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Socioeconomic and Demographic Correlates of Sex Offender Residency in Massachusetts

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Socioeconomic and Demographic Correlates of Sex Offender Residency in Massachusetts

Abstract

In states with sex offender residency restrictions, sex offenders have been found to cluster in areas that are poorer, less white, and generally less advantaged, but little research has been done on whether these patterns exist without residency restrictions in place (Tewksbury & Mustaine, 2008). All cities and towns in the state of Massachusetts eliminated residency restrictions for sex offenders in 2015 by way of court order. This policy shift provides a unique opportunity to study sex offender residency patterns that are not constrained to certain geographic areas. Using publicly available data, multivariate regression was used to examine correlates of sex offender residency. Specifically, the relationships between median household income, percent white, violent and property crime rates, and unemployment rate and sex offender residence rate in fifty-seven Massachusetts cities and towns were explored. Significant positive relationships were found between violent crime rate and sex offender residence rate and unemployment rate and sex offender residence rate. Marginally significant negative relationships were found between property crime rate and sex offender residence rate and median household income range and sex offender residence rate. The relationships between percent U.S. citizen and sex offender residence rate and percent white and sex offender residence rate were not found to be significant. Implications and areas for future research are discussed.

Keywords: sex offender residences, Massachusetts, social disorder, sex offender residency restrictions

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Literature Review

Sex Offender Registration, Community Notification, and Residence Restriction Laws

Sex offender legislation enacted in the past two decades falls into three major categories: registration, community notification, and residence restriction. Federal law requires that states collect information on convicted sex offenders and post their public registries online. States are able to choose which offenses will require registration and which levels of classification will require community notification, but information must be released to the public on at least the most dangerous sex offenders (Mustaine, 2014). When sex offenders register with the police, their addresses, physical descriptions, photos, and information on convictions are collected. If information on a particular sex offender is released to the public, all of the details listed above are included. While these laws are intended to protect the public by giving the public enough information to protect themselves, there is little evidence that sex offender registries are effective in reducing recidivism among registered sex offenders.

More recently, states and local governments have passed residence restriction legislation, which usually prevents sex offenders from living within a certain radius (usually five hundred to two thousand feet) of specified categories of locations, such as schools, daycares, parks, and bus stops (Socia, Levenson, Ackerman, & Harris, 2014). Most states now have either statewide or municipal restrictions on where sex offenders may reside (Leipnik, Ye, Serna, Strong, Wilkins, & Wu, 2016). These restrictions are based on the theory that sex offenders might victimize children with whom they have casual contact (Socia et al., 2014). However, studies have shown that a large majority of child victims of sexual assault, ranging from seventy-four to ninety-five percent, know their abusers well (Wagner, 2009; Maguire & Singer, 2010; Leipnik et al., 2016). Adults are more likely than children to be sexually assaulted by strangers, but residency

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restrictions generally focus on preventing sex offenders from living near areas where children congregate (Maguire & Singer, 2010). These residency restrictions generally apply to all registered sex offenders, regardless of classification or age of victim(s). The current residency restrictions might be more effective if they targeted only the most dangerous sex offenders who committed offenses against children (Huebner, Kras, Rydberg, Bynum, Groman, & Pleggenkuhle, 2014).

Effectiveness of Sex Offender Legislation

While public belief is that many convicted sex offenders will go on to commit another sexual offense, the specific and general recidivism rates for sex offenders are significantly lower than recidivism rates for most other types of offenders (Duwe, Gonnay, & Tewksbury, 2010; Huebner et al., 2014). Several high-profile child abductions and sexual assaults committed by sex offenders have contributed to this belief but, in reality, only a small percentage of sex offenses are committed by offenders with previous convictions for sex offenses and most sex offenses do not involve children (Duwe et al., 2010; Wagner, 2009).

