



**Social Factors Affecting Violent Crime  
in the State of North Carolina**

Senior Project

In partial fulfillment of the requirements for  
The Esther G. Maynor Honors College  
University of North Carolina at Pembroke

By

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Date

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### **Abstract**

Violent crime is a serious issue in any state, and North Carolina is no exception. Many social factors have interesting relations to violent crime rates, and by identifying these patterns and relationships law enforcement officers and policymakers alike can work together to resolve the root causes of crime. Among the most notable social factors are household income, per capita income, poverty, high school graduate status, race, and owner occupied housing. By understanding the relationship between these factors and crimes, public officials will be better prepared to face the root causes of criminal activity, specifically violent crimes. With this knowledge, they will be capable of reducing crime rates, which benefit all in the community. To begin understanding the correlations, a statistical analysis will determine those social factors with the greatest influence on criminal activity. From there, qualitative research will explain how those social factors have influence on crime. By using both quantitative and qualitative research, the most accurate information can be identified and utilized.

*Keywords: North Carolina, violent crime, race, poverty, income, housing, education*

***“Thou shalt not be a victim, thou shalt not be a perpetrator, but, above all, thou shalt not be a bystander.”—Yehuda Bauer***

## **Social Factors Affecting Violent Crime in the State of North Carolina**

### **Literature Review**

#### **Graduate Rate**

Education is a form of human capital. Human capital is simply defined as the ability to perform acts of labor resulting in economic gain; the greater an individual's human capital the more they are likely to produce. Human capital makes a potential job candidate more appealing to an employer. As will become quite evident throughout the remainder of this paper, employment and socioeconomic status are the leading determinants of crime rates. Grogger (1997) suggested that the relationship can become cyclical; as violence creeps into schools, the acquisition of human capital is diminished (p. 661). Scholars agree that the flip side of that cycle—human capital leads to a decrease in violent crime—to stand true. In 2011, Machin and Vujić completed a study which found the relationship between the two factors to be indirectly correlated; the two direct correlations are from property crime to violent crime and property crime to human capital (p. 479) This distinction will be critical for developing policy implications.

Because education increases human capital, it is evident there needs to be a high premium on education when evaluating crime. Violence in schools can push individuals away from education, diminishing their future capital. Staff and Kraeger found such to be more prevalent with advantaged young men in their 2008 study (p. 463). According to their research, advantaged individuals are typically separated from disadvantaged individuals in school, and following trends outside of school,

disadvantaged individuals tend to experience behavioral issues more than their advantaged peers. When advantaged students experience similar issues, they are alienated from other advantaged peers, but remain separated from the disadvantaged students; this feeling of alienation will be a factor in their subsequent decision to drop out of school (Staff & Kraeger; p. 463). Likewise, the same study found that high achieving black students are often pressured to commit acts of violence in the school due to the perceptions about race; a high achieving student is alienated by his or her black peers, and in search of peer status or acceptance, the student may turn to acts of violence to separate oneself from the white stereotypes (Staff & Kraeger; p. 461).

Lederman, Loayza and Menéndez (2002) suggest that one of the factors of graduate rate and crime is victimization and crime reporting. According to their study, individuals of lower education statuses are less likely to report crimes for a number of reasons, including distrust in the local criminal justice system and perceptions of crime (Lederman et al., p. 517). This factor, coupled with the increased likelihood of criminal activity by lower educated individuals, predisposes communities of fewer high school graduates to increased rates of criminal activity.

### **Income**

Income is an important factor to consider when discussing crime of any kind. Those individuals who have a greater income are far less likely to commit crimes due to the limited payoff. A man making \$10 an hour who steals a \$100 radio has a payoff of 10 hours and an equal risk to the man making \$25 an hour who steals the same radio, but only has a payoff of 4 hours. This example is property crime, which is not

always directly correlated with violent crime, but usually has a significant connection, as property crime has a tendency to lead to violence, such as incidents of robbery.

The influence of income inequality on violent crime remains debated. Fajnzylber et al. (2000) found that violent crime rates increase with income inequality because the more people in poverty, or close to it, the more people that are willing to commit crime (p. 292). Crutchfield (1989) argued that income inequality only bears an association with murder, and no other violent crime (p. 505). This idea was rejected by Doyle, Ahmed and Horn (1999) who found that income inequality has *no* impact on crime, but instead a better indicator of crime is the competitiveness of the market—when job competition increases so does crime because more people are unemployed (p. 717). In a separate study, Western and Kleykamp (2006) confirmed the latter part of Doyle, Ahmed and Horn's claim. Western and Kleykamp found that had the economic boom of the 1980's continued through the late 1990's, the prison population of non-college men would be an estimated fifteen to twenty-five percent lower (p. 2291).

### **Poverty**

Poverty is another pressing issue dealing with crime. Disadvantaged neighborhoods have an extremely disproportionate rate of crime, including violent crime. Krivo and Peterson (1996) found that the association between poverty and crime is very similar among all races (p. 619), but they do share some characteristics, including unemployment and fatherless homes (p. 626). Crutchfield (1989) archly opposes this conclusion, arguing that when controlling for spurious relationships, specifically labor structure, the aforementioned association is reduced. He later

argued along with Pitchford (1997) that job security is a far better indicator of violent crime (p. 93). They found that it was not the income of an individual that would determine their likelihood to commit crime, but rather the confidence of the individual that they will have the same job in the long-term (Pitchford; p. 112).

## **Race**

The issue of race as it deals with violent crime remains vehemently debated. It is generally accepted that there is a distrust of law enforcement by citizens of a racial minority. This distrust leads to lower rates of crime reporting, as individuals belonging to those communities do not want law enforcement in their neighborhoods any more than is absolutely necessary. Differing from many other studies, D'Alessio and Stolzenberg (2003) found that there was no indicator of discrimination at the time of arrests; any discrimination that does exist was negated by "some compensating effect" (p. 1394).

