Sanctuary Cities and Their Respective Effect on Crime Rates

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Sanctuary Cities and Their Respective Effect on Crime Rates

Abstract

According to the U.S. Center for Immigration Studies (2017), cities or counties in twenty-four states declare themselves as a place of "sanctuary" for illegal immigrants. This study addresses the following question: Do sanctuary cities experience higher crime rates than those cities that are not? Using publicly available data, this regression analysis investigates the relationship between crime rates in selected cities and independent variables which the research literature or the media has linked to criminal activity. Results of this research reveal that sanctuary cities do not experience higher violent or property crime rates than those cities that are not sanctuary cities.

Keywords

Cover Page Footnote

I. Introduction

In 2019, both major political parties in the U.S., as well as prominent political figures, continue to debate the creation and/or implementation of sanctuary cities in the U.S. and their effect on those respective cities. Conservatives often declare that sanctuary cities provide a "breeding place" for violent crime (Luhby, 2016), resulting in higher instances of aggravated assault, rape and murder. Liberals, on the other hand, argue that sanctuary cities do not create an environment for more crime, but that they protect those individuals who entered the U.S. illegally in the past from deportation. While this may appear to be a clear-cut topic and simple for people to choose one side or the other, the discussion becomes much more complex as we attempt to define sanctuary cities and determine what being a "sanctuary city" means.

Sanctuary cities' prominence grew during the 2016 U.S. Presidential election amidst the increasing popularity of then-candidate, Donald J. Trump. Sanctuary cities became a popular topic of discussion during primary debates, and many candidates, including Trump, proposed the idea of cutting federal funding to those states and/or jurisdictions that chose to defy federal law to protect undocumented immigrants. According to candidate Trump on August 29th, 2016, "Block funding for sanctuary cities … no more funding. We will end the sanctuary cities that have resulted in so many needless deaths. Cities that refuse to cooperate with federal authorities will not receive taxpayer dollars, and we will work with Congress to pass legislation to protect those jurisdictions that do assist federal authorities" (Luhby, 2016). After candidate Trump was elected President in 2016, sanctuary cities remained an important issue for him and his political base. While President Trump and his political base continue to advocate for sanctuary cities to be eliminated and their federal funding withheld to some extent, many people remain uninformed about sanctuary cities and uncertain of their role in the U.S. moving forward.

Most people do not realize that sanctuary cities actually became popular in the U.S. in the 1980s. During this decade, numerous immigrants in Central America fled from harsh and violent living conditions in countries such as El Salvador and Guatemala. As these immigrants fled to the U.S., churches and synagogues would often provide some sort of refuge or shelter to these undocumented immigrants. "The Sanctuary Movement encompassed a number of religious and faith-based groups around the country, with additional support coming from university campuses, civil rights organizations, lawyers, and a host of other concerned parties" (Gonzalez et al., 2017). At the height of the sanctuary movement, approximately 20,000 to 30,000 church members and more than 100 churches and synagogues participated. This movement was then followed by what some termed the "New Sanctuary Movement" following the September 11, 2001 attacks in the U.S. Some of the new policies following these attacks, including the

U.S. Patriot Act (2001) and the Clear Law Enforcement for Criminal Alien Removal Act (2003), led some to believe that the government was abusing its power by requiring local law officials to enforce federal immigration law. Alternative definitions of sanctuary cities, as evidenced by the prior definitions, make it difficult to provide one single, consistent definition of a sanctuary city over time.

Although we often refer to places that provide some type of protection to immigrants as "sanctuary cities," these locations are not technically always cities. Not only cities provide "sanctuary" to immigrants; other jurisdictions, including entire states and counties, serve as places of "sanctuary" and do not completely comply with the U.S. Immigration and Customs Enforcement's (ICE's) demands. As the Center for Immigration Studies' article *Maps: Sanctuary Cities, Counties, and States* (2017) explains, these cities, counties and states support laws, ordinances, regulations, resolutions, policies or other practices that block immigration enforcement and shield criminals from ICE. These entities refuse to or prohibit agencies from complying with ICE detainers, imposing unreasonable conditions on detainer acceptance, denying ICE access to interview incarcerated aliens or otherwise impeding communication or information exchanges between their personnel and federal immigration officers. Thus, the definition of sanctuary cities and how those cities choose to provide "sanctuary" is multifaceted.

This research considers if labeling a city as a sanctuary city results in higher violent and/or property crime rates for that city when compared to those cities that do not identify as sanctuary cities. Since the lines are slightly blurred when it comes to either cities or counties identifying as an area that provides "sanctuary," I incorporate only cities that define themselves individually as sanctuary cities in this study. I exclude cities within counties that had, for example, their sheriff's office decide that they would provide some sort of "sanctuary" to immigrants.

A review of the literature reveals only a limited amount of research on the relationship between sanctuary cities and crime. One study titled *The Politics of Refuge: Sanctuary Cities, Crime, and Undocumented Immigration* by Gonzalez, Collingwood and Omar El-Khatib (2017) exhibits the greatest amount of similarity with my study. Their study is explained in greater detail in the literature review section, but it is important to note that a few significant differences exist between this study and the one completed by Gonzalez, Collingwood and Omar El-Khatib. This study includes other economic variables, such as income and education, while Gonzalez, Collingwood and Khatib do not. Since the omission of these variables could result in omitted variable bias, I include these socioeconomic variables. Another main difference is the results; Gonzalez et al. analyze different types of violent crime separately, while I analyze the effect of these independent variables on both violent and property crime rates. Although

this was the only study I identified that uses a simple linear regression model to observe the relationship between sanctuary cities and crime, I review several other papers written on the topic of immigration and crime.

