

Is Immigration Responsible for the Crime Drop? An Assessment of the Influence of Immigration on Changes in Violent Crime Between 1990 and 2000*

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Objectives. The idea that immigration increases crime rates has historically occupied an important role in criminological theory and has been central to the public and political discourses and debates on immigration policy. In contrast to the common sentiment, some scholars have recently questioned whether the increase in immigration between 1990 and 2000 may have actually been responsible for part of the national decrease in crime during the 1990s. The current work evaluates the influence of immigration on crime in urban areas across the United States between 1990 and 2000. *Methods.* Drawing on U.S. Census and Uniform Crime Report data, I first use ordinary least squares regression models to assess the cross-sectional relationship between immigration patterns and rates of homicide and robbery among U.S. cities with populations of at least 50,000. Second, I employ pooled cross-sectional time-series models to determine how changes in immigration influenced changes in homicide and robbery rates between 1990 and 2000. *Results.* In the ordinary least squares models, immigration is associated with higher levels of homicide and robbery. However, the pooled cross-sectional time-series models suggest that cities with the largest increases in immigration between 1990 and 2000 experienced the largest decreases in homicide and robbery during the same time period. *Conclusion.* The findings offer insights into the complex relationship between immigration and crime and suggest that growth in immigration may have been responsible for part of the precipitous crime drop of the 1990s.

The relationship between immigration and crime has garnered broad interest from academics, policymakers, and the general public since the late 1800s and early 1900s brought successive waves of immigrants to the United States. Within a short time, the public and their elected officials began associating the new urban residents with drunkenness, violence, and criminal behavior. Many scholars have argued that these negative depictions of immigrants fueled a variety of policies, including anti-immigration

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legislation, Prohibition, and the Harrison Act, one of the first drug regulation laws in the United States (Hagan and Palloni, 1999; Martinez and Lee, 2000). The association between immigration and crime, while remaining strong in the public consciousness for over a century, has never received consistent empirical support. In fact, studies showing that immigrants participated in crime at a lower rate than their native-born counterparts began to emerge as far back as the early 20th century (Immigration Commission, 1911).

Despite a lack of empirical evidence for the relationship, the public's perception of the connection has changed little over time. The general belief that crime is a negative side effect of immigration seems to have become a broadly accepted "social fact." The blame is sometimes aimed only at illegal immigrants and, at other times, all immigrants are considered suspect. Butcher and Piehl (1998:458) cite a 1993 *Time Magazine* poll in which 59 percent of respondents felt that recent immigrants "add to the crime problem" (Nelán, 1993:11). Although it is unclear which came first, public perceptions have been accompanied by political rhetoric and legislation that draws on the supposed connection between immigration and crime. In 1996, presidential hopeful Pat Buchanan stressed the cost of illegal immigration in terms of housing, welfare, and the increase in crime (Butcher and Piehl, 1998). California's Proposition 187 (a stringent anti-illegal-immigrant bill) explicitly pointed to the connection between undocumented immigrants and crime.

Despite concerns over the supposed immigration and crime relationship, and consequent attempts to stem the flow of foreign-born migrants, immigration continued at record high levels throughout the 1990s, with more than 13 million immigrants entering the United States between 1990 and 2000 (Urban Institute, 2002). In a 1993 article in the *Journal of Social, Political, and Economic Studies*, Tanton and Lutton concluded that:

The alien-related crime that plagues the United States is one of the consequences of its failure to enact and enforce sensible immigration controls Since the early days of the Republic, foreign criminal elements have viewed this as a "land of opportunity" . . . In past years, American legislators passed laws to try to keep criminals out. But its current leaders lack the same will. (1993:234)

And this, many would argue, is why crime rates should have soared at the end of the 20th century.

But crime rates did not soar. In contrast to the predictions of Tanton and Lutton (1993), and others, the early 1990s brought on the beginning of the most precipitous decline in crime that the United States has ever experienced. Between 1970 and 1990, national homicide rates vacillated between 8 and 10 per 100,000. By 1999, they were below 6 per 100,000 (Blumstein and Wallman, 2000:3). According to National Crime Victimization Survey data, the decreases for other offenses were even greater. National robbery

victimizations dropped from over 600 per 100,000 in 1990 to less than 200 in 2000, and aggravated assault from about 1,000 per 100,000 in 1990 to about 500 in 2000.

Several books (Blumstein and Wallman, 2000; Conklin, 2003; Zimring, 2007) and dozens of articles have explored a variety of explanations for the drop in crime. The most prominent hypotheses have focused on the growth of incarceration, shifts in the age distribution, changing drug markets, the availability of handguns, economic trends, new policing strategies, and the legalization of abortion. Although empirical tests of the various explanations have faced various methodological challenges, they have generally received mixed support. Most agree that incarceration has contributed to the decrease, but estimates of how much vary greatly (for examples, see Useem and Piehl, 2008; Spellman, 2000). There is also general consensus that shifts in the age distribution (a decrease in the proportion of the population aged 15–29) (Fox, 2000; Zimring, 2007), the stabilization of drug markets (Grogger, 2000; Baumer et al., 1998), and a strong economy (Grogger, 2000) contributed to the decline, though, again, the size of their respective contributions is contested. Agreement is less widespread concerning explanations focusing on firearms (Wintemute, 2000) and the legalization of abortion (Joyce, 2003; Levitt and Donohue, 2001).