Criminologists have predicted that sex offender registration, community notification, and residence restriction legislation will increase recidivism among registered sex offenders (Mustaine, 2014). Registered sex offenders have trouble finding jobs and housing and many are harassed by neighbors and strangers (Burchfield & Mingus, 2008). Registration may create barriers to the successful reintegration of released sex offenders, which may make them more likely to reoffend (Wagner, 2009). In several limited studies on recidivism among registered sex offenders, there has either been no statistically significant effect or slight positive and negative changes in recidivism. Huebner et al. (2014) conducted a quasi-experimental study in Michigan

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and Missouri that measured the proportion of sex offenders who recidivated before and after residency restrictions. While a significant, but small, increase in recidivism was found in Michigan, there was no significant change in recidivism in Missouri (Huebner et al., 2014). A study in Iowa showed a significant decrease in recidivism among sex offenders under residency restrictions, while a study in Minnesota showed no effect (Huebner et al., 2014; Duwe et al., 2010). However, because this legislation is relatively new, longitudinal studies will be needed to determine the true effects on recidivism rates, considering that many sex offenders are registered for a period of time from ten years to life and the challenges associated with sex offender registration may build as an offender spends more time on the registry (Mustaine, 2014).

Though the purpose of sex offender legislation is specifically intended to deter recidivism among convicted sex offenders, the legislation seems to have deterred others from committing sexual offenses. Since sex offender registration and community notification has begun, there has been an overall decline in the rates of sexual offenses, and that effect is especially large in states with extensive online registries (Prescott, 2012). In South Carolina, there was a large decrease in the number of first-time sex offenses after residency restrictions came into effect (Maguire & Singer, 2010).

For sex offender registration and community notification to be effective at reducing recidivism, members of the public must view the registry and act to protect themselves from sex offenders. If members of the community do not use sex offender information to protect themselves, the information is still publicly available to interfere with sex offenders' attempts to find work and housing, but without the positive effects for the public. In the absence of comprehensive, longitudinal data on recidivism, studying public use of sex offender registries may be a good way to judge their effectiveness.

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Public Use of Sex Offender Registries

Using data from the Nebraska Social Indicators Survey conducted between 2006 and 2007, Anderson, Evans, and Sample (2009) found that about a third of respondents had viewed the sex offender registry online and that only 37.6% of those who viewed the registry had taken any action to protect themselves or their children from sex offenders. Women and people with children were more likely to view the registries and women were more likely to try to protect themselves from sex offenders, which does suggest that information on sex offenders might make certain at-risk groups feel safer (Anderson et al., 2009). In a survey of mental health and criminal justice professionals who work with sexual assault victims and offenders, it was also found that the majority of respondents who had viewed the registry had not taken any action to protect themselves, though the majority of respondents in this survey had viewed the registry (Levenson, Fortney, & Baker, 2010). This result is somewhat surprising, but neither of these studies accounted for whether the respondents had found that there were sex offenders living nearby. If the sex offender registry is viewed by a member of the public and it is found that there are no sex offenders living or working nearby, it follows that no protective action would be taken. Future research might determine whether people take action after viewing sex offender registries specifically when there is a sex offender nearby.

Additionally, current data on use of the online registries might be very different because most members of the public have better access to and knowledge of the Internet now than they did in 2006-2007, when the Nebraska study was conducted. That study showed that respondents with access to the Internet at home were more likely to check the registry, so the proportion of people who have checked the registry has likely risen as more people have Internet access at home (Anderson et al., 2009). However, this data does show that sex offender registries may not

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be used as widely as intended, which would dramatically decrease their ability to reduce recidivism through avoidance of sex offenders by potential victims.

While knowledge of sex offenders living in their communities may improve the ability of members of the public to protect themselves, this knowledge can also increase anxiety and fear of crime (Tewksbury, 2005). Registration and community notification can also increase anxiety in sex offenders, many of whom fear that their families or themselves will be harassed or ostracized by members of their communities (Burchfield & Mingus, 2008). These negative effects may be too high of a price for legislation that has not proven effective.