My hypothesis for this study is that cities defined as sanctuary cities will not, on average, experience higher violent crime or property crime rates than those cities that are not defined as sanctuary cities. I expect the independent dummy variable (1 if sanctuary city, 0 if not sanctuary city) to be statistically insignificant when it comes to explaining the two dependent variables (property crime rates and violent crime rates) in respective cities. This is the same result as the previous study completed by Gonzalez, Collingwood and Khatib. In the next section, I review the literature related to this topic. The remainder of this paper is ordered as follows: theory, data, results and the conclusion of the study.

Review of Literature

My interest in studying the relationship between sanctuary cities and violent/property crime stems from the fact that limited research exists despite the fact that this topic has been discussed since sanctuary cities emerged in the 1980s. *The Politics of Refuge: Sanctuary Cities, Crime, and Undocumented Immigration* by Gonzalez et al. (2017) is the only study I found that is closely related to this research. Their research addresses the claim that sanctuary cities, defined as cities that expressly forbid city officials or police departments from inquiring into an individual's immigration status, are associated with post hoc increases in crime. My research addresses the same issue: whether cities that define themselves as sanctuary cities experience higher crime rates than those that do not. Their findings provide evidence that sanctuary policies in cities have no effect on crime rates, despite narratives to the contrary portrayed in mass media. They also determine from this result that the potential benefits generated in sanctuary cities, such as better incorporation of the undocumented immigrant community and cooperation with police, result in limited cost for the cities in question in terms of crime. This statement suggests that the possible added benefits that may come from sanctuary cities are increasingly likely to be "more" positive because the evidence does not in any way suggest that sanctuary cities increase violent crime rates.

Although these studies share the same general objective and hypotheses, some important differences exist between the two studies. In my study, I select cities randomly and include some that identify as "sanctuary" and some that do not. In the study by Gonzalez, Collingwood and Khatib (2017), they, "employ a casual inference matching strategy to compare similarly situated cities where key variables are the same across the cities except the sanctuary status of the city." Unlike my study, these researchers do not select cities randomly to compare respective crime rates across different cities. Rather, they choose cities that are "similarly situated" to compare a sanctuary city to another similar city

geographically that is not a sanctuary city. Another key difference from the two studies is that Gonzalez, Collingwood and Khatib investigate each type (violent, property or rape) of crime separately. They then compare those results individually across cities that identify as sanctuary cities and those that do not. My study, on the other hand, analyzes the two separate classifications of crime as two different dependent variables [violent (which includes murder/nonnegligent manslaughter, rape, robbery and aggravated assault) and property (which includes burglary, larceny-theft, motor vehicle theft and arson)] and then compares the regression results associated with the two different classifications of crime. Another key difference between the two studies emerges since Gonzalez, Collingwood and Khatib use both time series and cross-sectional approaches within their study. They use crime data from fifty-five cities that passed sanctuary city laws post-9/11 and compare these crime data with the crime rate in the year preceding the implementation of a sanctuary policy. By doing this, they determine whether sanctuary cities themselves experience an increase in their respective crime rates by comparing the crime rate of the year before they identified as sanctuary cities to the year after identification. Their second analysis employs a "matching causal inference strategy to test the claim that sanctuary cities are associated with more crime than are non-sanctuary cities." My study resembles this part of their study.

In the first part of Gonzalez et al.'s study where they compare crime rates the year before cities became sanctuary cities to the year after, they detect no statistical evidence to suggest that sanctuary cities experience higher crime rates. In the second part of their study in which they compare crime in non-sanctuary cities to crime in sanctuary cities, they also find no statistical evidence that sanctuary cities experience higher crime rates than those cities that do not identify as sanctuary cities. My regression finds no statistically significant correlation between sanctuary cities and crime as well.

Although Gonzalez et al. is the only paper identified in which the author uses regression analysis to analyze the relationship between sanctuary cities and crime, a significant amount of research exists for immigration and crime in general. Camarota and Vaughan (2009) examine academic and government research in the context of the following question: do immigrants, on average, commit more crime than citizens? Although this is slightly different than my research question, I can infer that immigration and sanctuary cities are both intimately related, and therefore reviewing literature on the effects of immigration on crime provides insights as to how sanctuary cities may affect crime. Ultimately, Camarota and Vaughan conclude that there is very little conclusive data to inform the well-entrenched views on *both* sides of the debate. Instead, they highlight that the collection and measurement of illegal immigration data are the greatest challenges to conducting research on this topic.

Camarota and Vaughan identify that, except for federal prisons which only account for a small number of all those incarcerated, state and local correctional institutions generally have not tried to carefully determine whether their prisoners are native or foreign-born. As the report states, many people do not realize that state and local prisons will typically use a "self-reporting" technique when determining whether the inmates were born in the U.S. or were foreign-born. Self-reporting means that they ask the inmates whether they were born in the U.S. or not and take their word for it when collecting these data. However, this introduces its own challenges when relying on self-reported data when conducting research. Smart inmates, who realize that being a non-citizen can lead to deportation, face a much stronger incentive to lie when asked whether they are a citizen or foreign-born. Because of this, the Census or any surveys administered in jails or prisons likely understate the share of inmates who are non-citizens or illegal aliens if the inmate data are not carefully checked against actual immigration records. While one may think that verifying immigration records may address this problem, multiple issues surface in that step of the process as well. No official list of legal U.S. residents or illegal aliens exists. In theory, if someone enters the country illegally and has no prior contact with immigration officials, that person's fingerprints and other information are not present in any immigration database. These issues identified by Camarota and Vaughan make it extremely difficult to measure an exact number of crimes or rates of crimes committed independently by foreign-born individuals with accuracy or confidence. This information is important to this study as well, as I use non-citizen/foreign-born data provided by the U.S. Census Bureau's American Community Survey. As Camarota and Vaughn emphasize, it is difficult to determine an accurate number of foreign-born individuals based upon a self-reporting system, as many illegal immigrants may feel as though the incentives favor lying about their immigration status versus providing the truth to law enforcement officials.