Harer and Steffensmeier (1992) and Liska, Logan and Bellair (1998) took a more economic perspective on the situation. Harer and Steffensmeier equated the difference in the crime rates to economic inequality between blacks and whites and found that it proved to be a greater indicator of violent crimes than race (p. 1035). Liska, Logan and Bellair instead concluded that the correlation violated temporal precedence. During desegregation, prejudices labeling minority races as criminal deviants led to a "white flight;" some of those prejudices continue today, but the authors argued that the crime comes to the neighborhood, then whites are reluctant to live in crime ridden areas, thus blaming their new racial minority neighbors and moving away, leaving a high crime rate and people of color behind (p. 27). As crime

infiltrates a neighborhood or community, people will look for other places to invest in local business, and thus poverty will take over the community, further increasing the crime rate.

### **Owner-Occupied Housing**

Home ownership has a quite unique correlation to crime. There are so many factors affecting the relationship between the two it is nearly impossible to identify the one of greatest significance. Kelling and Wilson (1982) would argue the broken windows theory is involved in this study; when people do not own their homes, or have no incentive to fix minor issues around the property, it leads to symbolism of disorder, and crime will creep into the neighborhood if not corrected (Sridhar, 2006, p. 1842). Such a theory would explain the negative relationship between owner-occupied housing and violent crime.

Other scholars suggest the relationship is a spurious one. People who own their own homes are typically on the wealthier side, and as the other sections have indicated, wealthier people do not commit crimes at the same rates as the disadvantage do. McNulty and Holloway (2000) expound on this specifically in public housing; They argue individuals living in public housing are often fearful of crime due to the nature of the facilities; this fear breeds mistrust among the community, diminishing community involvement, which leads to increased rates of crime in the given community (McNulty & Holloway; p. 708).

The other popular academic opinion is that the previous correlations lack temporal precedence necessary to support such a relationship. This argument is based around the value of home sales in areas of higher crime. In a study of



Mecklenburg County, Linden and Rockoff (2008) confirmed that homes in areas subject to higher crime rates are typically sold for less than similar house in safer neighborhoods (p. 1107). Whalley (1988) and O'Neil (2018) had similar findings. This could lead to a home owner deciding to rent their house, rather than sell in an attempt to maximize the return on investment. O'Neil also explored the banking side of the issue and reached the conclusion that banks prefer not to give loans for homes in high crime neighborhoods (p. 55). Homes in high crime areas are a liability to banks; barring no damage to the property itself, an increasing crime rate can cause the value of the property to plummet. If a borrower defaults, the bank is left with a loss, and so they will likely not approve a loan for such a parcel. Linden and Rockoff hint at a fourth idea. Individuals who commit crime have an advantage by not owning a home—they can leave the home with no long-term repercussion, and living in numerous places for short time periods can make it harder for law enforcement to keep track of that individual as he or she may or may not be committing crimes. Such is not true for sex offenders due to the requirement to report changes in address to the local sheriff's office.(O'Neil; p. 1104).

### **Methodology**

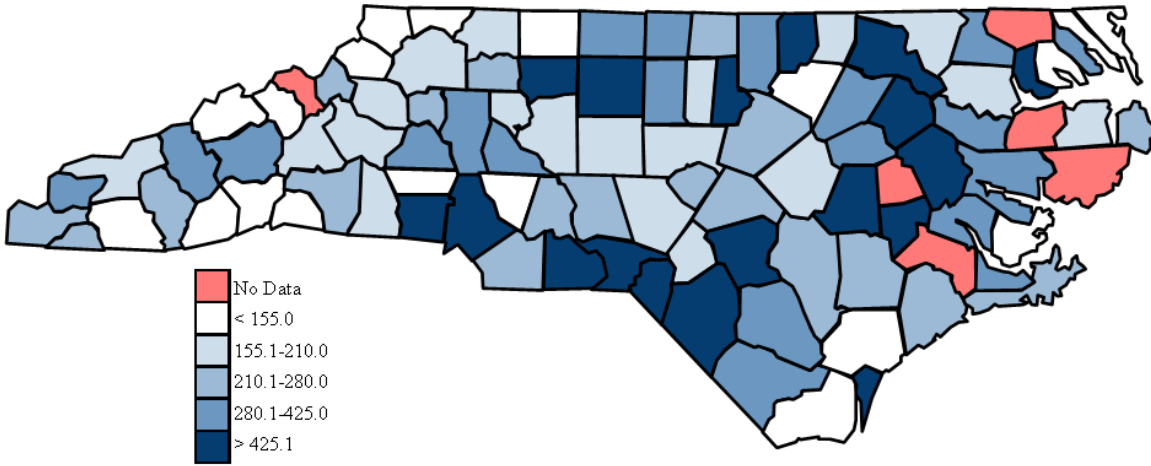
This study seeks to find the correlation between violent crime and social factors in the State of North Carolina. Violent crime is defined as the unlawful touching of another human being. It is operationalized in this study as murder, rape, robbery, and aggravated assault. The five social factors examined are graduate rate, income, poverty, race, and owner-occupied housing. Graduate rate is defined as the

population having a high school level of education, and is operationalized as the percent of the population over 25 years old who have obtained a high school diploma or equivalent. Income is defined as the average income for a given county; it is operationalized as the mean income per capita. Poverty refers to the percent of a population who earns less capita than is considered a living wage. It is operationalized as the percent of persons in poverty as deemed by the United States Census Bureau. Race refers to an individual's race. It is operationalized as the percent of the population that is both white and non-Hispanic. Owner-occupied housing is whether people live in a home they own. It is operationalized as the percent of individuals living in a housing unit they have ownership of.