Impact of Sex Offender Legislation on Registered Sex Offenders

In a sample of registered sex offenders in Kentucky, 47% reported that they had been harassed in-person due to their sex offender status (Tewksbury, 2005). In this survey, registered sex offenders, on average, said that they understood why people wanted the registry (Tewksbury, 2005). Sex offenders also reported that they felt the registries are unfair and that they are ashamed to be on the registry (Tewksbury, 2005). In a study in Illinois, Burchfield and Mingus (2008) found that, while some sex offenders had been harassed, the majority of sex offenders surveyed feared harassment. Registered sex offenders also reported ending relationships with friends and family because of shame or because they were unable to maintain the relationships due to parole and residency restrictions (Burchfield & Mingus, 2008). Interestingly, sex offenders living in urban areas and sex offenders with child victims reported experiencing negative consequences at lower rates overall than sex offenders living in non-urban areas and sex offenders with adult victims (Tewksbury, 2005). The age of victim effect is especially unexpected, as the public tends to become outraged over the sexual abuse of children. This may

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be because sex offenders with child victims make a greater effort to hide their offenses from acquaintances (Tewksbury, 2005).

Because community notification and residency restrictions increase stigma against sex offenders and reduce the number of housing units that are legal for sex offenders to live in, homelessness has increased among registered sex offenders (Socia et al., 2014). Homelessness does not only have personal consequences for sex offenders, it has serious effects for law enforcement. When sex offenders are homeless, they are more difficult for the police to keep track of (Socia et al., 2014). Homelessness may also lead to failure to register and parole violations, which could lead to further incarceration. When registered sex offenders are able to find permanent housing, clusters of sex offenders generally form in certain neighborhoods.

Sex Offender Clusters

Residency restrictions limit legal housing options for sex offenders, which may cause higher concentrations of sex offenders in areas that are legal (Grubestic, 2010). Neighborhoods with more locations under residency restrictions still have higher concentrations of sex offenders if the neighborhood is more violent and socially disordered, though (Grubestic, 2010).

Even without residency restrictions, sex offenders appear to live in socially disorganized and economically disadvantaged communities. Tewksbury and Mustaine (2008) measured the characteristics of neighborhoods where sex offenders lived in Jefferson County, Kentucky. At the time of data collection, the county did not have any residency restrictions. Sex offenders were more likely to live in census tracts with more factors associated with social disorganization (Tewksbury & Mustaine, 2008). Such communities may be less able to use social control to pressure sex offenders out of their neighborhoods. Other studies in Florida, Kentucky, Nebraska,

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Oklahoma, and Illinois have shown that sex offenders tend to live in socially disorganized neighborhoods (Socia & Stamatel, 2012). However, a different study in Illinois, which did have residency restrictions, found that census tracts with sex offender residents had lower poverty rates and less housing mobility (Burchfield & Mingus, 2008). Communities with lower proportions of white residents also tend to have more sex offenders (Socia & Stamatel, 2012).

Aside from socioeconomic factors, the age of residency restrictions may have an effect on sex offender cluster. Socia (2012) measured sex offender clusters in upstate New York, where residency restrictions vary widely by county, by determining the average distance between each registered sex offender's residence and the residences of the five nearest registered sex offenders. The study found that areas without residency restrictions and areas with old residency restrictions had more clustering than areas with residency restrictions that were recently enacted (Socia, 2013).

Massachusetts Sex Offender Policy: The Current Research Context

As required by federal law, Massachusetts maintains an online sex offender registry that gives the public access to information on the most dangerous sex offenders. Sex offenders who were classified as Level 2 ("moderate risk") after July 12, 2013 and all sex offenders classified as Level 3 ("high risk") are included on the online registry. Members of the public can request information on Level 2 sex offenders classified before July 12, 2013 from local police departments. The public is not able to access any information on Level 1 ("low risk") sex offenders (MA 803 C.M.R. 1.03, 2016).

Massachusetts has never had statewide residency restrictions but, prior to August 2015, forty-nine cities and towns had local residency restrictions (Leveson, 2015). A ruling by the

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Supreme Judicial Court on a case brought by a registered sex offender against the city of Lynn invalidated all local restrictions in August 2015; the court ruled that local residency restrictions would interfere with state registration requirements and that only statewide restrictions passed by the legislature would be allowable (Doe v. City of Lynn, 2015). Though some state lawmakers have considered proposing statewide residency restrictions, there are currently no enforceable residency restrictions anywhere in the state of MA (Leveson, 2015).