Another study of immigration and crime titled *More Foreigners, Less Crime: Examining the Relationship between Immigrant Inflow and County Crime Rates in 2000* by Gonzalez (2006) addresses the concern that many Americans had back in the early 2000s: are immigrants and foreigners more criminal than native-born citizens? To answer this question, Gonzalez uses 1990 and 2000 U.S. Census and FBI Uniform Crime Report data to analyze the relationship between foreign-born people in the U.S. and crime rates. Gonzalez examines the changes in crime and immigration rates from 1990 to 2000, the nation's immigrant-crime link during the 2000s and the immigrant-crime link in counties that experienced an increase in their foreign-born population. This study relies upon data from the Federal Bureau of Investigation's (FBI) Uniform Crime Report (UCR) and the U.S. Census Bureau's Decennial Reports. The UCR data from the FBI serve as the source of Gonzalez's independent variables of total crime, property crime and

violent crimes, while the U.S. Census Bureau's Decennial Reports offer self-reported data for the independent variables including: population size, mean age, proportion of males in a county, proportion of black people in a county, proportion of Hispanic people in a county, mean education level, proportion of population living in poverty, proportion of county population that is unemployed, proportion of county that is foreign-born, proportion of people in a county that are new immigrants and proportion of people in a county that are established immigrants.

After running the regression analysis with all the variables mentioned, Gonzalez finds that immigrants are less violent than native-born Americans and that communities with greater proportions of immigrants exhibit lower crime rates. The author reaffirms previous researchers' findings that immigrants are less violent than native-born citizens and that, when it comes to creating immigration policies and addressing crime, closing the nation's borders and removing immigrants is not a practical or reasonable solution. This result contradicts some of the mainstream ideas in our nation today, but it is consistent with most of the existing research on this topic. Although Gonzalez's study explores the link between immigration and crime instead of sanctuary cities and crime like my study, I find this research to be relevant to both topics because Gonzalez used FBI crime data and many of the same economic and demographic variables used in my study.

Similar to Gonzalez's work, other researchers have conducted studies to determine if immigration increases crime in U.S. cities. *Does Immigration Increase Homicide? Negative Evidence from Three Border Cities* (Lee et al., 2001) is another example of an attempt by researchers to understand the complex relationship between homicide and immigration. These researchers compare three U.S. border cities (Miami, El Paso and San Diego) in order to determine if an increase in immigration increases the homicide rate. Lee et al. highlight some of the "sociological images" of immigrants and crime that have led some individuals to believe that immigrants are more prone to committing violent crimes than others. Based upon opportunity structure theory, some expect that immigrants are more likely to commit violent crimes simply because legitimate opportunities for wealth and social status are not equally available to all groups. Because of this fact, some immigrants "innovate" by taking advantage of available illegitimate opportunities. Racism and discrimination may make it difficult for immigrants to obtain higher education or secure a stable job, which as a result makes it difficult for them to achieve "culturally prescribed success and goals," otherwise known by some in the U.S. as the "American Dream" or a typical "middle-class lifestyle." Even though this sociological theory makes theoretical sense, Lee et al. find that the cities of Miami, El Paso and San Diego do not experience increases in homicide rates as a result of the increase in immigration to these cities,

respectively. This study relates closely to mine, as these researchers attempt to conclude if immigrants possess greater incentives than natural-born citizens to commit homicide.

One final paper that I find to be important regarding the topic of crime and immigration is one titled *Immigration and Crime: What's the Connection?* (Mears, 2002). Unlike the papers reviewed thus far, Mears analyzes the link between immigration and crime in a way that incorporates topics from psychology and sociology instead of only using data and regression analysis to explain the link between the two. Similar to the papers reviewed previously, Mears states that immigrants are less, not more, criminal than non-immigrants. Mears also suggests that immigration rates are largely unassociated with crime rates. This article discusses current research on the immigration-crime connection and also identifies key issues relevant to understanding both the limitations of existing data/studies and opportunities for future research.

Mears points out that, despite almost a century of research attempting to explain a possible connection between immigration and crime, well-developed theoretical and empirical studies remain rare. From a psychological/sociological standpoint, theory would in some ways suggest that immigrants should be more prone to engagement in criminal behavior than non-immigrants. Mears mentions the idea of social disorganization theory. This theory advocates that in highly disorganized areas, with high rates of residential mobility, residents do not develop a sense of shared values and thus become more likely to engage in crimes. Two other notable sociology theories, known as social strain theory and opportunity theory, suggest that individuals who face few prospects to achieve social goals legitimately turn to illegitimate means, such as criminal behavior, to do so.

The sociological and psychological theories mentioned suggest that immigrants are more likely to be involved in crime than natural-born citizens. As Mears points out, immigrants typically move into areas thought to be more highly disorganized, and they face many more cultural and social barriers as they attempt to assimilate into U.S. society. Further, these factors suggest that immigrants are more likely to involve themselves in different types of crime. However, the research completed over past years does not provide support for these theories. Mears suggests that, contrary to popular belief, most studies offer a more paradoxical finding than what many expected; immigrants are less likely to engage in crime than those who are natural-born citizens.