Given the popular conception that immigration fuels crime, many were surprised in 2006 when sociologist Robert J. Sampson published an op-ed piece in the *New York Times* questioning whether the U.S. drop in crime could be the result of an increase in immigrants. Sampson wrote:

social scientists have put forth many explanations for the astonishing drop in crime rates in America over the last decade or so, and yet we remain mystified . . . Perhaps we have been overlooking something obvious—something that our implicit biases caused us not to notice . . . evidence points to increased immigration as a major factor associated with the lower crime rate of the 1990s (2006:A27)

The current research explores the question of whether patterns of immigration influenced changes in violent crime. Specifically, U.S. Census and Uniform Crime Report data are used to examine the cross-sectional and longitudinal relationships between immigration and homicide and robbery in U.S. cities in 1990 and 2000. Two central questions are addressed: (1) Controlling for a host of other factors, do cities with more immigrants and/or more new immigrants demonstrate higher levels of violent crime? and (2) Can the changes in crime rates between 1990 and 2000 be explained in part by immigration patterns? In other words, as some critics have suggested, were cities that received more immigrants during the 1990s more likely to experience increases, or smaller decreases, in violent crime? Or is Sampson correct, in which case cities with the greatest increases in immigration should have experienced the greatest decreases in crime. It is important to note that this analysis does not examine the rate at which immigrants or native-born

citizens commit crime. Given the nature of aggregate crime data, it cannot be determined whether changes in crime rates are the result of immigrants committing more or less crime than nonimmigrants. Such an analysis would be informative, but it may also miss part of the story. While many have argued that immigrants increase the crime rate by participating in more crime than natives, others have suggested that the process by which immigration leads to crime is driven in part by the strains that immigration places on the native-born population. For instance, cities with high levels of immigration may experience increasing levels of cultural and social disorganization, a flood of low-skill workers, and other stresses on finite resources (Mears, 2001). The current research takes a broad view of the possible connections between immigration and crime and attempts to determine whether, controlling for other factors, patterns of immigration are associated with patterns of violent crime across place and time.

Immigration and Violent Crime: Theoretical Perspectives and Empirical Research

The link between immigration and crime has been largely taken for granted in media and policy circles (Butcher and Piehl, 1998; Hagan and Palloni, 1999; Martinez and Lee, 2000; Mears, 2001). The popular discourse surrounding anti-immigrant legislation rests on the assumption that encouraging, allowing, or not doing enough to prohibit poor, unskilled, and uneducated individuals to immigrate increases crime rates and the danger of victimization. Sometimes the concerns focus on all immigration, other times only illegal immigration, and in much of the discourse a clear distinction is not made. Many theoretical traditions make similar claims (Martinez and Lee, 2000; Reid et al., 2005). Although its recent emphasis has been more on poor black communities, social disorganization theory (Shaw and McKay, 1942) originally claimed that neighborhoods with high levels of immigration also experienced high rates of crime. This influence was not thought to be caused by ethnic predispositions, but the result of population heterogeneity. Shaw and McKay and others argued that ethnic heterogeneity weakened community organizations and informal controls, leading to higher crime rates. The theory also points to the likelihood that the children of immigrants may be more likely to engage in crime (Mears, 2001).

This line of reasoning, which focused on the illicit behavior of the second generation, was supported by reports published in 1931 by the National Commission on Law Observance and Enforcement, often referred to as the Wickersham Commission (Tonry, 1997), and the “it’s not the immigrants, it’s their kids” argument dominated much of the work of criminologists in the 1920s–1940s. While scholarly interest in the immigration/crime relationship waned with the onset of World War II and a booming economy,

when contemporary scholars returned to the issue some questioned this longstanding interpretation. In a multi-level analysis of racial and ethnic differences in violent offending, Sampson, Morenoff, and Raudenbush (2005) found that both first- and second-generation Mexican Americans demonstrated lower rates of participation in violence than whites. Much of this disparity was explained by the fact that first- and second-generation immigrants were more likely to come from two-parent households and neighborhoods with high concentrations of immigrants, raising the question of whether high concentrations of foreign-born residents can act as a protective factor against violence by providing extended kinship and enclave-based community networks of supervision and support. To the degree that such enclaves remain for second- and even third-generation immigrants (a process that some have argued distinguishes contemporary immigrants from their European counterparts a century ago), such protective factors may continue to reduce criminal propensity beyond the first generation.

Opportunity theories (Cloward and Ohlin, 1960; Merton, 1938) implicitly address the immigration-crime link by focusing on objective and relative deprivation, along with increased criminal opportunities in the disadvantaged communities where immigrant groups tend to settle (Hagan and Palloni, 1999; Martinez and Lee, 2000; Sampson and Lauritsen, 1997). Given the experience of deprivation, some immigrants may turn to crime as an opportunity for upward mobility. Although Merton's (1938) original version of structural strain theory pointed to financially-motivated crime as an adaptation to blocked legitimate opportunities, subsequent scholars extended the theory by demonstrating how blocked legitimate opportunities could result in non-financially-motivated crime as well (Cloward and Ohlin, 1960). If immigration patterns give rise to marginalized ethnic and cultural communities, these communities will be more likely to develop neighborhood-based subcultures in which either violent or more organized criminal activity can flourish. Sullivan's (1989) and Jankowski's (1991) ethnographic work on Latino peer groups and gangs lend strong support to this possibility.

Both economic and social control theories offer additional explanations for a relationship between immigration and crime. In economic models, individuals in weaker labor market positions have lower opportunity costs and therefore less to lose by participating in crime (Becker, 1968). Similarly, in social control theory, those with weaker bonds to the labor market experience fewer restraints on their behavior and are thus more likely to participate in crime (Crutchfield and Pitchford, 1997; Wadsworth, 2006). To the degree that immigration floods the market with unskilled workers (some of whom will work for lower wages due to their illegal status), it may weaken the labor market positions, and thus increase the criminal propensities, of both immigrant and native workers alike.