While sex offender registration and community notification have not been shown to reduce recidivism among sex offenders, sex offenders do tend to concentrate risk in neighborhoods that are already disadvantaged. It is unknown whether these clusters are observed because other areas do not allow sex offenders or because sex offenders choose to live in specific locations. Additional research relating disadvantage to sex offender clustering in a state without residency restrictions, like Massachusetts, may reveal new patterns, either through clustering effects similar to those in states with residency restrictions or through a lack of clustering. It is possible that sex offender clusters only occur in disadvantaged areas when residency restrictions are in place.

The current study examines the correlates of sex offender residence rates in Massachusetts cities and towns when no residency restrictions are in place. Specifically, the extent to which crime rates, demographic composition, and socioeconomic characteristics relate to rates of sex offender residence is examined. This research seeks to expand knowledge of sex offender residences, city crimes rates, and population characteristics by considering a unique context.

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Methodology

The purpose of the current research was to determine the social, demographic, and socioeconomic correlates of sex offender residence rates in city and town within the state of Massachusetts. Because MA has no sex offender residency restrictions in place, it is possible to observe new patterns in sex offender residency. By considering this new context, the generalizability of knowledge regarding sex offender residency patterns is assessed.

Sample

Because the determining demographic and socioeconomic factors that relate to sex offender residency are a central component of the present study, only cities and towns for which 2017 American Community Survey data was available from the U.S. Census Bureau were used in this present analysis. The American Community Survey generally reports one-year data for cities and towns with populations greater than twenty thousand. Though there are 93 cities and towns in Massachusetts with populations over 20,000, data was not released by the U.S. Census Bureau for thirty-six of those cities and towns due to low survey response rates. The final analytic sample consisted of the fifty-seven cities and towns in Massachusetts.

Most of the cities included in this study are in eastern Massachusetts, especially in Essex, Middlesex, and Suffolk Counties. Though the sample is slightly more disadvantaged than cities excluded, it closely resembles the state as a whole on many characteristics: on average, the sample has a lower median household income (4.67 compared to 5.00 for the state), lower percent white (75.79% compared to 78.54% for the state), higher unemployment rate (3.78% compared to 3.72% for the state), lower percent U.S. citizen (90.21% compared to 91.98% for the state), higher violent crime rate per 100,000 (372.71 compared to 358.00 for the state), and a

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higher property crime rate per 100,000 (1482.52 compared to 1437 for the state). The cities and towns included in the sample contain 55.73% of Massachusetts residents.

Though American Community Survey data was available for the Tewksbury, Tewksbury was excluded from the analysis because many registered sex offenders have been civilly committed to Tewksbury State Hospital. Therefore, the city of Tewksbury has an artificially higher sex offender population that makes it incomparable to other towns in the state. Sex offender are not living there by choice or living in the community, which means that they are living in Tewksbury for reasons unrelated to the town itself.

Measures

The potential correlates of sex offender residency include the city or town's violent crime rate, property crime rate, percent of the residents that are white, percent of the residents in the town that are U.S. citizens, median household income, and/or unemployment rate. All data used were derived publicly available sources. Table 1 provides descriptive statistics for all study measures. Each variable is described in detail below.

Sex Offender Residence Rates: The Massachusetts Online Sex Offender Registry was used to count the number of sex offenders on the public registry whose primary residence was in each city or town. In Massachusetts, the public online registry only includes Level 3 sex offenders and Level 2 sex offenders who were classified before July 12, 2013, meaning that all

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Level 1 sex offenders and some Level 2 sex offenders were not included in the counts.¹ All sex offenders were counted on March 16, 2019 to account for regular updates to the registry website. Sex offender residence rates are expressed as total number of sex offenders per 100,000 residents, based on the city or town population reported by the U.S. Census Bureau's 2017 American Community Survey. Sex offender residence rate was used as the dependent measure in the current analysis. The average sex offender residence rate for cities and towns across MA included in this sample was 42.42 per 100,000 residents (SD = 42.73 sex offenders per 100,000 residents).

