault

(r = .597**) and was found to be very strong. This finding supports the fourth hypothesis, suggesting that racial heterogeneity is most strongly associated with aggravated assault. At both the county and the city level, aggravated assault is the crime rate most strongly associated with racial heterogeneity: county (r = .328**), city (r = .597**). All other relationships between racial heterogeneity and crime rates were positive and ranged from weak to strong, although these relationships were stronger at the city level than the county level.[2]

Conclusions

Based on these analyses, it is reasonable to conclude that social disorganization is related to violent crime in Arkansas. At the city level, the relationship between the two is much stronger and more significant than at the county level. At the county level, there were some relationships found between social disorganization and violent crime rates, but these were mostly weak and of lower significance, comparatively. Therefore, it is reasonable to say that social disorganization is related to violent crime when using smaller geographical areas, such as cities, as the comparative unit. At the county level, it seems more accurate to conclude that there are other factors at play that may be more strongly related to violent crime rates than social disorganization is.

In addition, the analyses suggest that racial heterogeneity, rather than poverty or residential stability, is the component of social disorganization most significantly related to rates of violent crime. At the county level, the relationships between racial heterogeneity and each violent crime rate examined range from weak to moderate and are positive. At the city level, the relationships between racial heterogeneity

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[2] Data were analyzed with extreme cases (outliers) removed, but the results were essentially the same. For more information regarding the statistical findings, including the specific results with the outlying values removed, see Appendix B.

and each violent crime rate examined range from moderate to strong and are positive. These relationships suggest that the more diverse the racial composition of a given area may be, the higher the violent crime rates. Of all the results found, this one is the most surprising. Based on existing research, there was reason to believe that poverty would be the component of social disorganization that was most strongly related to violent crime rates.

At the city level, residential stability is most strongly related to aggravated assault, as opposed to the other violent crime rates examined. Removing outliers at the city level did not alter these results. At the county level, the relationship between residential stability and aggravated assault is the strongest, as well. However, after removing outlying values, this finding no longer held true. With the outlying values removed, violent crime overall was the crime rate most strongly related to racial heterogeneity. Since it is clear that social disorganization is more strongly associated with violent crime rates at the city level than the county level, however, it is reasonable to use the city level findings as the most valid and accurate representation of this relationship. Therefore, there is support to suggest that racial heterogeneity, as a component of social disorganization, is more strongly associated with aggravated assault than the other crimes examined.

From a theoretical perspective, this project supports the conclusions made by the majority of existing research on the matter: Social disorganization and violent crime are related. Social disorganization theory has often been both discussed and applied using neighborhoods as the comparative unit. The findings of this project suggest that smaller geographical areas, such as neighborhoods or cities, are, in fact, better comparative units then larger geographical areas when using social disorganization theory as an explanation for violent crime rates. Social disorganization theory seems to be quite adequate

when applied correctly while keeping these geographical area restraints in mind. Overall, the findings of this project do suggest that the more socially disorganized an area may be, the higher the prevalence of violent crimes, specifically murder, aggravated assault, simple assault, and violent crime overall will be.

As previously stated, the majority of existing literature that examines social disorganization as a theoretical explanation for violent crime, such as those conducted by Sampson and Groves (1989) and Rah and Choo (2008), finds supporting evidence for the relationship. Overall, the most surprising contradiction found between my research and existing research had to do with poverty as a component of social disorganization. There is a large body of research focusing on poverty as a key component of social disorganization. Several pieces of literature I encountered even suggested that poverty was actually the component most associated with violent crime. However, my findings suggest that racial heterogeneity is actually more related to the violent crime rates examined than poverty is. This finding suggests that more research likely needs to be done focusing on racial heterogeneity as a component of social disorganization to potentially corroborate these findings. Overall, social disorganization theory has been supported by the findings of this project.