A key weakness in how traditional criminological theories address the role of immigration stems from a fairly simplistic conceptualization of the immigration process—one that may have been more accurate in the late

19th and early 20th centuries than it is today. Immigration is no longer a unidimensional process in which, upon arrival, poor migrants with few job skills join the ranks of economically and socially disadvantaged U.S. citizens. Scholars have noted the great diversity among immigrants in education, skill levels, access to employment networks, and the degree to which they face prejudice in the United States. Segmented assimilation (Portes and Zhou, 1993) describes a process by which the children of some immigrants assimilate into upwardly mobile social positions while others assimilate into less favorable positions, often characterized by concentrated disadvantage and residential segregation. This distribution is largely driven by characteristics of the migrants (including legal status), their social networks, and their country of origin, but can also be significantly influenced by the context of their host community. Although this process is impossible to measure using aggregate-level data, such patterns have important implications when considering the theoretical mechanisms that relate immigration to crime.

Both the macro- and micro-level theories discussed above predict a positive relationship between immigration and crime; however, others have proposed the potential for inverse relationships. At the individual level, proponents of the “healthy immigrant thesis” suggest that individuals choose or are selected by family and community to emigrate based on their likelihood of success (Stephen et al., 1994). The emotional, psychological, and dispositional factors that are likely used to make such a prediction are apt to be inversely correlated with participation in crime and other problematic behaviors. Others have argued that a variety of culturally-based protective factors (extended family, religion, community integration) that are often prominent in immigrant enclaves may help buffer against the strains of poverty, unemployment, and social inequality (Wadsworth and Kubrin, 2007). Both these perspectives suggest that foreign-born migrants should display lower criminal propensities than native-born residents and, as a result, that areas with large concentrations of immigrants should exhibit lower rates of crime.

Others have proposed more macro-level mechanisms. Logan, Alba, and McNulty (1994) note that immigrants often fill important roles in niche economies geared toward certain services or products. To the degree that the low-skill economy is able to absorb workers through these niche markets, communities may experience lower levels of un- or underemployment. Related, Martinez (2002) has argued that relatively low levels of violence in the Latino community, despite high levels of poverty, may be driven by higher than expected levels of (often informal) employment, the result of strong ethnic job networks. Kotkin (2000) has suggested that niche markets and the existence of large numbers of immigrants to work in and support them can have a stimulating effect on other local industries. As noted by Reid et al. (2005), the growth of retail and wholesale trade in ethnic enclaves can increase the need for outside workers in the areas of transportation, warehousing, and building—other key low-skill employment markets.

The above theoretical arguments have proposed both positive and negative relationships between immigration and crime at both the micro and macro level, but those supporting the “more immigration-more crime” thesis have dominated both the theoretical and the public discourses for decades. The same cannot be said for the empirical literature. In fact, there has been very little support for the claim that more immigration leads to more crime (Butcher and Piehl, 1998, 2006; Hagan and Palloni, 1999; Martinez and Lee, 2000; Mears, 2001). In contrast, the bulk of the findings suggest that immigration provides a protective effect, with strong community ties generating a cultural commitment to conformity and guarding against the criminogenic effects of social disorganization, strain, and economic and social marginalization (Martinez and Lee, 2000). It is also possible that these processes influence both the immigrant and native-born populations by increasing the overall level of stability in the community.

In addition to the work of Sampson, Morenoff, and Raudenbush (2005) discussed above, the few other individual-level studies that addressed the propensities of offending and victimization found that immigrants exhibited similar or lower levels than their native-born counterparts. Martinez (1997) found that Latino immigrants in Miami had a homicide victimization rate less than half of what would be expected given their population. Given the intragroup nature of most crime (Wadsworth and Kubrin, 2004), this suggests disproportionately low levels of offending as well. Similarly, Martinez and Lee (2000) found that Haitian, Jamaican, and Mariel Cuban immigrants in Miami had lower rates of homicide offending than native-born individuals. Drawing on the role of community-based protective factors, Desmond and Kubrin (2009) found that adolescents living in communities with significant concentrations of immigrants are less likely to report participating in violence.

The macro-level studies have also failed to support the commonly assumed positive relationship between immigration and crime, though the findings have been more mixed. Butcher and Piehl (1998) found a positive relationship between both the overall and the violent crime rates and the relative size of the foreign-born population in their sample of 43 metropolitan areas. However, when they removed the largest three cities from their sample, Miami, Los Angeles, and New York, the effect disappeared (1998:469). Reid et al. (2005) found that the proportion of the population comprised of new immigrants has virtually no effect on rates of crime. The one exception to this pattern was homicide, in which case the percentage of new immigrants was negatively correlated with the homicide rate. Focusing on El Paso, Miami, and San Diego, Lee, Martinez, and Rosenfeld (2001) found no consistent evidence for a relationship between growth in immigrant populations and neighborhood homicide rates. In later analyses that also included Chicago and Houston, Martinez (2002) found that immigration had either no effect, or an inverse effect, on most types of homicide among Latinos. In the one piece of research to date that examined the

relationship between changes in immigration and changes in crime, Butcher and Piehl (1998) found no relationship between changes in crime rates from 1979 to 1990 and changes in the fraction of the population that had immigrated in the previous year. This absence may be due to a small sample of cities ($N = 43$) or the difficulty in identifying patterns of change over very short periods of time.