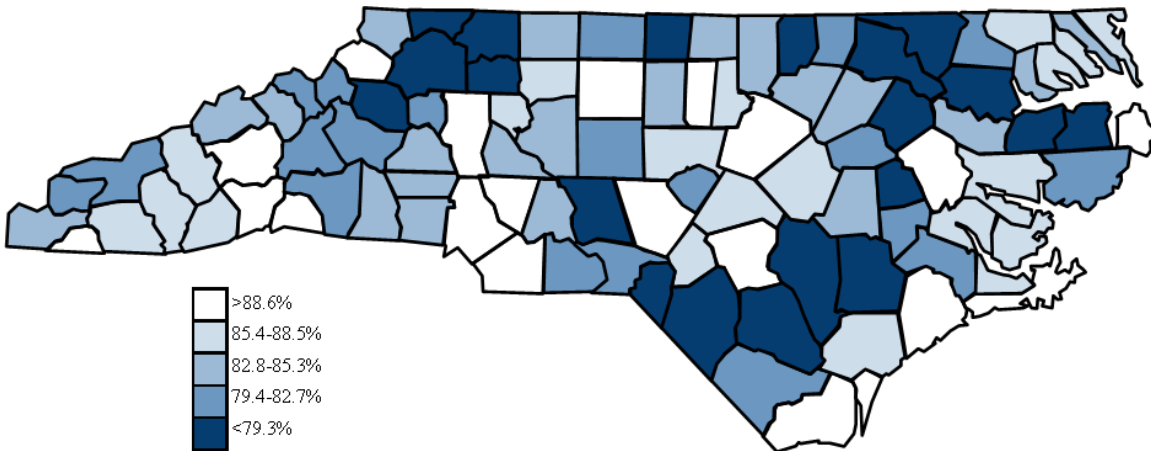
The social factors explored are provided from the U.S. Census Bureau and their interactive map and county demographics. The crime rates used are from the North Carolina State Bureau of Investigation Uniform Crime Report for 2016, the most recent publication as of the beginning of this research. Six counties information are omitted from the UCR data—Gates, Greene, Hyde, Jones, Mitchell, and Washington Counties. The data from Bladen County is not provided for the year 2016, so the data from 2015 is used instead. The data sets are put into a scatterplot, and the line of best fit was determined using the Microsoft data management program. The six counties without UCR data are omitted from the dataset. The data was also used to create statistical maps showing areas that are the most subject to increased rates of crime based on social factors. The violent crime map will show red for the counties without UCR data.

### Findings

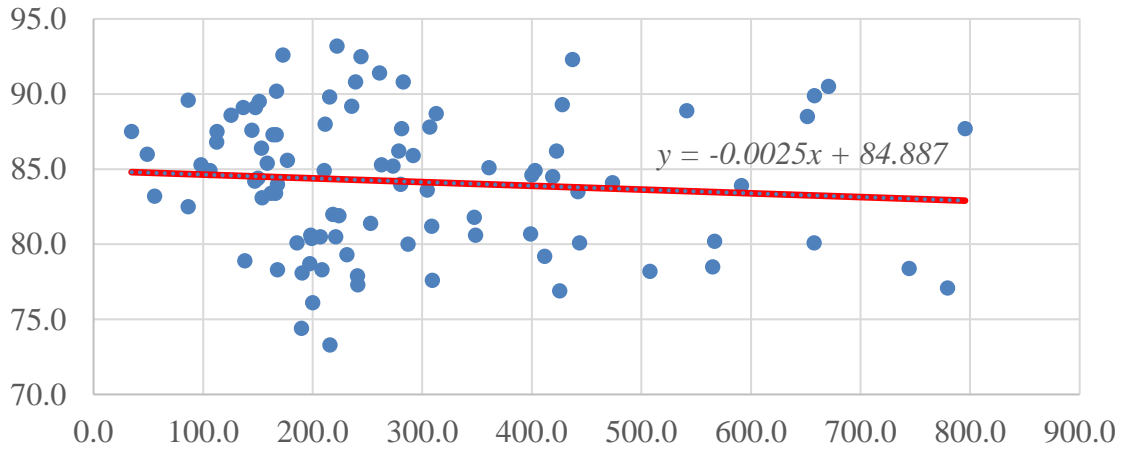
#### Violent Crime



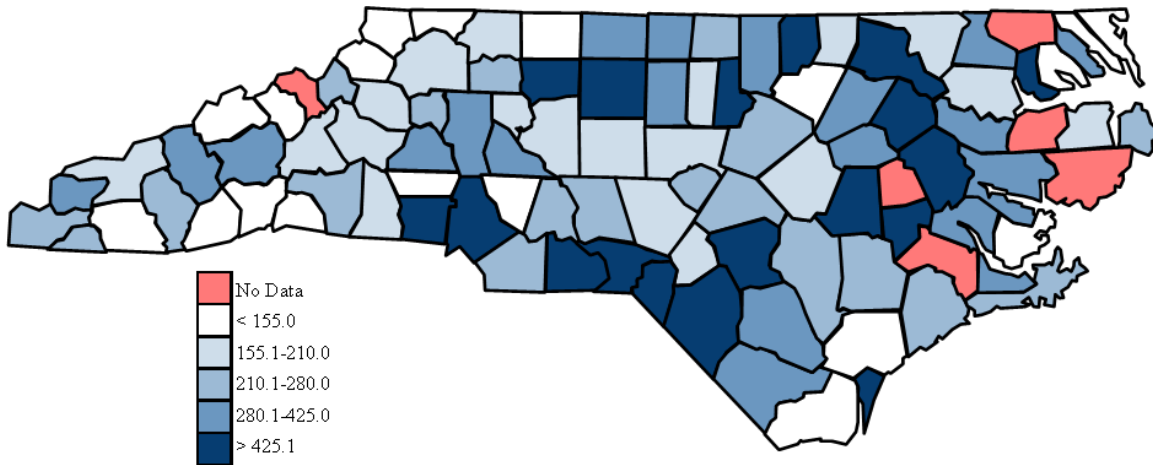
#### Graduate Rate



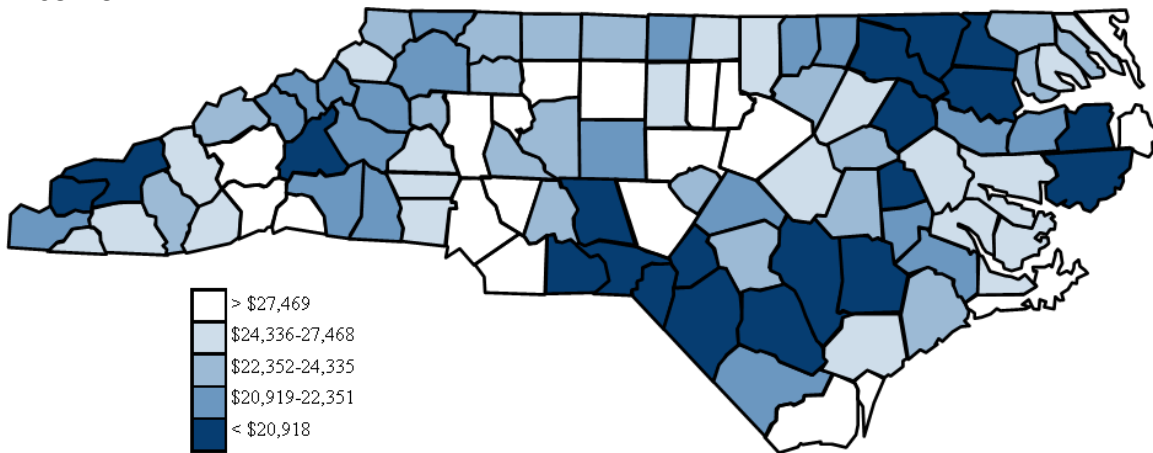
*Percent of Population (25 years+) with High School Diploma or Equivalent*