Discussion

Overall, this project urges for more research to be conducted on social disorganization theory as it applies to violent crime. First, more research needs to be conducted focusing on residential stability as a component of social disorganization because the findings of this project suggest no relationship exists because residential stability and murder, aggravated assault, simple assault, and violent crime overall. More research on this facet of social disorganization, specifically, could either refute or corroborate my findings, thus supporting or negating

residential stability's position as a component of social disorganization. More research, in general, is also always a good recommendation, especially when it comes to a theory as complex as social disorganization. There are many components within the umbrella of social disorganization theory that could use further investigation.

Second, since these findings suggest that racial heterogeneity is the component of social disorganization most significantly related to the violent crime rates examined, more research should be done to confirm this since previous findings tend to suggest poverty is the most important component. If racial heterogeneity is truly the most influential component of social disorganization as it relates to violent crime, there are some practical changes that could be implemented in areas with diverse racial composition to improve collective efficacy and decrease the prevalence of violent crimes in said areas. I would recommend adding more opportunities that encourage community participation to support social bonds, such as youth clubs and organizations, recreation centers that host community social events, and the development of gathering spaces for community residents to socialize. By increasing the amount of interaction between community members, more chances to bond and find common ground are given. As individuals create social ties and develop a stronger sense of community, a deeper sense of social control will develop, as well. Social disorganization theory claims that the stronger the bonds are between residents in a given community, the more resistant said area will be against violent crime.

After completion of the analytical procedure, I was left with one pressing question: why were there many fewer significant relationships found between social disorganization and violent crime rates at the county level? What is different at the county level that prevents social disorganization from being as significantly related to violent crime? If social disorganization theory is not the best theory for larger

geographical areas, such as counties, then which theories do a better job of accounting for the counties with high rates of violent crime? Moreover, at what point does a geographical location become too large for social disorganization to apply? Ultimately, it seems to me that more research is needed to identify and explain the geographical constraints and limits to social disorganization theory. The theory has traditionally focused on neighborhoods and small communities. My research provides evidence to suggest that the theory can be applied to cities, as well. Therefore, I think this research calls for an explanation as to what happens that causes social disorganization theory to stop working and more clear confines as to what the spatial limits are.

There are certain weaknesses with all research, and this project is no exception. Any time official data is used, there is the potential for underreporting, which could cause the data to incorrectly reflect what is actually going on. Considering issues of reliability when dealing with reported crime data, the findings of this study could have been different if an alternative dataset were used, specifically one relying on data that is less open to these potential errors. Therefore, future research should focus on recreating these results with a different dataset. In addition, social disorganization theory consists of various components that all are worth exploring, specifically as they may relate to violent crime. Through this research, only poverty, residential stability, and racial heterogeneity were explored. These three were used because they were the components that the chosen data set could best represent. Since not all components of social disorganization were represented, it is possible that results would vary if more were included.

If I were to complete this project again, I would use the same analytical approach. However, I think using more comparative data, such as data from multiple states, would greatly expand the research and provide a more detailed perspective on how social disorganization is truly impacting cities and counties in regards to violent crime rates. In

addition, if I were to move forward with this research, I would like to do another analytical approach in addition to the previous one. The current analytical strategy was excellent at determining where statistically significant relationships existed. However, correlation does not necessarily suggest causation, so I am unable to conclude that social disorganization does, in fact, cause violent crime to occur. With these analytical findings, I can support the relationship between social disorganization and violent crime, but I am unable to explicitly identify a certain causal factor. Therefore, it would be interesting to further the analysis and seek to determine if social disorganization theory truly causes violent crime.