Violent and Property Crime Rates: The violent and property crime rates for each town in the sample were calculated using in the 2017 Uniform Crime Report and are expressed as rates per 100,000 residents. The Uniform Crime Report contains the number of certain types of crimes in a city or town that are known to police, which are voluntarily reported by local police departments to the Federal Bureau of Investigation (FBI). The FBI collects this information from local police departments and releases it to the public annually. Violent crimes included in the Uniform Crime Report include murder and non-negligent manslaughter, aggravated assault, rape, and robbery. The average violent crime rate for cities and towns in this sample was 372.71 per 100,000 residents (SD=280.54 violent crimes per 100,000 residents). Property crime rates include burglary, larceny, motor vehicle theft, and arson. The average property crime rate for

¹ Sex offenders are classified by risk of reoffending. Level 3 sex offenders are considered high risk, Level 2 are considered moderate risk, and Level 1 are considered low risk. The Massachusetts Sex Offender Registry Board does not automatically classify sex offenders by offense. Sex offenders are required to attend classification hearings in which various high-risk factors (including compulsive behavior, young victim, young offender, and others), risk-elevating factors (including alcohol or substance abuse, violence of the sex offense, other criminal offenses, and others), and risk-mitigating factors (including old age, poor health, completion of sex offender treatment, and others) are considered. In Massachusetts, information on Level 1 sex offenders is not released to the public because it has been determined that there is little chance they will reoffend, so releasing information would not increase public safety (MA 803 CMR 1.03, 2016).

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cities and towns in this sample was 1482.52 per 100,000 residents (SD=764.33 property crimes per 100,000 residents). Rates were calculated using the city or town's population as reported by the Uniform Crime Report.

Percent White: Percent white comes from the U.S. Census Bureau's American Community Survey. Though the U.S. Census Bureau only completes a full census every ten years, the American Community Survey is completed yearly by a sample of residents in all cities and towns. The American Community Survey allows the U.S. Census Bureau to release limited recent data in between full census reports. Percent white measures the proportion of each city or town's population that identifies as white alone. It does not include residents who identify as multiracial or Hispanic. On average, 75.79% of residents in cities and towns included in this study identified as white alone (SD=13.29%).

Percent United States Citizen: Percent United States citizen is a measurement of the proportion of residents of a city or town that are citizens of the United States. This data is from the 2017 American Community Survey. Among cities and towns in this survey, the average percent U.S. citizen was 90.21% (SD=7.01%).

Income Range: Median household is reported as by the American Community Survey as the median income of working residences in dollars. Median household income was converted to an interval variable with the following categories: Less than \$20,000, \$20,000 to \$34,999, \$35,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$149,999, \$150,000 to \$199,999, and \$200,000 or greater. These categories were labeled as 1-8, respectively. The modal income range for cities and towns in this study was 5.00, indicating that the most common median income range was \$75,000 to \$99,999.

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Unemployment: Unemployment data for 2017 were collected from the Massachusetts Executive Office of Labor and Workforce Development. The office calculates city and town unemployment rates using the methodology of the U.S. Bureau of Labor Statistics: a person is considered in the labor force if he or she is over the age of sixteen and has actively looked for a job within the past four weeks. Unemployment rate is calculated as the ratio of unemployed individuals in the labor force to total individuals in the labor force. The average unemployment rate for cities and towns in this sample was 3.78% (SD=1.08%).

Table 1. Descriptive Statistics

| | Mean | Standard Deviation | Median | Minimum | Maximum |
|--|-------------|---------------------------|---------------|----------------|----------------|
| Income Range | 4.67 | 1.19 | 5.00 | 2.00 | 8.00 |
| Percent White Alone | 75.79% | 13.29% | 78.43% | 34.25% | 94.23% |
| Percent U.S. Citizen | 90.21% | 7.01% | 91.37% | 66.95% | 99.41% |
| Unemployment Rate | 3.78% | 1.08% | 3.50% | 2.30% | 6.80% |
| Violent Crime Rate (per 100,000) | 372.71 | 280.54 | 290.21 | 28.98 | 1082.79 |
| Property Crime Rate (per 100,000) | 1482.52 | 764.33 | 1356.44 | 445.06 | 4810.76 |
| Sex Offender Residence rate (per 100,000) | 42.42 | 42.73 | 26.42 | 0.00 | 161.78 |