Although limited literature exists in which researchers study the relationship between sanctuary cities and crime, a significant amount of research on the topic of immigration and crime exists. Presuming that some, if not a majority, of those individuals in sanctuary cities that these entities are trying to protect are indeed immigrants, previous literature and studies completed on

immigration and crime provide valuable insights in relation to sanctuary city policies and their effects on crime rates.

Theory

Literature reviewed in the previous section highlighted the dependent and independent variables used in this research; I relied especially upon the study completed by Gonzalez et al. (2017) to decide which variables would be important to include in this study. Table 1 summarizes the two alternative dependent variables (violent crime rate and property crime rate) and seven independent variables included in this study with detailed explanations of each offered to conclude this section.

The violent crime rate and property crime rate each serve as separate dependent variables for the respective cities studied. I obtain these data for 2016 from the FBI's website. To obtain the actual crime rates, I take the number of violent crimes reported in the cities chosen for my research and divide each city's number of violent crimes by its respective population. I then repeat this same method with property crimes in the same cities to obtain a similar ratio. This provides the number of violent and property crimes per person in each city. I multiply each result by one thousand to define the two dependent variables as the number of violent crimes per one thousand people in each respective city, and the number of property crimes per one thousand people in each respective city. In the following section, I explain the expected signs for each of the seven independent variables used in this study. It is also important to note that use of the word "crime" refers to both violent and property crimes. I anticipate the same expected signs, irrespective of whether the dependent variable is measured as violent crime or property crime.

The inclusion of the percentage of Hispanic/Latino individuals in each city originates from the idea that when most people think of sanctuary cities, they think of immigrants entering the U.S. from Mexico. These data were obtained from the U.S. Census Bureau's American Community Survey for the year 2016. Based on previous literature, I expect this coefficient to be negative, suggesting that as the percentage of Hispanic individuals rises in a given city, the crime rate decreases. I base this theory upon Gonzalez's (2006) finding that natural-born citizens commit more crimes than foreign-born immigrants. Economic theory suggests that illegal immigrants attempt to avoid crime as much as possible, since they are in the country illegally and prefer to remain undetected. Illegal immigrants have more to lose if caught committing a crime, and therefore are less inclined to commit crimes than those who are native-born.

Table 1.
Description of dependent and independent variables

Data	Description	Source
Violent crime rate	(number of violent crimes)/(city population)*1000	Federal Bureau of Investigation (2016)
Property crime rate	(number of property crimes)/(city population)*1000	Federal Bureau of Investigation (2016)
Percentage Hispanic/Latino (%HISP)	(number of Hispanic individuals)/(city population)	U.S. Census Bureau American Community Survey (2016)
Percentage foreign-born (%FB)	(number of foreign-born individuals)/(city population)	U.S. Census Bureau American Community Survey (2016)
Median age (MEDIANAGE)	Median age of both females and males in city	U.S. Census Bureau American Community Survey (2016)
Percentage of population over age 25 with less than high school diploma (%NOHSDIP)	(number of individuals in city over age 25 with less than high school diploma)/(total population of city over age 25)	U.S. Census Bureau American Community Survey (2016)
Median household income (MHI)	Median income for entire household in city	U.S. Census Bureau American Community Survey (2016)
Percentage of non-citizens (%NONCIT)	(number of non-citizens)/(city population)	U.S. Census Bureau American Community Survey (2016)
Sanctuary city (dummy variable) (SANCCITY)	City denoted by "1" if sanctuary city, denoted by "0" if not a sanctuary city	Center for Immigration Studies (2017)

I include the percentage of foreign-born individuals in each city variable because of previous studies conducted on illegal immigration and crime; these studies suggest that foreign-born individuals are less likely to commit crimes, on average, when compared to natural-born citizens. Thus, I assume this variable exhibits a negative correlation with respect to crime rates. As the percentage of foreign-born individuals rises in a city, I expect the crime rate to decrease since foreign-born individuals have more to lose when committing a violent crime compared to natural-born citizens.

I predict that the average age of the population in each city will have a negative correlation with respect to crime rates; as the average age increases in a given city, I believe the crime rate will decrease. Based upon economic theory, the incentives will be much higher for a younger person to commit a crime than an older person. I expect that younger people are more likely to be involved with criminal activity since they are less developed and mature than someone who is older and has a more-established life. Similarly, they may have more of an incentive to commit a property crime. If they are younger, and therefore presumably less established and financially sound, these younger individuals have more of an incentive to commit burglary or theft. Although research on the topic of crime and age has been minimal, much of the research does suggest that, on average, people commit less crimes as they age. Although there is common consensus overall, some research suggests that, although crime *as a whole* tends to decrease with age, different classifications or offenses of crime "peak" at various ages. "Traditional research and theory on the age-crime relationship suggest some of the patterns that may be expected: (1) most crimes peak in adolescence or early adulthood, then decline fairly steadily; (2) crime types vary in peak ages of criminality and in rates of decline from the peak; (3) because of the effect of industrialization, peak ages have become younger over the past four decades, and the descent of the age curve from the peak has become steeper" (Steffensmeier et al., 1989). In their research, Steffensmeier et al. suggest that dissimilar crimes have different "peak ages." This presents the idea that, although most studies still may accurately claim that "crime" in the general sense is committed more frequently by young people on average, other research shows that separate crimes may have different peak ages.