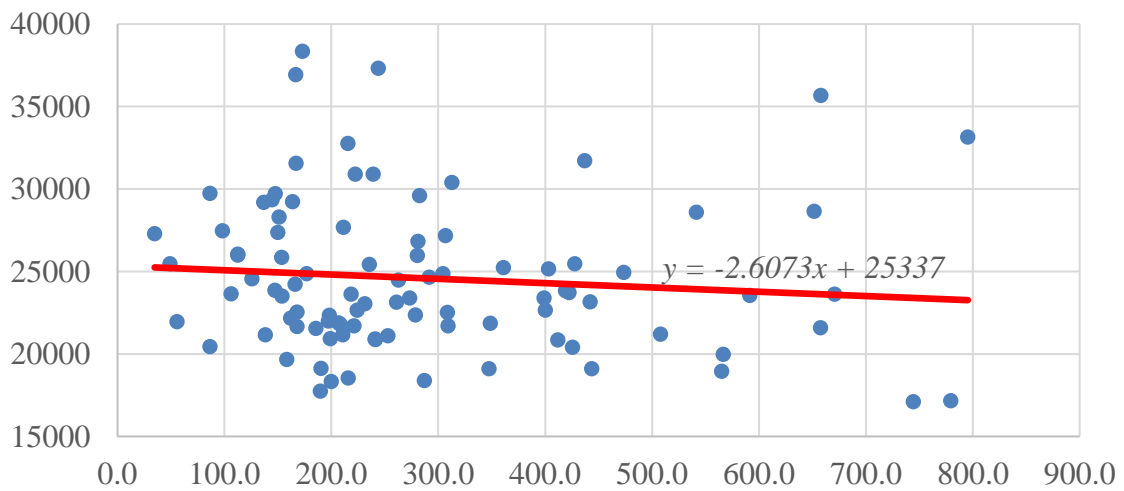
### Violent Crime



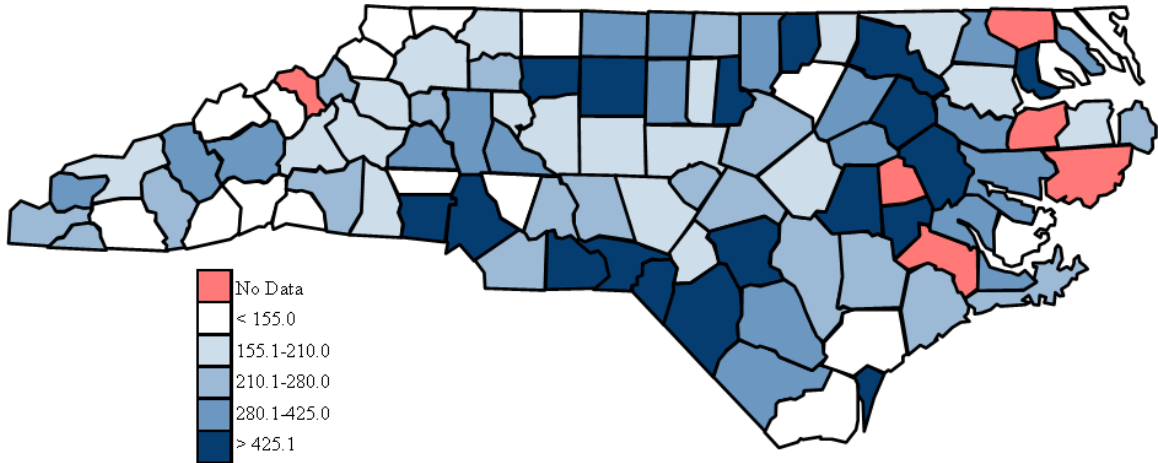
### Income



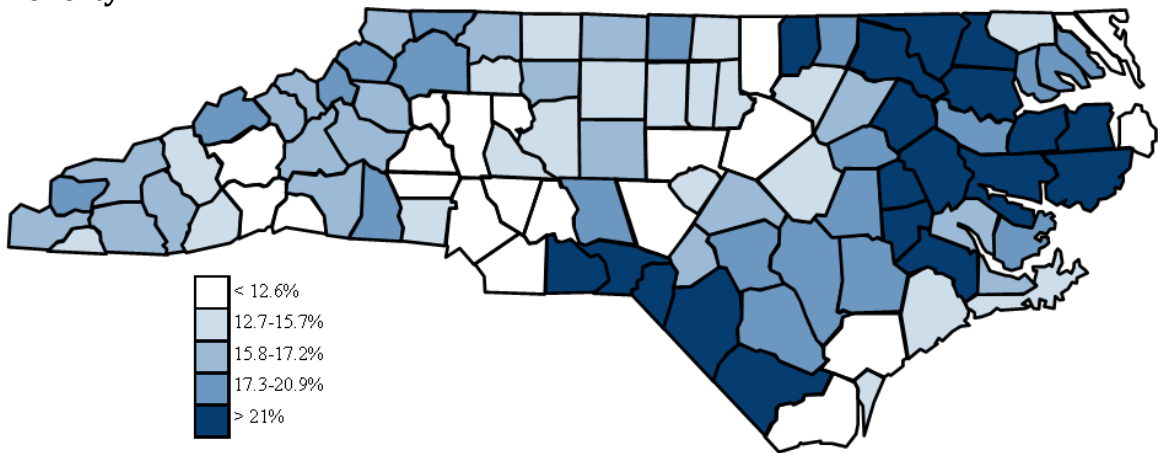
*Income Per Capita*



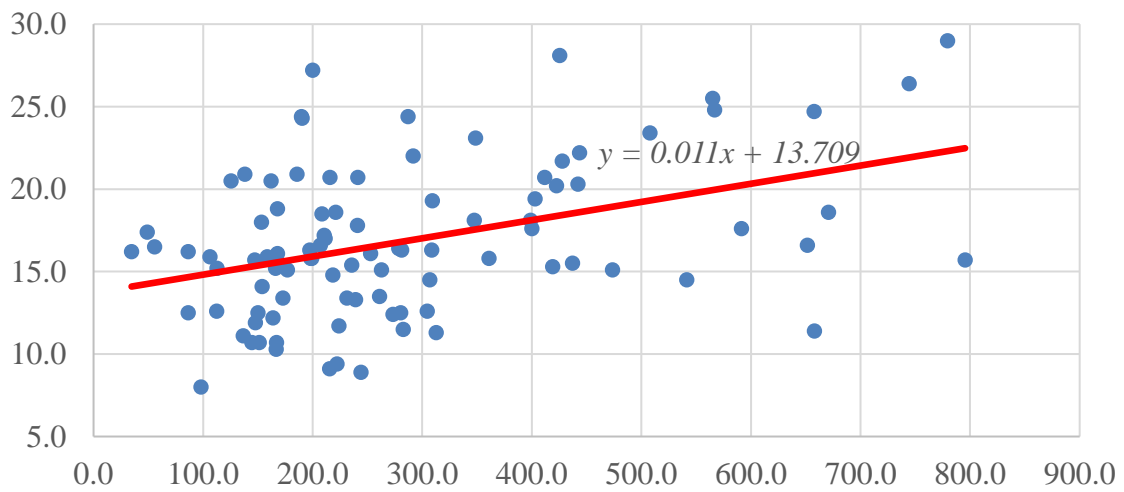
### Violent Crime



### Poverty

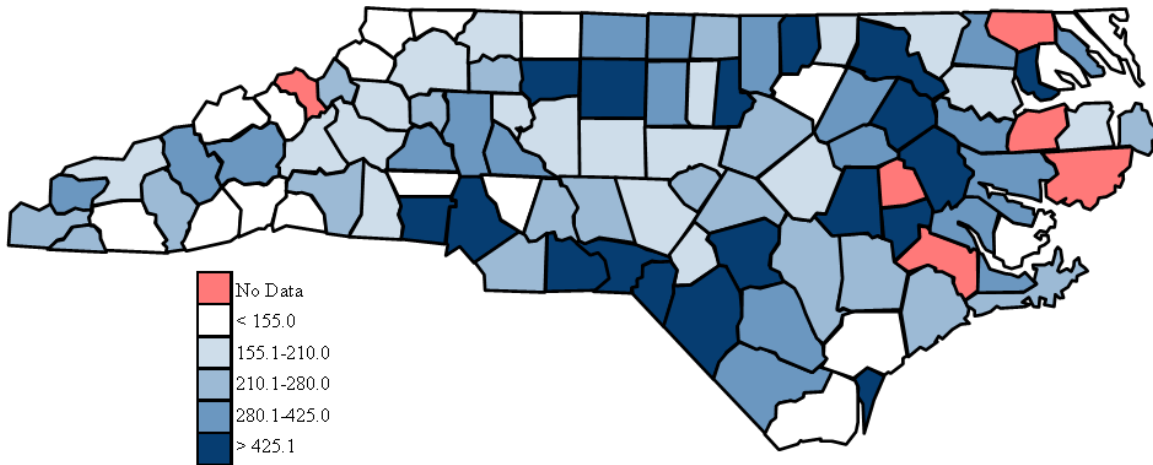


*Percent In Poverty*

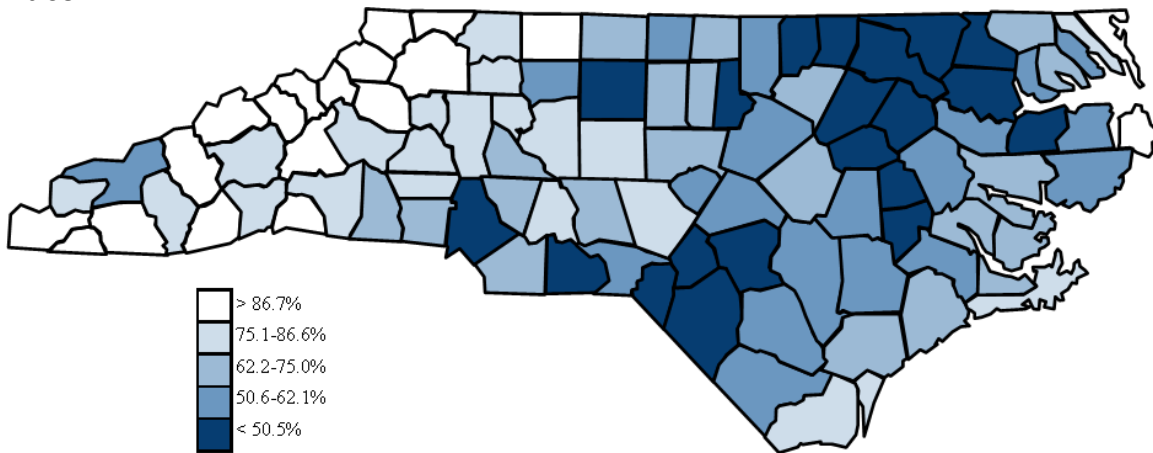


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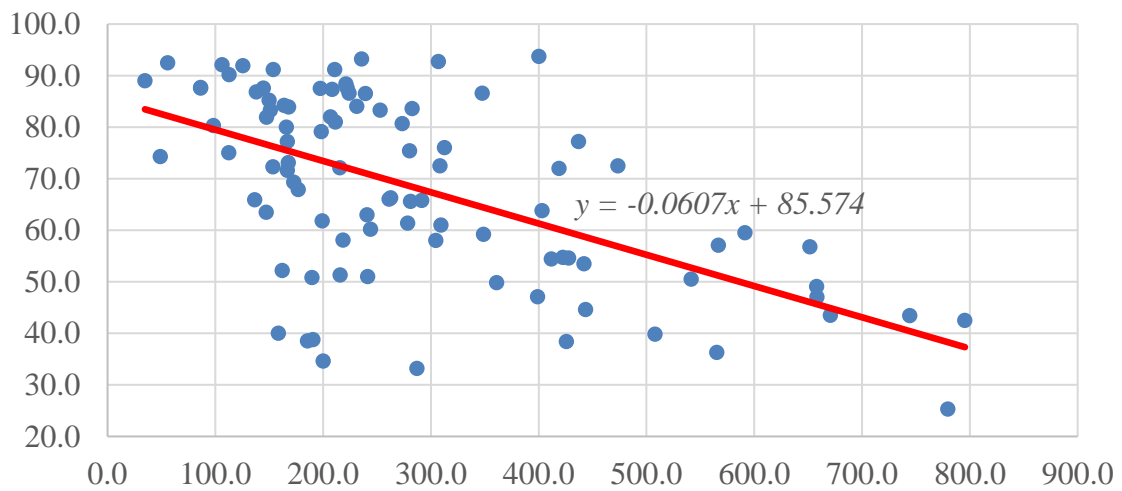
### Violent Crime



### Race

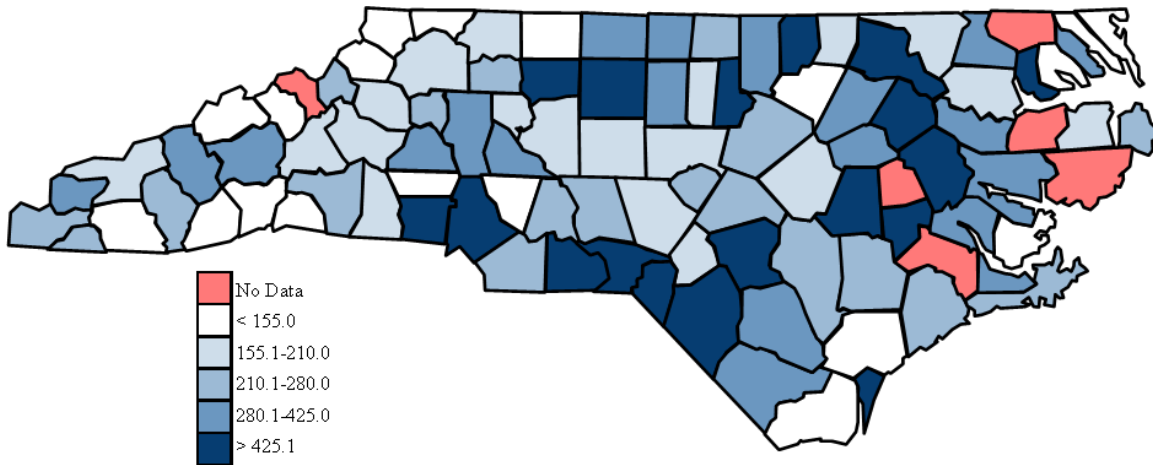