Analysis

Multivariate linear regression was used to determine the relationships between sex offender residence rates and the social, demographic, and socioeconomic characteristics of MA cities and towns listed above. All variables discussed above were added into the regression. To

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account for omitted variable bias, data was also collected on poverty rate, percent black, percent owner occupied housing, median gross rent, high school graduation rate, college graduation rate, percent that voted for Donald Trump in the 2016 presidential election, Level 2 sex offender residence rate, and Level 3 sex offender residence rate. Due to multicollinearity and issues of statistical power, these measures could not be included in the final regression models. Each of the omitted variables was at least moderately correlated with one of the other variables. The final model was chosen based on theoretically relevant constructs and the relative stability of the included variables among models.

Results

A model explaining variation in sex offender residence rates was created using the aforementioned covariates. The results of the regression analysis are provided in Table 2. Most of the variation in sex offender residence rate can be explained by the independent variables ($R^2=.770$, adjusted $R^2=.742$). The model was found to have an F value of 27.903 ($p=.000$), meaning that this model fits the data better than a model with no independent variables. These metrics suggest appropriate model fit and utility in describing sex offender residence patterns.

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Table 2: Model for Sex Offender Residence Rate

| | Coefficient | Standard Error | t | Significance |
|-------------------------|--------------------|-----------------------|----------|---------------------|
| Violent Crime Rate | .075** | .021 | 3.549 | .001 |
| Property Crime Rate | -.011+ | .006 | -1.748 | .087 |
| Unemployment Rate | 13.131** | 4.749 | 2.765 | .008 |
| Percent U.S. Citizen | .876 | .612 | 1.431 | .159 |
| Percent White | -.272 | .305 | -8.91 | .377 |
| Income Range | -9.248+ | 4.855 | -1.905 | .063 |
| (Constant) | -34.097 | 45.551 | -.749 | .458 |
| Model Fit Statistics | | | | |
| Observations | 57 | | | |
| R ² | 0.77 | | | |
| Adjusted R ² | 0.742 | | | |
| F (6, 50) | 27.903 | | | |
| Prob > F | 0.0000 | | | |

** : p<.01, * : p<.05, + : p<.10

Of the six independent variables, two were found to be significant and two were found to be marginally significant. Higher violent crime rates were found to be significantly related to higher sex offender residence rates ($\beta=.075$, $p=.001$). This means that sex offenders are more likely to live in cities/towns with higher violent crime rates than areas with less violent crime. Cities and towns with higher violent crime rates have a higher sex offender residence rates than areas with less violent crime. This finding replicates prior work demonstrating that sex offenders cluster in high crime areas. Additionally, unemployment rates were also found to be significantly correlated with sex offender residence rates ($\beta=13.131$, $p=.008$). Sex offenders are more likely to live in areas with high unemployment rates relative to areas where more individuals are employed.

A marginally significant relationship exists between property crime rate and sex offender residence rate, with higher property crime rates being associated with lower sex offender

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residence rates ($\beta=-.011$, $p=.087$).² Higher income ranges are marginally related to lower sex offender residence rates ($\beta=-9.248$, $p=.063$). The positive correlation between sex offender residence rate and percent U.S. citizen and the negative correlation between sex offender residence rate and percent white were not significant (percent U.S. citizen: $\beta=.876$, $p=.159$, percent white: $\beta=-.272$, $p=.377$).

The positive correlation between violent crime rate and sex offender residence rate and the negative correlation between income range and sex offender residence rate are similar to findings in other studies. Though not found to be significant, the coefficients for percent white and percent U.S. citizen (which was used as an estimate for percent foreign born, as percent foreign born was not available from the Census for 2017) are consistent with other research that has found that areas with more people of color and more immigrants tend to have more sex offender residents.