The percentage of the population over the age of twenty-five in each respective city that has completed less than a high school education includes individuals who both did not attend high school and those who attended high school for a period of time but did not graduate high school nor earn their diploma and/or General Educational Diploma (GED). These were obtained from the U.S. Census Bureau's American Community Survey for the year 2016. I predict this variable to have a positive correlation with respect to crime rates; as the percentage of those with less than a high school education increases in a

respective city, one could conclude that the crime rate in that city will increase as well. Theory states that those who are more educated are less likely to participate in criminal activities and tend to avoid a lifestyle involving crime. As one becomes more educated and earns a higher income, one has much more to lose than a less-educated individual when it comes to deciding whether to commit a crime or not.

The median household income in each city variable is expected to display a negative correlation; as the median household income increases in a given city, I predict a decrease in the crime rate. The more money a person makes, the more financially stable they are. Therefore, I expect that the incentives to participate in criminal activities as a wealthier person decline.

I do not have a prediction as to whether the percentage of non-citizens in each city variable exhibits a positive or negative correlation with the crime rate. I assume that this variable will be statistically insignificant and result in no significant impact on crime rates in the given cities. Based upon the recent rhetoric in our nation suggesting that immigrants/non-citizens tend to be more likely to engage in criminal activities than citizens, this is a timely variable to include in my study.

I include a dummy variable for sanctuary cities in this study. If a given city is defined as a sanctuary city, that city is denoted by a "1." If a given city in this study is not defined as a sanctuary city, that city is denoted by a "0." Relative to my objective, this is the variable of greatest interest in my study. I do not have a prediction as to whether the coefficient for this dummy variable will display a negative or positive correlation. I do expect, however, that the dummy variable for sanctuary cities will be statistically insignificant, which would suggest that sanctuary cities do not experience higher crime rates (neither property nor violent) than non-sanctuary cities.

Data

I obtained 2016 crime rate data from the FBI's official website for 147 U.S. cities. As part of the FBI's National Incident-Based Reporting system, these statistics include all crimes occurring in each city reported to law enforcement. The definition of "violent" crimes for the first dependent variable includes the cumulative number of the following crimes committed in each city during 2016: murder/nonnegligent manslaughter, rape (includes the revised and legacy definitions), robbery and aggravated assault. To obtain the violent crime rate in each of the selected cities, the number of violent crimes in each city is divided by that city's total population. This relatively small decimal represents the average number of violent crimes per person in a city. The decision to multiply each result by one-thousand results in a number that represents the average number of violent crimes per one-thousand people in each city, respectively.

For the second dependent variable used, property crime rates, I also use 2016 crime rate data from the FBI's official website for the same 147 U.S. cities. As part of the FBI's National Incident-Based Reporting system, these statistics include all property crimes occurring in each city reported to law enforcement. The definition of "property" crimes for the second dependent variable includes the cumulative number of the following crimes committed in each city throughout 2016: burglary, larceny-theft, motor vehicle theft and arson. To obtain the property crime rate in each of the selected cities, the number of property crimes in each city is divided by that city's total population (the same population used for the violent crime dependent variable). This small decimal represents the average number of property crimes per person in a city. The decision to multiply each result by one thousand provides a number that represents the average number of property crimes per one-thousand people in each city, respectively.

Some of the descriptive statistics for the dependent variables (violent crime rate per one-thousand people and property crime rates per one-thousand people) are highlighted for greater understanding of the cities (Appendix A) used within this study. For violent crimes, the mean is 6.18 violent crimes per one-thousand people, and some of the cities that are close to this mean value include: Bristol, Tennessee; Seattle, Washington; Annapolis, Maryland; and Joplin, Missouri. The median is Glendale, Arizona with 4.96 violent crimes per one-thousand people. The city with the lowest violent crime rate per one-thousand people is Lafayette, Louisiana with 0.005 violent crimes, and the city with the highest violent crime rate per one-thousand people is Detroit, Michigan with 20.47 violent crimes. For property crimes, the mean is 36.43 property crimes per one-thousand people, and cities with property crime rates close to this mean value are: Albany, New York; Denver, Colorado; Savannah, Georgia; and Tuscaloosa, Alabama. The city with the lowest property crime rate per one-thousand people is Independence, Kentucky with 5.66 property crimes, and the city with the highest property crime rate per one-thousand people is Myrtle Beach, South Carolina with 137.93 property crimes.

Aside from summarizing the descriptive statistics of the two dependent variables used in this study, I also highlight some independent variables with interesting descriptive statistics in this section. The median age in each city and the median household income in each city are the two independent variables that are statistically significant, irrespective of whether crime is measured as damage to person or property. That being said, I want to compare the descriptive statistics for both of these independent variables between non-sanctuary cities and sanctuary cities to identify if the descriptive statistics are similar across cities that identify as "sanctuary" and those that do not.

When reviewing the descriptive statistics for median household income in each city, the mean household income for non-sanctuary cities used in this study

is approximately $51,700. On the other hand, the mean household income for sanctuary cities used in this study is approximately $57,974. The minimum and maximum household incomes for non-sanctuary cities are $27,551 and $120,246, respectively. The minimum and maximum household incomes for sanctuary cities are $27,577 and $123,326, respectively. As shown by the mean, minimum and maximum household incomes compared between sanctuary cities and non-sanctuary cities, there is not a significant difference between the incomes.

When reviewing the descriptive statistics for average age in each city, the mean age for non-sanctuary cities used in this study is approximately 35 years old. On the other hand, the mean age for sanctuary cities used in this study is 33 years old. The minimum and maximum median ages for non-sanctuary cities are 23.3 and 46.7, respectively. The minimum and maximum median ages for sanctuary cities are 20.5 and 45, respectively. It is important to note that these descriptive statistics are relatively similar, even when separating the cities based upon their sanctuary city or non-sanctuary city distinction. Results in response to the question, "Do sanctuary cities experience higher violent and property crime rates than non-sanctuary cities?" comprise the next section.