*Percentage of Population White Alone Non-Hispanic*

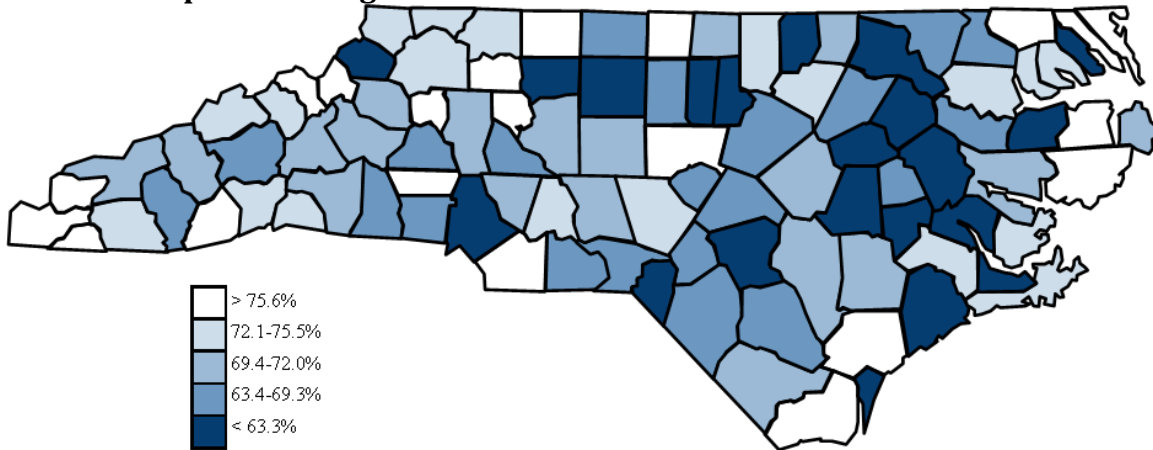


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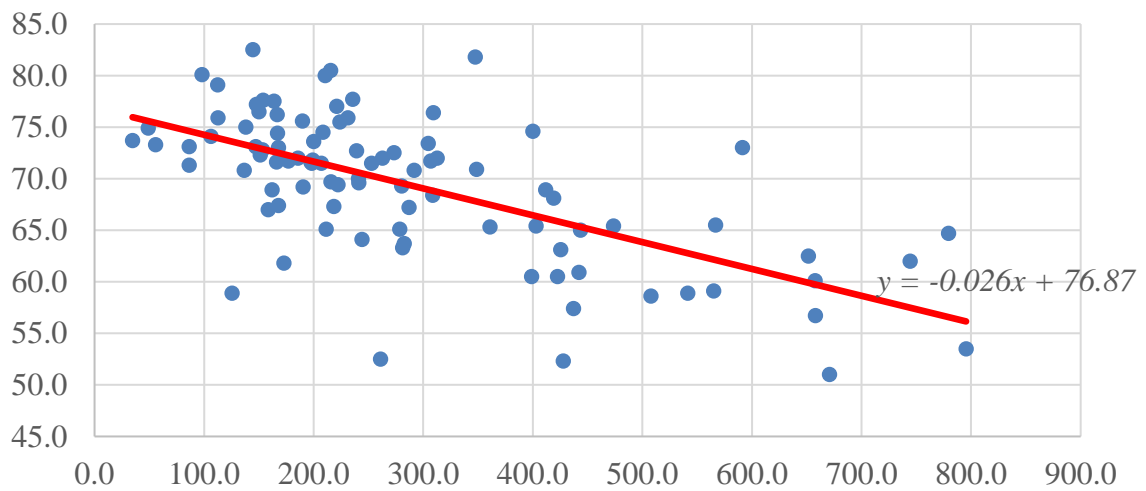
### Violent Crime



### Owner Occupied Housing



*Owner Occupied Housing*



## Discussion

The correlation coefficient of the relationships above is an indicator of the strength of the correlating data. Finding the correlations has indicated that the relationship between the percent of the population with a high school diploma and violent crime rates is not that significant. The correlation coefficient for this relationship is  $-0.09286$ . Concurrently, the correlation coefficient of income per capita as it is associated with violent crime is  $-0.09822$ . This means that both of these relationships are not that significant. This leads one to believe that the proposed reasons these factors lead to crime may be existent, but they are not as prevalent as the other factors explored in the study.