Theory and public discourse are weighted heavily toward the proposition that immigrants are more likely to commit crime, that areas with more immigrants will have higher crime rates, and that as more immigrants arrive in the United States crime rates will go up. Yet, the empirical evidence at the individual level supports the opposite assertion—that criminal behavior is less prevalent among immigrants, and the evidence at the aggregate level is mixed. The question of whether patterns of immigration influence changes in crime rates over time has received little attention in the empirical literature, and the one study that did explore this question was limited to a relatively small number of geographic areas and very short time periods (Butcher and Piehl, 1998). This incongruity between theory, public opinion, and findings, the absence of longitudinal analyses during a time of explosive immigration and dropping crime rates, and the recent proposal that immigration may have played an important role in the crime drop motivates the current research questions—Do cities with more immigrants experience more violent crime? and Do patterns of immigration influence changes in rates over time? By addressing these issues, the current research can contribute to both our understanding of the aggregate-level relationship between immigration and crime and to the ongoing effort to explain the crime drop of the 1990s.

Data, Methods, and Analyses

Dependent Variables

To measure rates of violent crime, I use 1989–1991 and 1999–2001 UCR data to generate average annual robbery and homicide rates for 1990 and 2000. I focus on homicide and robbery primarily due to reliability issues. The most common critique of UCR data is that many incidents are not reported to the police and thus are excluded from official statistics. This is rarely the case with homicide. Due to both the seriousness of the crime and the presence of a body, it is unlikely that many homicides avoid police detection. While more of a problem, robbery likely suffers less in this respect compared to assault or rape. Robbery is more likely to be viewed as a crime by the victim and to occur between strangers, and is less likely to generate potential feelings of guilt or shame on the part of the victim. All these reasons make it more likely that victims of robbery, more so than victims of rape or assault, will alert the police (Blumstein, 2000).

Rates based on three years of data are preferable to one year as they account for minor temporal fluctuations and dampen the effects of any individual years with unusually high or low rates. This is especially important when studying relatively small geographic areas. Consistent with much research on violent crime, the unit of analysis is the city. Parker (1989) suggests that the city is the most appropriate level of analysis for two primary reasons. First, given the geopolitical process, larger aggregations such as MSAs can be very heterogeneous. Cities are more homogenous, thus making explanations based on structural forces more meaningful. Second, violent crime is mostly an urban phenomenon. Parker's (1989) analysis shows that roughly 80 percent of homicides took place in cities. The present analyses include cities with at least 50,000 residents in both 1990 and 2000. The U.S. Census published data for 487 cities that met these qualifications. UCR data were available for 459 of these.¹ As homicide and robbery rates are heavily skewed and violate the assumption of a normal distribution, the natural log of the rates is used in the cross-sectional and time-series models. This transformation addresses the problem of nonnormality in the data.

Independent Variables

Given the focus of the article, the key variables of interest are indicators of immigration. The first measure, foreign born, is the proportion of the population that was born outside of the United States. The second indicator, new immigrants, is the proportion of the population comprised of foreign-born individuals who arrived in the United States in the last five years. While it may be informative to disaggregate documented and undocumented immigrants, this is not possible as the Census does not distinguish between the two.² To effectively isolate the role of immigration, a number of demographic and structural variables commonly found in macro-level models of violent crime are included in the analyses. Demographic variables

¹1990 UCR data were missing for the following cities: Encinitas, CA, Rancho Cordova, CA, San Buena Ventura, CA, Santee City, CA, Vista City, CA, Pontiac, MI, Rochester Hills, MI, Santa Fe, NM, Charleston, WV, Huntington, WV, Taylorsville, UT, and Port Arthur, TX. In 2000, UCR data were missing for Nashua, NH, Wheaton, IL, Del Plaines, IL, Elyria, OH, Bloomington, IL, Elgin, IL, Evanston, IL, Decatur, IL, Waukegan, IL, Champaign, IL, Anderson, IN, and Kansas City, KS. An analysis of these cases identified very few differences in regard to key independent variables between these cities and those for which UCR data are available.

²Some have also suggested that using the Census to measure immigrants is problematic in that the foreign-born population, especially those who are undocumented, will be undercounted by the Census. While a justifiable concern, in their work aimed at evaluating the degree to which both documented and undocumented immigrant populations are undercounted, Deardorff and Blumerman (2001) suggest that the undercount of undocumented immigrants is likely less than 15 percent and that the undercount of the documented population is significantly less. These estimates are based in part on known undercounts of other hard-to-count groups. While not small enough to be considered negligible, the Census undercount does not appear to be as problematic as some have suggested.

include the population size (total population of the city), young males (the percentage of the population that is male and between the ages of 15–34), and racial and ethnic composition (the percentage of the population that is black and Latino). Structural variables include poverty (the percentage of the population living below the poverty line), per-capita income, mobility (the percentage of the population over the age of five that has moved in the last five years), divorce (the percentage of the population age 25 and over that has gone through a divorce), educational achievement among young adults (the percentage of the population age 18–24 with at least a high school education), unemployment (the percentage of the population age 25 and over that is unemployed), and job access. The job access variable represents employment opportunities for low-skilled persons and is computed as the ratio of the number of jobs in low-skill industries to the number of people in the population aged 25 and over with a high school diploma or less.³ These indicators of labor market involvement are especially important as they are likely related to the process by which immigrants decide to migrate to some cities rather than others. Also included are two indicators of residential segregation. The first one measures segregation between blacks and whites (white/black index of dissimilarity), and has usually been found in past research to be positively correlated with violent crime (Wadsworth and Kubrin, 2004). The second is an indicator of segregation between Latinos and whites (white/Latino index of dissimilarity). While this measure is rarely included in models of non race/ethnic-specific crime rates, given the current focus on patterns of immigration, the residential segregation of ethnic enclaves may be an important factor. Last, I include measures of geographic region to account for higher levels of violence in the southern and western regions of the United States.