Results

The results section includes two subsections. In the first subsection, the violent crime rate serves as the dependent variable while the property crime rate is the dependent variable in the second subsection.

Regression I: Violent Crime Rate

Using the violent crime rate as the dependent variable, the initial regression is described by Equation 1.

Equation 1.
Violent Crime Rate = 3.254 + 18.489(%FB) - (9.405)(%HISP) + (0.132)(MEDAGE) + (30.400)(%NOHSDIP) - (0.0001)(MHI) - (30.142)(%NONCIT) + (0.493)(SANCCITY)

Associated regression results are summarized in Table 2.

Table 2.
Regression I (Violent Crime Rate)

Variable	Coef.	Std. Err.	t	P>t
ForeignBorn	18.489	12.098	1.53	0.129
Hispanic2016	-9.405	3.241	-2.90	**0.004**
MedianAge2016	0.132	0.081	1.64	0.103
NoHSDiploma2016	30.400	8.561	3.55	**0.001**
MedianHouseholdIncome2016	-0.0001	0.0001	-3.08	**0.002**
SanctuaryCity1or0	0.493	1.008	0.49	0.626
NonCitizen2016	-30.142	20.894	-1.44	0.151
_cons	3.254	2.849	1.14	0.255

Three variables are significant at the one-percent level of significance: the percentage of Hispanic individuals in each city (p-value of 0.004), the percentage of the population over the age of twenty-five in each city with less than a high school diploma education level (p-value of 0.001) and the median household income of each city (p-value of 0.002). However, not all variables are statistically significant. The following four variables in this regression are not statistically significant even at the ten-percent level of significance: the percentage of foreign-born individuals in each city, the median age in each city, the dummy variable of either a sanctuary or non-sanctuary city and the percentage of non-citizens in each city.

With an F-statistic value of 8.06, the initial regression equation is statistically significant. The R-squared value for this regression is 0.2888, meaning that the initial linear model explains 28.82 percent of the variation in the violent crime rate. A summary of additional tests conducted follows.

After completing a Breusch-Pagan/Cook-Weisberg test to determine if this regression exhibits any heteroskedasticity, I find a chi-squared test statistic equal to 11.71. The chi-squared value at a ten-percent level of significance (with seven degrees of freedom) equals 12.02, and the chi-squared value at a five-percent level of significance (with seven degrees of freedom) equals 14.07. Because the test statistic (11.71) is less than both 12.02 at the ten-percent level of significance and 14.07 at the five-percent level or significance, I conclude that heteroskedasticity is unlikely.

In addition to testing for heteroskedasticity, I examine variance inflation factors to determine if Regression I exhibits multicollinearity, as shown in Table 3.

Table 3.
Variance inflation factors – Regression I (Violent Crime Rate)

Variable	VIF	1/VIF
NonCitizen2016	16.32	0.061
ForeignBorn2016	16.11	0.062
NoHSDiploma2016	3.62	0.276
MedianHouseholdIncome2016	1.94	0.514
Hispanic2016	3.30	0.303
SanctuaryCity (0 or 1)	1.44	0.692
MedianAge2016	1.27	0.787

Two variables exhibit a VIF greater than five, highlighting the presence of multicollinearity within the regression. The percentage of non-citizens in each city and foreign-born individuals in each city variables generate VIF values of 16.32 and 16.11, respectively. Based on the possible relationship of these two variables to one another, the detection of multicollinearity is not surprising. To correct this issue, I remove the percentage of non-citizens variable.
Regression II: Violent Crime Rate (omitting non-citizens variable)

Regression II uses the initial regression but omits the non-citizens variable as described by Equation 2.

Equation 2.
Violent Crime Rate = 2.143 + 2.653(%FB) – 9.856(%HISP) + 0.168(MEDAGE) + 28.431(%NOHSDIP) - 0.0001(MHI) + 0.734(SANCCITY)

Associated regression results are summarized in Table 4.

Table 4.
Regression II (Violent Crime Rate)

Variable	Coef.	Std. Err.	t	P>t
ForeignBorn	2.653	5.105	0.52	0.604
Hispanic2016	-9.856	3.239	-3.04	**0.003**
MedianAge2016	0.168	0.077	2.19	**0.030**
NoHSDiploma2016	28.431	8.484	3.35	**0.001**
MedianHouseholdIncome2016	-0.0001	0.0001	-3.14	**0.002**
SanctuaryCity1or0	0.734	0.998	0.74	0.463
_cons	2.143	2.754	0.78	0.438

In regression II, the only coefficient that changes in a noticeable manner is the one associated with the variable percentage of foreign-born individuals; this coefficient changes from 18.489 in the Regression I to 2.653 in the Regression II. Although the coefficient changes, the variable remains statistically insignificant in terms of explaining changes in each city's violent crime rate.

All variables that were significant/insignificant in Regression I remain significant/insignificant in Regression II, with the exception of the median age in each city which becomes significant in Regression II. The following independent variables are statistically significant at the one-percent level in the second regression with violent crimes as the dependent variable: the percentage of Hispanic individuals in each city, the percentage of the population over the age of twenty-five with less than a high school diploma and the median household income in each city. The median age in each city variable is significant at the five-percent level. Two variables (the percentage of foreign-born individuals in each city and whether the city is defined as a sanctuary city or not) are not significant at the five percent level.