Discussion and Conclusions

Prior research suggests that under residency restrictions, sex offender residence rates are higher in areas with social disorder. Social disorder means that residents of these communities have not formed ties with one another, which prevents them from being able to work together to solve problems in their communities (Swaroop & Morenoff, 2006). In areas that have high levels of social order, residents are able to exert informal social control, which allows neighborhoods to regulate themselves to a certain extent through social pressure. Social disorder has been found to

² The marginally significant negative correlation between property crime rate and sex offender residence rate was unexpected, as higher crime rates overall are associated with disadvantage. However, on the city level, property crime rate may give any information about residents themselves; a city with a high property crime rate might simply have a large commercial area with property crimes being committed by non-residents, which means that the property crime rate may not be a valid measure of social disorder or disadvantage within the community. This relationship appears to not have been found in other research and its cause is unclear.

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be related to higher crime rates, with the theory being that residents in these areas are less able to use informal social control to prevent crime (Sampson & Groves, 1989). In states with laws restricting where sex offenders can live, sex offenders cluster in areas with more disorder but it is not known whether sex offenders living in an area creates social disorder or sex offenders move to areas with social disorder because of the restrictions (Gordon, 2013). Relationships between sex offender residence rate and various measures of socioeconomic disadvantage in this study are similar to findings in other research; sex offender residence rates are higher in areas with violent crime, unemployment, and lower income, all which are suggestive of disorganization. Together, these findings suggest that sex offenders are more likely to live in areas with social disorder and disadvantage. Disadvantaged communities, especially communities that are poor, racially and ethnically heterogeneous, and where residents move often, tend to have more social disorder. Even in the absence of formal sex offender residency restrictions, privileged communities might be able to exert informal social control on sex offenders that keeps sex offenders out of their communities. If residents in a socially ordered city or town have collectively decided that they do not want sex offenders living nearby, there could be pressure to not rent housing to sex offenders, not hire sex offenders, or to prevent any other action that would allow sex offenders to move to the community. Residents in these areas might also be more likely to share information amongst themselves, meaning that more people might know where sex offenders are living and might avoid or ostracize them. Even without any formal restrictions, any of these behaviors could prevent or strongly discourage sex offenders from moving to cities and towns that are more socially organized. It is also plausible that in an area that has little crime, residents might have a greater sensitivity to possible danger, which would mean that sex offender residents would create a larger increase in fear than they would in areas

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with high crime rates. This fear may serve as additional impetus to box sex offenders out of their communities.

The observed relationships in this study could also reflect a choice made by sex offenders themselves: sex offenders might choose to live in these disadvantaged communities with the belief that residents might not be as conscious of their presence as residents of more privileged communities, even if there was no strong resistance in privileged communities. Residents of disadvantaged cities and towns might also choose not to organize against sex offender residents. Generally high crime rates may cause residents to feel that they are already at a high risk of victimization, which could make them less concerned about an additional potential danger in the community. Though housing mobility was not measured in this study, disadvantaged neighborhoods also tend to have residents moving in and out more often, which could mean that residents are less concerned about who lives nearby. Residents in these areas might be less likely to know about or have access to the sex offender registry or may choose not to check the registry because they feel they would not be able to protect themselves anyway. The disadvantaged cities and towns in this study are generally more urban, which means that residents are likely to have a lot more neighbors than residents in other areas and that they would be less likely to know many neighbors well. Research has shown that many sex offenders are harassed by people who have recognized them from the registry, which would incentivize living in a neighborhood with greater anonymity (Tewksbury, 2005).

Another possible explanation for the relationships found in this study is that sex offenders continue to live in the areas that they came from prior to criminal justice system involvement and sex offender registration. This study did not account for the prior residency rate of sexual offenders in each city and town, so it is not necessarily the case that sex offenders are moving to

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new locations as opposed to returning to their previous residences. It is also known that nearly all offenders return to their old communities after being released from prison and the same may be true for sex offenders (Travis, Western, & Redburn, 2014). In addition to giving registered sex offenders more anonymity, cities and towns with more social disorder may provide more opportunities to find victims in everyday life, as people in areas with high social disorder are generally more vulnerable to crime. It is possible that sex offenders choose to live in these communities for greater criminal opportunity (Cohen & Felson, 1979).