Not surprisingly, collinearity diagnostics indicate that including poverty, unemployment, and per-capita income would potentially reduce the efficiency of the parameter estimates. As these variables are serving primarily as controls, and I am less interested in their relative contributions, I followed the common practice of using factor analysis to combine the indicators into a composite measure of economic disadvantage. Factor loadings are as follows: poverty (0.831), unemployment (0.895), and per-capita income (–0.857). The factor has an eigenvalue of 2.225.⁴ Finally, due to high

³I use Kasarda's (1989) definition of an industry group as low skill. Ten of the 17 major industry groups can be classified as being dominated by low-skill jobs. They are (1) agriculture, forestry, and fisheries; (2) mining; (3) construction; (4) manufacturing, nondurable; (5) manufacturing, durable; (6) transportation; (7) wholesale trade; (8) retail trade; (9) personal services; and (10) entertainment and recreational services. It is important to note that this group of industries includes those that most commonly employ un- and semi-skilled immigrants.

⁴Given their correlation, including both the percent foreign born and the percent new immigrant may decrease the efficiency of the parameter estimates. However, excluding one of them would likely lead to a misspecification of the model. Statistically, the main issue with multicollinearity is that it can inflate the standard errors of highly correlated variables. The

levels of skewness, I use the natural log of the population, young males, percent black, percent Latino, and job access variables.

Analyses

The analyses were carried out in two stages. First, I estimated ordinary least squares regression models to examine the effect of the city-level characteristics on 1990 and 2000 homicide and robbery rates. These models identify the demographic and structural factors that help explain variation in robbery and homicide rates across U.S. cities during the two time periods. Second, I estimated pooled cross-sectional time-series equations in which each city is treated as a distinct unit. Because each city contributes a single observation for each year to the data set, it follows that each city appears in the data set twice.⁵ These two observations per city cannot be regarded as independent and the pooled cross-sectional time-series model takes this into account. More importantly, these models assess the degree to which changes in the independent variables are associated with changes in the dependent variables. Time-series models allow for much stronger causal claims as they help control for unobserved time-stable characteristics of the cities and unobserved year-specific influences by including dummy variables for each city and year. This process eliminates potential bias resulting from the exclusion of any variable that either does not change over time or whose influence on the dependent variable does not change over time. Pooled cross-sectional time-series analyses can be modeled as either fixed or random effects. Fixed effects are most appropriate when omitted variables may vary across cases but are constant across time. Random effects offer more efficient estimators and can be useful when some omitted variables are suspected to be constant over time but vary across cases, while others are thought to be fixed between cases but vary over time. The Wu-Hausman specification test can be used to determine whether the fixed effects (more conservative) or random effects (more efficient) models are more appropriate (Greene, 1997). I discuss the findings from this test below.

inflation leads to imprecision in the parameter estimates and will likely reduce the power to see significant relationships (Fox, 1991).

⁵In their analysis of the immigration/crime relationship during the 1980s, Butcher and Piehl (1998) suggest that it is best to model changes over one-year periods as it allows for the identification of short term fluctuations. As Census data are only available for each decennial, incorporating yearly measures requires using Current Population Survey (CPS) data. This comes at a cost. CPS data are only consistently available for a small number of cities. Butcher and Piehl (1998) were able to include 49 cities in their analysis) and are collected using sampling procedures that may introduce significant error for counts of small populations. For these reasons, the current analysis foregoes assessing yearly changes in order to include a much larger number of cities.

Findings

Cross-Sectional Models of Structural Characteristics, Immigration, and Violent Crime

Models 1 and 2 in Table 1 show the influence of structural characteristics on 1990 homicide and robbery rates, respectively. The effects of many of the characteristics are consistent with previous research. Cities with larger total populations, larger black populations, more economic disadvantage, fewer educated young adults, fewer job opportunities for unskilled workers, higher divorce rates, and higher levels of segregation between blacks and whites all experienced more homicide. Turning to the influence of immigration, the relative size of the foreign-born population was a significant factor—cities with more immigrants experienced more homicide. Controlling for the size of the immigrant population, the size of the new immigrant population was not a significant predictor of homicide rates.

The findings for robbery are similar. Again, cities with larger total and black populations, more divorce, less access to low-skill jobs, and higher levels of white/black segregation had higher rates of robbery. Also similar, cities with more immigrants had higher rates of robbery and the proportion of new immigrants was not a significant predictor. There were also some differences between the homicide and robbery models. Cities with larger Latino and young male populations experienced more robbery, while those with more white/Latino segregation had less. Unlike in the homicide model, economic disadvantage and the educational achievement of young adults were not significant predictors of robbery.

Turning to the analyses of homicide and robbery in 2000, there are several important similarities and a few noticeable differences. Model 3 in Table 1 shows the influence of structural characteristics on 2000 homicide rates. Similar to the 1990 homicide models, the overall size of the population, the percentage of the population that was black, the level of economic disadvantage, and the divorce rate are all correlated with homicide in the expected direction. In contrast to the 1990 models, neither of the immigration variables are significant predictors of homicide. Also in contrast to the 1990 models, in 2000, neither job access, the educational achievement of young adults, or white/black segregation is influential, but white/Latino segregation demonstrates a positive relationship to homicide rates.

The 2000 robbery analysis (Model 4 in Table 1) suggests similar processes. Cities with large populations, large black populations, large young male populations, more economic disadvantage and divorce, fewer low-skill jobs, and more white/black segregation reported higher rates of robbery. Also similar to the 1990 models, controlling for other factors, cities with larger immigrant populations had more robberies, while the proportion of new immigrants was not a significant correlate. Unlike the other models, residential mobility was negatively related to 2000 robbery rates.