The percent of the population in poverty is the third most significant correlation examined. The correlation coefficient for this dataset is  $0.40939$ . Though not extremely significant, the relationship here is confirmed. The significance of poverty compared to that of income indicates Krivo and Peterson were accurate in their argument that it is not income, but rather other factors that influence crime, such as fatherless homes. The second most significant indicator of violent crime is race. The correlation coefficient between percent of the population that is white and non-Hispanic and the violent crime rate is  $-0.58403$ . This indicates that the disadvantages that occur within minority communities lead individuals residing there to commit acts of violence. As mentioned in the literature review, the temporal precedence within is unknown at this point in time. To identify this trait, one could conduct a longitudinal study using UCR data and historical census data, but that is beyond the scope of this project.



Likewise, the same longitudinal study could be used to identify the temporal precedence of the association between owner-occupied housing and violent crime. Owner-occupied housing is the most significant indicator of violent crime in this study with a correlation coefficient of -0.64321. The study confirms that at least one of the vast potential stimuli for this correlation is affecting or being affected by the violent crime rate. Which stimulus has the greatest influence is unknown at this point.

### **Policy Implications**

The findings of this study lead one to draw a conclusion that certain actions can be taken that would improve the rate of violent crime in communities across the State of North Carolina. The first social factor explored, graduate rate, for example, can be improved through simple policy changes. Raising the minimum age required to drop out of school, putting more funding into the secondary school system will encourage students to attain their high school diploma, which studies show will be beneficial to the crime rate in the surrounding area. Other social factors are more onerously corrected. Owner occupied housing, income inequality and poverty cannot be resolved by a single policy change or a shift in budgeting. Likewise, the sociological effects on race as they relate to the other causes will take many of years to neutralize the prejudices associated with those factors. Nonetheless, understanding the associations between these factors and crime can help legislatures and bureaucrats make decisions that will have the least adverse effects on the crime rate.

### **Conclusion**

This study has confirmed social factors have a correlation with crime. Though some reasoning for this continues to be debated, it is evident that the associations exist and the significance of the relationships vary. Understanding these associations and the significance between them allows policy makers and law enforcement officers to act in such manners that would allow them to impact the rate of violent crime for an extended period of time. Additionally, this can allow legislatures to evaluate how decisions regarding policy outside of criminal law can influence the violent crime rate.

## Appendix A

<b>County</b>	<b>Violent Crime Rate per 100,000</b>	<b>White Alone Non-Hispanic</b>	<b>High School Graduate</b>	<b>Owner-Occupied Housing</b>	<b>Persons in Poverty</b>	<b>Income Per Capita</b>
Alamance	403.0	63.8%	84.9%	65.4%	19.4%	\$25,157
Alexander	224.0	86.6%	81.9%	75.5%	11.7%	\$22,655
Alleghany	138.1	86.8%	78.9%	75.0%	20.9%	\$21,153
Anson	443.6	44.6%	80.1%	65.0%	22.2%	\$19,105
Ashe	106.1	92.1%	84.9%	74.1%	15.9%	\$23,650
Avery	221.1	88.4%	80.5%	77.0%	18.6%	\$21,704
Beaufort	291.6	65.8%	85.9%	70.8%	22.0%	\$24,657
Bertie	200.0	34.6%	76.1%	73.6%	27.2%	\$18,319
Bladen	411.8*	54.4%	79.2%	68.9%	20.7%	\$20,839
Brunswick	147.6	81.9%	89.1%	77.2%	11.9%	\$29,707
Buncombe	282.6	83.6%	90.8%	63.7%	11.5%	\$29,590
Burke	206.9	82.0%	80.5%	71.5%	16.6%	\$21,885
Cabarrus	136.6	65.9%	89.1%	70.8%	11.1%	\$29,193
Caldwell	197.3	87.5%	78.7%	71.6%	16.3%	\$21,991
Camden	98.2	80.3%	85.3%	80.1%	8.0%	\$27,468
Carteret	239.2	86.5%	90.8%	72.7%	13.3%	\$30,903
Caswell	309.2	61.0%	77.6%	76.4%	19.3%	\$21,692
Catawba	280.3	75.4%	84.0%	69.3%	12.5%	\$25,960
Chatham	166.8	71.6%	87.3%	76.2%	10.3%	\$36,933
Cherokee	210.6	91.2%	84.9%	80.0%	17.2%	\$21,152
Chowan	591.4	59.5%	83.9%	73.0%	17.6%	\$23,542
Clay	235.6	93.2%	89.2%	77.7%	15.4%	\$25,433
Cleveland	167.8	73.1%	84.0%	67.4%	18.8%	\$21,664
Columbus	348.7	59.2%	80.6%	70.9%	23.1%	\$21,849
Craven	281.1	65.6%	87.7%	63.3%	16.3%	\$26,830
Cumberland	670.7	43.5%	90.5%	51.0%	18.6%	\$23,627
Currituck	144.4	87.6%	87.6%	82.5%	10.7%	\$29,340
Dare	222.2	87.6%	93.2%	69.4%	9.4%	\$30,898
Davidson	166.0	80.0%	83.4%	71.6%	15.2%	\$24,231
Davie	163.7	84.2%	87.3%	77.5%	12.2%	\$29,234
Duplin	215.8	51.3%	73.3%	69.7%	20.7%	\$18,529
Durham	795.4	42.5%	87.7%	53.5%	15.7%	\$33,151
Edgecombe	565.2	36.3%	78.5%	59.1%	25.5%	\$18,946
Forsyth	651.5	56.8%	88.5%	62.5%	16.6%	\$28,640
Franklin	147.2	63.5%	84.3%	73.1%	15.7%	\$23,862
Gaston	473.5	72.5%	84.1%	65.4%	15.1%	\$24,937
Graham	347.6	86.6%	81.8%	81.8%	18.1%	\$19,095
*- Bladen County Violent Crime Rate from 2015; 2016 not available						