Finally, though Massachusetts did not have any residency restrictions at the time of the study (2016-2017), residency restrictions were only invalidated a few years earlier, in 2015. Sex offenders who were registered in cities and towns that had residency restrictions before August 2015 may have chosen not to move after the restrictions were invalidated, resulting in residency patterns similar to states with sex offender restrictions. Other research has shown that disadvantaged areas tend to have more housing that is legal for sex offenders; poorer neighborhoods tend to not have as many parks, schools, or other “high-risk” areas that residency restrictions usually require sex offenders to stay away from. Though residency restrictions make it more difficult for sex offenders to find legal housing, there may not have been any reason to leave that housing once it had already been found. Since the length of registration was not included in this study, it is unknown whether these offenders have been living in the same place since before residency restrictions were lifted or if they moved to their current residences more recently. If only new registrations were considered in this study, the data might show more patterns in the absence of residency restrictions more clearly. This means that the findings of this study may not truly reflect sex offender residence patterns in an area without residency

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restrictions, because residence patterns might be partly explained by previous residency restrictions.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, all data other than sex offender residence rate is from 2017 and sex offender residency data is from March 2019. The mismatched collection periods mean that the socioeconomic and demographic data does not perfectly represent cities or towns at the time that a certain sex offender residence rate was found. While the 2017 data may be a proxy for the 2019 city characteristics, insofar as the cities have changed in this time, there may be error in these measures. Unfortunately, public sex offender residence data are only available for the present time. No historical data are available to the public. By contrast, the American Community Survey does not have real time information about cities and towns in the U.S., and ONLY historical information is available. Therefore, this mismatch could not be avoided.

The study was also cross-sectional, so no causal relationships may be examined with these data. This study cannot determine whether sex offenders moved to certain areas once they were already disadvantaged or whether cities with large numbers of sex offenders become disadvantaged later on as sex offenders move there. Therefore, all previous explanations of the observed relationships are purely speculative. It also cannot be said whether the sex offender residence rates used in this study represent the normal sex offender residence rates of cities and towns; the sex offender registry is updated constantly, and some cities and towns may have had higher or lower sex offender residence rates on the day that data was collected than they do most of the time. Furthermore, the study used data only from 57 of 78 cities in Massachusetts, so the

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findings presented in Table 2 do not reflect the correlates of sex offender residences across the whole states or in other states.

In addition to issues with the design of the study, there are several statistical limitations. As the model was being created, it was found to be somewhat unstable: leaving out one or some of the variables included in the final model or any of the variables that were excluded from the final model caused changes in both the size of the coefficients and significance of remaining variables. The exclusion of some variable was necessary in light of collinearity between the social, demographic, and socioeconomic measures. For this reason, the final model should be interpreted cautiously. There may also be some other variables that contribute to sex offender residence rate or any of the independent variables that are not included in the final model or earlier models, creating omitted variable bias in the estimates presented in Table 2. Finally, the relatively small sample size of 57 limits the statistical power of the model, so there may be some relationships that were found to be insignificant but could be significant in a study with a larger sample size. However, this also means that the significant relationships that were found must be very strong if they were observed with such small sample.

Areas for Future Research

Once data are available, a similar study could be conducted using complete 2020 Census data instead of ACS data, which will include all data for all cities and towns in Massachusetts, and sex offender residence rates collected throughout 2020. A similar longitudinal study could track the same variables over several years to measure how sex offender residence rates change as the characteristics of cities and towns change. This would help determine whether sex offenders move to disadvantaged cities and towns or if the cities and towns become disadvantaged once they have high sex offender residence rates by establishing temporal order

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between the measures and allowing for an assessment of reciprocal relationships. Massachusetts could also be compared to other states, both with and without residency restrictions, to determine whether relationships with demographic and socioeconomic characteristics are consistent across place. Conducting similar research on a state that plans to enact residency restrictions both before and after restrictions are in effect could show more clearly whether the patterns are consistent with and without restrictions. Surveying sex offenders in a state without residency restrictions could also be helpful in determining how sex offenders decide where to live. Future research should consider these options.

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