TABLE 1

OLS Regression Results for Structural Characteristics on 1990 Homicide and Robbery Rates^a (N = 458)

Variables	1990		2000	
	Model 1— Homicide	Model 2— Robbery	Model 3— Homicide	Model 4— Robbery
Population (LN)	0.153*** (0.033)	0.140*** (0.035)	0.176*** (0.034)	0.097** (0.034)
Percent young males (LN)	0.210 (0.203)	0.485* (0.216)	0.136 (0.213)	0.640** (0.216)
Percent black (LN)	0.220*** (0.021)	0.278*** (0.022)	0.212*** (0.023)	0.258*** (0.023)
Percent Latino (LN)	-0.021 (0.029)	0.068* (0.031)	-0.057 (0.030)	-0.028 (0.030)
Job access (LN)	-0.213* (0.107)	-0.304*** (0.114)	-0.204 (0.124)	-0.271* (0.125)
Economic disadvantage	0.169*** (0.035)	0.044 (0.037)	0.340*** (0.043)	0.214*** (0.044)
Young adult education	-1.189*** (0.309)	-0.623 (0.329)	0.533 (0.348)	-0.273 (0.353)
Residential mobility	-0.312 (0.363)	-0.738 (0.387)	-0.986 (0.533)	-1.330* (0.541)
Divorce	6.057*** (1.148)	12.234*** (1.223)	4.844*** (1.293)	12.156*** (1.312)
Percent foreign born	1.878* (0.824)	2.708** (0.878)	0.530 (0.479)	2.165*** (0.486)
Percent new immigrants	-0.3489 (2.621)	1.027 (2.791)	-0.626 (1.878)	0.378 (1.905)
White/black dissimilarity	0.005** (0.002)	0.012*** (0.002)	0.003 (0.002)	0.010*** (0.002)
White/Latino dissimilarity	0.004 (0.002)	-0.005* (0.002)	0.005* (0.002)	0.003 (0.002)
West	-0.015 (0.067)	0.0141* (0.071)	0.151* (0.069)	0.272*** (0.070)
Northeast	-0.413*** (0.081)	0.154 (0.086)	-0.292*** (0.081)	0.057 (0.082)
Central	-0.240*** (0.064)	0.020 (0.068)	-0.054** (0.066)	0.013 (0.067)
Constant	-0.095	3.522	-0.169	3.940
Adjusted R ²	0.770	0.811	0.733	0.794

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

^aUnstandardized coefficients and standard errors (in parentheses).

Together, the 1990 and 2000 analyses point to a number of significant relationships and the findings are generally consistent with previous research on violent crime. Each of the four models explains a large amount of the

variation (ranging from 73–81 percent) in homicide and robbery across a large sample of U.S. cities. Most importantly, the findings call into question the recent claims that increases in immigration may be an important contributor to the decline in crime between 1990 and 2000. In contrast, in three of the four models representing the correlates of violent crime rates across two different time periods, the proportion of immigrants in the population is positively correlated with homicide and robbery. However, in trying to understand the relationship between patterns of immigration and patterns of crime over time, these models suffer from two important weaknesses common to cross-sectional analyses—they are unable to model processes that take place over time, and they are vulnerable to biases in making causal claims. Although the above analyses suggest with some certainty that cities with more immigrants experienced more violent crime during time periods with relatively high (1990) and relatively low (2000) crime rates, these analyses are not able to directly address the question of whether cities that experienced more immigration over time experienced greater changes in crime rates. Thus we are on questionable ground to suggest that immigration caused changes in crime rates between 1990 and 2000.

More important perhaps is the vulnerability of cross-sectional models to missing variable bias. Although a variety of city characteristics that previous research has demonstrated to be influential are included in the models, it is entirely possible that there are additional factors that are associated with both immigration patterns and crime rates. This is of special concern when modeling the result of a process (immigration) that is likely shaped by various characteristics of geographic areas. Immigrants move to some cities more so than to others. If the characteristics of the cities that encourage (or discourage) immigrant migration are correlated with crime rates, but are not included in the model, the observed relationship may be spurious. For these reasons, I use pooled cross-sectional time-series analyses to assess changes in immigration and other structural characteristics and violent crime between 1990 and 2000.

Time-Series Analyses of Changes in Structural Characteristics and Violent Crime 1990–2000

Table 2 presents the results of the time-series models examining the factors related to changes in homicide and robbery rates between 1990 and 2000. As discussed above, pooled cross-sectional time-series analyses can be modeled as fixed or random effects models. In the current research, the chi-square values generated from the Wu-Hausman tests indicate that the coefficients estimated in the fixed and random effects models are significantly different and that using the random effects models could be problematic. Therefore, I estimated both the models using fixed effects.

TABLE 2

Pooled Cross-Section Time-Series Regression Models of Homicide and Robbery Rates^a (N = 458)

Variables	Regression Results	
	Model 1—Homicide	Model 2—Robbery
Population (LN)	0.052 (0.136)	0.127 (0.111)
Percent young males (LN)	0.852** (0.317)	0.465 (0.259)
Percent black (LN)	0.156** (0.060)	0.076 (0.049)
Percent Latino (LN)	-0.019 (0.073)	0.179** (0.060)
Job access (LN)	0.552* (0.239)	0.695*** (0.196)
Economic disadvantage	0.245*** (0.068)	0.154** (0.056)
Young adult education	-0.626 (0.615)	-0.170 (0.503)
Residential mobility	0.516 (0.548)	-0.283 (0.448)
Divorce	6.375** (0.235)	5.491** (1.922)
Percent foreign born	0.852 (0.947)	-1.631* (0.775)
Percent new immigrants	-3.599* (1.671)	1.677 (1.367)
White/black dissimilarity	0.005 (0.004)	0.002 (0.004)
White/Latino dissimilarity	0.002 (0.004)	-0.001 (0.003)
Constant	8.570	37.182

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

^aUnstandardized coefficients and standard errors (in parentheses).