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Appendix A: Dataset Codebook

Variable Name	Description	Source (all data retrieved January, 2020)
PlaceName	Name of county or city jurisdiction	Assigned
City	Binary indicator for city =1 (county=0)	Determined
ACICPop18	Population of the jurisdiction in 2018	ACIC, 2018
VTot18	Violent crimes recorded in 2018	ACIC, 2018
Murd18	Count of murders in 2018	ACIC, 2018
AA18	Count of Aggravated Assaults in 2018	ACIC, 2018
SimpA18	Count of Simple Assaults in 2018	ACIC, 2018
PctWhite	White alone, not Hispanic or Latino, percent	U.S. Census, Quick Facts
PctPoor	Persons in poverty, percent (2018)	U.S. Census, Quick Facts
MedHHInc16	Median household income (in 2016 dollars), 2014-2018	U.S. Census, Quick Facts
PctHomeOwn	Owner-occupied housing unit rate, 2014-2018	U.S. Census, Quick Facts
Mobility16	Living in same house 1 year ago, % of persons age 1 year+, 2014-18	U.S. Census, Quick Facts

Appendix B: Complete Analysis Tables

The Relationships Between Social Disorganization and 2018 Violent Crime Rates in Counties in Arkansas. (n = 75)

		r			
		Murder	Aggravated Assault	Simple Assault	Violent Crime Total
Basic Factors of Social Disorganization	PctPoor	.309*	.238*	.218	.253*
	Mobility16	-.051	-.283*	-.320**	-.337**
	PctWhite	-.426**	-505**	-.412**	-.463**
Advanced Social Disorganization Components	Poverty Index	.139	.094	.122	.087
	Residential Stability Index	-.041	-.118	-.192	-.184
	Racial Heterogeneity Proxy	.309**	.328**	.277*	.304**
Cumulative Social Disorganization Indicator	Social Disorganization Index	.231*	.165	.127	.115

** Correlation is significant at the 0.01 level (2-tailed).
 * Correlation is significant at the 0.05 level (2-tailed).

The Relationships Between Social Disorganization and 2018 Violent Crime Rates in Counties in Arkansas Excluding Any Outliers.

		r		
		(n = 73)	(n = 73)	(n = 74)
		Murder	Aggravated Assault	Simple Assault
Basic Factors of Social Disorganization	PctPoor	.152	.146	.250*
	Mobility16	.088	-.255*	-.316**
	PctWhite	-.245*	-.382**	-.385**
Advanced Social Disorganization	Poverty Index	.053	.038	.181
	Residential Stability Index	-.060	-.147	-.201

| Components | Racial Heterogeneity Proxy | .251* | .264* | .247* |
| Cumulative Social Disorganization Indicator | Social Disorganization Index | .125 | .074 | .154 |

** Correlation is significant at the 0.01 level (2-tailed).
 * Correlation is significant at the 0.05 level (2-tailed).

The Relationships Between Social Disorganization and 2018 Violent Crime Rates in Cities in Arkansas. (n = 50)

		r			
		Murder	Aggravated Assault	Simple Assault	Violent Crime Total
Basic Factors of Social Disorganization	PctPoor	.499**	.508**	.499**	.434**
	Mobility16	.210	-.044	-.156	-.053
	PctWhite	-.602**	-.677**	-.531**	-.595*
Advanced Social Disorganization Components	Poverty Index	.388**	.385**	.425**	.357*
	Residential Stability Index	-.179	-.224	-.270	-.254
	Racial Heterogeneity Proxy	.521**	.597**	.505**	.525**
Cumulative Social Disorganization Indicator	Social Disorganization Index	.430**	.428**	.389**	.352*

** Correlation is significant at the 0.01 level (2-tailed).
 * Correlation is significant at the 0.05 level (2-tailed).

The Relationships Between Social Disorganization and 2018 Violent Crime Rates in <u>Cities</u> in Arkansas Excluding Any Outliers.

		r	
		(n = 45)	(n = 49)
		Murder	Aggravated Assault
Basic Factors of Social Disorganization	PctPoor	.298*	.511**
	Mobility16	.013	-.030
	PctWhite	-.379*	-.671**
Advanced Social Disorganization Components	Poverty Index	.232	.345*
	Residential Stability Index	-.121	-.199
	Racial Heterogeneity Proxy	.454**	.596*
Cumulative Social Disorganization Indicator	Social Disorganization Index	.319*	.409**

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).