The F-statistic for Regression II (8.99) exceeds the associated F-statistic, conveying that this regression equation is also significant. The R-squared value for Regression II is 0.2781, meaning that this particular linear model explains 27.81 percent of the variation in the violent crime rate.

Table 5 displays variance inflation factors (VIF) associated with Regression II.

Table 5.
Variance inflation factors – Regression II (Violent Crime Rate)

Variable	VIF	1/VIF
NoHSDiploma2016	3.53	0.283
Hispanic2016	3.27	0.306
ForeignBorn2016	2.85	0.351
MedianHouseholdIncome2016	1.94	0.516
SanctuaryCity (0 or 1)	1.40	0.712
MedianAge2016	1.15	0.870

After removing the percentage of non-citizens variable from Regression I, all remaining variables' VIFs are now below five, suggesting that the multicollinearity issue was addressed.

Regressions I and II convey that sanctuary cities are statistically insignificant when describing changes in violent crime rates throughout U.S. cities. In the next subsection, I use property crime rates as the dependent variable

in Regression III and report similarities and differences between Regressions II and III which include the same independent variables.

Regression III: Property Crime Rate

Equation 3 provides the formula for regressing the independent variables from Regression II on the property crime rate.

Equation 3.

Property Crime Rate = 23 – 11.166(%FB) – 0.762(%HISP) + 1.001(MEDAGE) – 6.41(%NOHSDIP) -0.0003(MHI) + 1.346(SANCCITY)

Table 6 displays the results from Regression III.

Table 6.
Regression III (Property Crime Rate)

PropertyCrimeRate	Coef.	Std. Err.	t	P>t
ForeignBorn	-11.166	21.049	-0.530	0.597
Hispanic2016	-0.762	13.353	-0.057	0.955
MedianAge2016	1.001	0.317	3.155	**0.002**
NoHSDiploma2016	-6.41	34.980	-0.183	0.855
MedianHouseholdIncome2016	-0.0003	0.0001	-3.56	**0.0005**
SanctuaryCity1or0	1.346	4.115	0.327	0.744
_cons	23.000	11.353	2.026	0.045

The F-statistic for Regression III is 5.17, conveying that this regression equation is statistically significant. The R-squared value of Regression III is 0.1814, meaning that this particular linear model explains 18.14 percent of the variation in the property crime rate. In this third regression using property crimes as the dependent variable, only two of the independent variables are statistically significant. Both the median age of a given city and the median income of a given city are statistically significant at the one-percent level, with p-values of 0.002 and 0.0005, respectively. The coefficient for the median age in each respective city is 1.001. This means that for every one-year increase in the median age within a given city, I expect the property crime rate in that city to increase by 1.001 crimes. The coefficient for the median household income of each given city is -0.0003, suggesting that for every one-dollar increase in the median income in a respective city, I expect the property crime rate per one-thousand people to decrease by 0.0003.

The other four variables in this regression [(the percentage of foreign-born individuals in each city (p-value of 0.597), the percentage of Hispanic individuals in each city (p-value of 0.955), the percentage of individuals in each city over the age of twenty-five without a high school diploma (p-value of 0.855) and the dummy variable of either a sanctuary city or not a sanctuary city (p-value of 0.744))] are not statistically significant, even at the ten-percent level. Regression III reveals that sanctuary cities do not experience higher property crime rates than non-sanctuary cities. I ran both the Breusch-Pagan/Cook-Weisberg and the VIF Tests to rule out heteroskedasticity and multicollinearity, respectively, in Regression III and neither issue was detected.

Although the results show that sanctuary city designation is not correlated with increases in either violent crime rates or property crime rates, there are some differences between Regressions II and III. In the second regression with violent crime rates as the dependent variable and after correcting for multicollinearity by removing the non-citizen variable, four of the independent variables (the percentage of Hispanic individuals born in each city, the median age of the population in each city, the median income of each city and the percentage of the population over the age of 25 with less than a high school diploma) are statistically significant. In comparison, Regression III includes only two statistically significant variables: the median age in each city and the median income in each city.

Although the primary focus of this study is to analyze the correlation between sanctuary cities and crime rates, it is not quite clear to me why different variables are statistically significant and statistically insignificant when comparing violent crime and property crime. While the percentage of the population in each city with no high school diploma was statistically significant when analyzing violent crime, it was statistically insignificant when analyzing property crime. Could this suggest that less-educated individuals are more prone to committing violent crimes (murder, manslaughter, rape and aggravated assault) as opposed to property crimes (burglary, larceny-theft, motor vehicle theft and arson)? Although it is difficult to compare the severity of different types of crimes, these results may suggest that violent crimes (especially murder and rape) are more personal than certain property crimes, such as burglary or larceny. These results convey that there is a correlation between less-educated people committing violent crimes, but no significant correlation between less-educated people committing more or less property crimes. Another variable that differs between the two regressions using different dependent variables is the percentage of Hispanic people in each city. For violent crimes, the percent Hispanic variable is statistically significant at the one-percent level. As the percentage of Hispanic people in a given city increases, the violent crime rate decreases. Although the percentage Hispanic in each city still has a negative correlation when using

property crimes as the dependent variable, it is statistically insignificant and cannot explain changes in the property crime rate within cities. The only two variables that remain significant between the two different analyses are the median income in each city and the median age in each city. Irrespective of whether the dependent variable is property crimes or violent crime, the median income of a city and the median age of a city are statistically significant for both types of crime. Additionally, the signs of both of these independent variables remain the same when comparing property crimes and violent crimes; the median age of a city has a positive correlation with respect to crime, while the median income of a city has a negative correlation with respect to crime. Although these variables are not the primary focus of this research, the robustness of these findings with respect to alternative specifications of the dependent variable is interesting.