Many of the significant effects displayed in Model 1 of Table 2 would be expected from the cross-sectional models presented above. Growth in economic disadvantage and divorce and the size of the black and young male populations resulted in sharper increases, or smaller decreases (more likely given the overall pattern of falling crime rates between 1990 and 2000), in homicide. There were also a number of findings that diverged from the patterns established in the cross-sectional models. Most importantly, while the relative size of the foreign-born population was no longer a significant predictor, the size of the new immigrant population was, and in the opposite

direction. Cities in which the relative size of the new immigrant population grew between 1990 and 2000 exhibited sharper declines in homicide over the 10-year period. Also, in contrast to the cross-sectional models of homicide, increases in the availability of low-skill jobs served to increase homicide.

The results of the time-series analysis for robbery are similar in many respects to homicide. The influence of economic disadvantage, divorce, and access to low-skill jobs is the same for robbery as it was for homicide. As levels of these indicators rose, so too did robbery. Most importantly, given the focus of the research, immigration demonstrates an inverse relationship with violent crime. Controlling for other factors, increases in the proportion foreign born resulted in smaller increases, or greater decreases, in robbery. In addition to these similarities, there is a notable distinction between the homicide and robbery models. The logged proportion of Latinos in the population had a significant positive effect on robbery.

Together, the time-series analyses of changes in homicide and robbery rates between 1990 and 2000 paint an interesting picture—and one that casts doubt on the implications the cross-sectional models have for understanding changes over time. For the most part, well-established criminogenic structural characteristics exert the expected influence on violent crime. Including immigration in the models, a factor that has often been ignored in empirical analyses despite the attention it has received in public and political discourse, offers new insight into both the influence of immigration and our explanations for the crime drop of the 1990s. In contrast to the results from the cross-sectional models, the pooled cross-sectional fixed effects time-series models, which offer a much stronger approach to assessing causal relationships, offer qualified support to Sampson's and others' claims. Cities that experienced greater growth in immigrant or new immigrant populations between 1990 and 2000 tended to demonstrate sharper decreases in homicide and robbery. Thus, the suggestion that high levels of immigration may have been partially responsible for the drop in crime during the 1990s seems plausible.

Further Tests and Alternative Model Specifications

However, there are a number of potential issues that deserve further examination. The first pertains to the composition of the immigrant population. One concern is the overlap between changes in the immigration variables and changes in the Latino population. As many of the immigrants since 1990 have migrated from Latin American countries, it is possible that controlling for changes in the Latino population is masking the true influence of Latino immigrants. To examine this possibility, I reran the analyses, first excluding the percent Latino to assess the effect of immigration and new immigration without controlling for the size of the Latino

population, and then excluding the proportions of immigrants and new immigrants to examine the effect of the size of the Latino population without controlling for immigration. The findings are stable when either the immigration variables or the percent Latino variable is removed from the model. Thus, we can be fairly confident that including percent Latino in the model is not masking the true effect of Latino immigration.

The second issue relates to variation in the composition of immigrant populations. As noted above, there are important distinctions across immigrant populations pertaining to SES, skill level, documentation status, and the degree to which they have assimilated. These characteristics may shape how the growth of the immigrant population influences violent crime. Unfortunately, immigrant-specific measures of these concepts are not available in aggregate Census data. However, an indicator of linguistic isolation (percentage of households in which no one age 15+ speaks English well), which is available in the Census data, may serve as a reasonable proxy for some of the unobservable characteristics of the immigrant population. Linguistically isolated households are less likely to be of higher socioeconomic status or to contain adults working in professional occupations (U.S. Census Bureau, 2006).⁶

To examine the role of language ability in the immigrant population, I reran the time-series models including the indicator of linguistic isolation. It was neither statistically significant, nor did its inclusion exert much influence on the other covariates in the model. I also examined whether linguistic isolation conditioned the effect of either of the immigration measures on crime by creating interaction terms. I included each of the multiplicative terms separately in the homicide and robbery models. None of the coefficients representing these effects were significant. While linguistic isolation is not a perfect proxy for socioeconomic status and other factors related to the assimilation process, these findings do suggest that the role of immigration on crime rates is not heavily conditioned by the educational achievement, occupational status, and general level of assimilation of the various immigrant groups.

The third issue concerns variation in the reliability of the Census estimates. Cities with smaller populations may be more vulnerable to biased estimates. To explore this possibility, I reran both time-series models using weighted least squares regression, which included weights for the logged size of the population. The findings were virtually identical to those presented above, suggesting that the role of the immigration variables is not significantly shaped by variations in the reliability of the Census estimates.

⁶It is important to note that the Census defines linguistically isolated households as those in which no members over the age of 15 speak English well. So while there may be long-established households in which some adults, especially grandparents or older parents, do not speak English, those in which no adults speak English are much more likely to be comprised of new immigrants who are on the fringes, or in low-skill sectors, of the labor market. Such individuals are more likely to experience segregation, prejudice, and other barriers to social and economic equality.

Discussion

The current research was driven by two primary questions that have not been adequately addressed to date. First, controlling for other factors, do cities with larger foreign-born and new immigrant populations experience higher rates of violent crime? And, second, can patterns of immigration help explain the dramatic drop in violent crime rates that occurred between 1990 and 2000? The findings suggest that the answer to both questions is yes, but that the relationships are not straightforward.