<b>County</b>	<b>Violent Crime Rate per 100,000</b>	<b>White Alone Non-Hispanic</b>	<b>High School Graduate</b>	<b>Owner-Occupied Housing</b>	<b>Persons in Poverty</b>	<b>Income Per Capita</b>
Granville	304.5	58.0%	83.6%	73.4%	12.6%	\$24,859
Guilford	541.4	50.5%	88.9%	58.9%	14.5%	\$28,582
Halifax	425.6	38.4%	76.9%	63.1%	28.1%	\$20,406
Harnett	278.5	61.4%	86.2%	65.1%	16.4%	\$22,351
Haywood	306.8	92.7%	87.8%	71.7%	14.5%	\$27,166
Henderson	151.1	83.3%	89.5%	72.3%	10.7%	\$28,290
Hertford	287.0	33.2%	80.0%	67.2%	24.4%	\$18,383
Hoke	158.4	40.0%	85.4%	67.0%	15.9%	\$19,654
Iredell	312.6	76.0%	88.7%	72.0%	11.3%	\$30,393
Jackson	211.4	81.0%	88.0%	65.1%	17.0%	\$27,674
Johnston	176.8	67.9%	85.6%	71.7%	15.1%	\$24,872
Lee	218.4	58.1%	82.0%	67.3%	14.8%	\$23,613
Lenoir	657.7	49.1%	80.1%	60.1%	24.7%	\$21,594
Lincoln	149.9	85.2%	84.4%	76.5%	12.5%	\$27,359
McDowell	86.3	87.6%	82.5%	71.3%	16.2%	\$20,439
Macon	34.7	89.0%	87.5%	73.7%	16.2%	\$27,282
Madison	400.1	93.7%	84.6%	74.6%	17.6%	\$22,653
Martin	161.9	52.2%	83.4%	68.9%	20.5%	\$22,161
Mecklenburg	658.0	47.0%	89.9%	56.7%	11.4%	\$35,669
Montgomery	240.8	63.0%	77.9%	70.0%	17.8%	\$20,900
Moore	166.9	77.2%	90.2%	74.4%	10.7%	\$31,554
Nash	360.9	49.8%	85.1%	65.3%	15.8%	\$25,232
New Hanover	437.0	77.2%	92.3%	57.4%	15.5%	\$31,708
Northampton	190.4	38.8%	78.1%	69.2%	24.3%	\$19,126
Onslow	261.1	66.0%	91.4%	52.5%	13.5%	\$23,141
Orange	172.8	69.3%	92.6%	61.8%	13.4%	\$38,348
Pamlico	48.9	74.3%	86.0%	74.9%	17.4%	\$25,461
Pasquotank	422.4	54.7%	86.2%	60.5%	20.2%	\$23,714
Pender	112.4	75.0%	86.8%	79.1%	12.6%	\$25,997
Perquimans	153.4	72.3%	86.4%	72.8%	18.0%	\$25,848
Person	262.8	66.3%	85.3%	72.0%	15.1%	\$24,477
Pitt	427.8	54.6%	89.3%	52.3%	21.7%	\$25,462
Polk	86.4	87.7%	89.6%	73.1%	12.5%	\$29,728
Randolph	198.2	79.1%	80.6%	71.5%	15.8%	\$22,349
Richmond	566.7	57.1%	80.2%	65.5%	24.8%	\$19,966
Robeson	779.4	25.3%	77.1%	64.7%	29.0%	\$17,161
Rockingham	308.5	72.5%	81.2%	68.4%	16.3%	\$22,521
Rowan	418.9	72.0%	84.5%	68.1%	15.3%	\$23,838
Rutherford	252.8	83.3%	81.4%	71.5%	16.1%	\$21,092

<b>County</b>	<b>Violent Crime Rate per 100,000</b>	<b>White Alone Non-Hispanic</b>	<b>High School Graduate</b>	<b>Owner-Occupied Housing</b>	<b>Persons in Poverty</b>	<b>Income Per Capita</b>
Sampson	241.2	51.0%	77.3%	69.6%	20.7%	\$20,872
Scotland	744.3	43.4%	78.4%	62.0%	26.4%	\$17,103
Stanly	273.3	80.7%	85.2%	72.5%	12.4%	\$23,398
Stokes	153.8	91.2%	83.1%	77.6%	14.1%	\$23,500
Surry	167.9	83.9%	78.3%	73.0%	16.1%	\$22,533
Swain	199.0	61.8%	80.4%	71.8%	15.8%	\$20,918
Transylvania	112.6	90.2%	87.5%	75.9%	15.2%	\$26,037
Tyrrell	189.7	50.8%	74.4%	75.6%	24.4%	\$17,736
Union	215.4	72.1%	89.8%	80.5%	9.1%	\$32,754
Vance	507.8	39.8%	78.2%	58.6%	23.4%	\$21,188
Wake	244.0	60.2%	92.5%	64.1%	8.9%	\$37,315
Warren	185.6	38.5%	80.1%	72.0%	20.9%	\$21,543
Watauga	125.6	91.9%	88.6%	58.9%	20.5%	\$24,545
Wayne	442.0	53.5%	83.5%	60.9%	20.3%	\$23,163
Wilkes	208.4	87.3%	78.3%	74.5%	18.5%	\$21,798
Wilson	398.9	47.1%	80.7%	60.5%	18.1%	\$23,383
Yadkin	231.2	84.0%	79.3%	75.9%	13.4%	\$23,038
Yancey	55.7	92.5%	83.2%	73.3%	16.5%	\$21,947
Gates, Greene, Hyde, Jones, Mitchell and Washington Counties are omitted due to the absence of data found in the <i>Crime in North Carolina: Annual Summary Report of 2016 UCR Data (2017)</i> .						

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