Conclusion

Consistent with the limited amount of prior research focused on sanctuary cities and crime, this research finds that no statistically significant relationship between violent and/or property crime rates in cities that have enacted sanctuary city policies and those cities that have not. Sanctuary cities do not, on average, experience higher violent and/or property crime rates simply because of the fact that they are labeled as "sanctuary cities" and have enacted associated policies.

Although the independent variable of "sanctuary cities" is the focus of this study, several other variables are noteworthy. The percentage of Hispanic individuals in each given city is statistically significant when analyzing violent crimes, and it displays a negative correlation in relation to each city's violent crime rate. This suggests that as the percentage of Hispanic people in a given city increases, I would expect the violent crime rate to decrease. In addition, the variable for the percentage of foreign-born individuals is statistically insignificant when analyzing both property and violent crimes. This is consistent with results from other studies as well; prior research suggests that cities with a higher foreign-born and/or non-citizen population tend to experience lower crime rates, on average, than cities with a higher native-born and/or U.S. citizen population.

The differences identified between the regression that uses violent crime rates as the dependent variable and the regression that uses property crime rates as the dependent variable are also fascinating. Why does education appear to be a valid indicator of increases or decreases in violent crimes (rape, murder, etc.), but it is not statistically significant when analyzing increases or decreases in property crimes? Additional research on this topic would be of added value. It is also important to note that both median household income and median age in each city were statistically significant in the property crime and violent crime regressions, respectively, and they displayed the same type of correlation (positive or negative) in both regressions. This provides strong evidence that, for both violent

crimes and property crimes, crimes committed decrease in cities as the median household income rises. Families with higher incomes are less inclined to commit crime, whether classified as violent or property offenses. This study also provides strong evidence that as the median age in a given city rises, the more violent and property crimes are committed. Further research on these topics would be of additional public interest.

Aside from ongoing research, some adjustments could refine this study further. The dependent variable exhibits vulnerability in relation to endogeneity. Sanctuary cities are defined as "sanctuary cities" when someone (typically a local government) declares the city as such and decides not to comply completely with ICE's demands. To correct for potential endogeneity, it could be beneficial to include a variable that could help explain why a city would choose to be a sanctuary city. A variable such as the political makeup/leanings of a sanctuary city could be a suitable independent variable to include to try and resolve this issue. Finally, another improvement that could be made is to revisit this study as a panel regression instead of a one-year (2016), cross-sectional study. This adaptation reveals whether the same conclusions apply for other years and ensures that 2016 was not an anomaly among crime rates in these particular cities.

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Appendix A (List of Cities Studied)

Alabaster AL	South Bend IN	Omaha NE	Brookings SD
Tuscaloosa AL	Iowa City IA	Henderson NV	Rapid City SD
Mobile AL	Cedar Rapids IA	Las Vegas NV	Sioux Falls SD
Anchorage AK	Sioux City IA	Reno NV	Bristol TN
Fairbanks AK	Dodge City KA	Concord NH	Franklin TN
Juneau AK	Hays KA	Dover NH	Memphis TN
Avondale AZ	Wichita KA	Portsmouth NH	Arlington TX
Casa Grande AZ	Florence KY	Bayonne NJ	Dallas TX
Glendale AZ	Independence KY	Newark NJ	San Antonio TX
Little Rock AK	Radcliff KY	Princeton NJ	Orem UT
Pine Bluff AK	New Orleans LA	Albuquerque NM	Provo UT
Sherwood AK	Lafayette LA	Farmington NM	Salt Lake City UT
Oakland CA	Shreveport LA	Las Cruces NM	Alexandria VA
Berkeley CA	Auburn ME	Ithaca NY	Norfolk VA
Fremont CA	Lewiston ME	Albany NY	Roanoke VA
Watsonville CA	Sanford ME	New York City NY	Mount Vernon WA
Santa Ana CA	Baltimore MD	Burlington NC	Olympia WA
Tulare CA	Annapolis MD	Goldsboro NC	Seattle WA
San Francisco CA	Greenbelt MD	Wake Forest NC	Charleston WV
Aurora CO	Amherst MA	Bismarck ND	Huntington WV
Denver CO	Lawrence MA	Fargo ND	Parkersburg WV
Hartford CT	Boston MA	Minot ND	Eau Claire WI
East Haven CT	Worcester MA	Solon OH	Green Bay WI
Dover DE	Detroit MI	Toledo OH	Madison WI
Newark DE	Grand Rapids MI	Cleveland OH	Cheyenne WY
Wilmington DE	Lansing MI	Broken Arrow OK	Gillette WY
Cape Coral FL	Duluth MN	Oklahoma City OK	Rock Springs WY
Daytona Beach FL	Minneapolis MN	Tulsa OK	
Miami FL	St. Cloud MN	Eugene OR	
Albany GA	Biloxi MS	Salem OR	
Newnan GA	Jackson MS	Springfield OR	
Savannah GA	Olive Branch MS	Allentown PA	
Boise ID	Ferguson MO	Philadelphia PA	
Nampa ID	Joplin MO	Pittsburg PA	
Post Falls ID	St. Louis MO	Central Falls RI	
Chicago IL	Billings MT	Newport RI	
Joliet IL	Bozeman MT	Providence RI	
Rockford IL	Helena MT	Charleston SC	
Bloomington IN	Fremont NE	Columbia SC	
Evansville IN	Lincoln NE	Myrtle Beach SC	