In three of the four cross-sectional models there is a positive association between immigration and crime. These findings could be explained by a variety of criminological theories. However, given the findings in the time-series analyses, there is strong evidence that the cross-sectional relationship between immigration and violent crime is spurious. While I have controlled for a variety of known correlates of crime, it is likely that the demonstrated relationships are driven by unobservable city characteristics that are related to both immigration and violent crime. Immigrants are not randomly or equally distributed. The percentage of the city population that is comprised of immigrants ranged from 1 percent to 60 percent in 2000. Cities with large percentages of immigrants have some geographic, economic, historical, or demographic characteristics that shape immigration patterns. These factors may also influence levels of violent crime.

When examined over time, using techniques that control for unobserved time-stable city characteristics and unobserved year-specific influences, there is no longer a positive association between immigration and crime. In fact, increases in the proportions of the foreign born and of new immigrants appear to decrease, not increase, robbery and homicide rates. These findings are more supportive of theoretical perspectives that propose an inverse relationship between immigration and crime. These perspectives include the "healthy immigrant thesis" and the role of protective cultural and neighborhood factors. If relatively healthy, well-adjusted, "motivated" individuals infuse a population with noncriminogenic characteristics, we would expect a decline in crime. If immigrant communities bring with them culturally-based protective factors that buffer between strains, such as poverty, assimilation, and marginalization, and antisocial outcomes such as crime, we would anticipate that as communities grow, rates of violent crime will shrink. From a social disorganization/community efficacy perspective, to the degree that the immigrant communities engendering these protective and stabilizing forces are located in ethnically heterogeneous areas, the effects may spread beyond immigrants to the native populations by increasing the overall stability and organization of the community. It is also possible, as Kotkin (2000) and Reid et al. (2005) have suggested, that the growth of immigrant communities has been accompanied by the growth of niche markets, the economic benefits of which extend beyond the foreign-born community. All these possibilities are consistent with the findings and seem

theoretically plausible. However, there is no way to test the different causal mechanisms or arbitrate between them given the limitations of the data. Unfortunately, it is also not possible to disaggregate the effects of legal and illegal immigration. As such, while there is some evidence from a sample of released offenders that the recidivism rates of documented and undocumented immigrants are similar (Hickman and Suttrop, 2008), we are unable to examine whether the effects of immigration on crime are unique for documented versus undocumented immigrants.

One puzzling finding concerns the positive effect of job access on robbery. Job access exhibited a consistent negative effect on both homicide and robbery in the cross-sectional models, but it appears to have a positive relationship with robbery across time. One explanation concerns the migration patterns of nonimmigrants. Cities that experienced a larger increase in low-skill jobs between 1990 and 2000 may have served as migratory destinations for a larger proportion of low skilled and less educated young men—a group that is more likely to participate in violent crime. Although the time-series models control for changes in the young male population, as well as for the population of young adults aged 18–24 who have graduated from high school, these measures may not entirely control for the proportions of this population who are not participating in the legitimate labor market and pursue economic gains through violent crime.

The evidence that cities that experienced the largest growth in the proportion of foreign-born and newly arrived immigrant populations experienced larger decreases in violent crime between 1990 and 2000 suggests that Sampson (2006) may be right—that immigration may be partly responsible for the decrease in violent crime. Computing estimates based on the pooled cross-sectional time-series models discussed above suggests that, controlling for a variety of other factors, growth in the new immigrant population was responsible, on average, for 9.3 percent of the decline in logged homicide rates, and that growth in total immigration was, on average, responsible for 22.2 percent of the decrease in logged robbery rates.⁷

Conclusion

Criminological theory, conventional wisdom, and public and political discourse have long suggested a positive relationship between immigration and crime. Although early disorganization theorists made clear that this connection was not driven by the proclivities of the foreign born, but was caused by the structural contexts created by immigration patterns, they did

⁷These computations are based on taking the differences in the means of the independent variables (percent foreign born and percent new immigrant) across the two time periods (value of mean in 1990 minus value of mean in 2000), multiplying them by their regression coefficients, and dividing the product by the 1990–2000 differences in the logged homicide and robbery rates.

not deny the association. From the late 1800s to the present, the association between immigration and crime has been a center point of anti-immigrant discourse and public policy. Although there has been scant empirical research to support such claims, they have persisted with little debate. It has only been in the last decade or two that scholars have begun to empirically question these longstanding assertions, and little support has been uncovered.

In 2006 Robert Sampson proposed that not only have immigrants not increased crime, but they may be partly responsible for one of the most precipitous declines in crime that the United States has ever experienced. The current findings offer empirical support to this claim. Time-series models suggest that the widely-held belief that has motivated much of the public and political discourse about immigration and crime is wrong. In contrast, the research offers initial support for the idea that the increase in immigration was partially responsible for the decrease in homicide and robbery in urban areas between 1990 and 2000.

The current work offers strong evidence concerning the relationship between immigration and crime; however, given the nature of the data, it is impossible to evaluate the relative utility of the various theoretical propositions. The data do not include neighborhood-based indicators that would allow a thorough examination of many of the proposed theoretical mechanisms, nor do they tell us whether it is the criminal behavior of immigrants or that of natives that is shaping overall patterns of homicide and robbery. This is one of the fundamental weaknesses of centrally collected aggregate-level crime data. Although using local police and self-report data to examine patterns of offending across different immigrant and native-born populations over time introduces new methodological challenges, it would likely be a useful avenue for future research. In the meantime, however, this and other research that contradicts popularly held notions that high levels of immigration result in more crime should play an important role in challenging the public discourse as we begin to shape new immigration policy for the 21st century.

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