

ABSTRACT

Thesis Title: THE EFFECT OF LATINO IMMIGRATION AND SETTLEMENT PATTERNS ON NEIGHBORHOOD HOMICIDE RATES IN PHILADELPHIA: 1990-2000

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Since the year 2000, the Latino population in the United States has increased by over 25%. In Philadelphia, the nation's sixth-largest city, census data reveals immigrants from Latin America comprise the largest growing population in the city. Despite this surge in population, little attention in the research literature has been paid to the effect of Latino immigration on neighborhood crime rates. It remains unclear whether new immigrants destabilize inner-city neighborhoods or cause an increase in collective efficacy and a decrease in crime rates. This study examines the association between neighborhood crime rates and Latino immigration over a 10-year period (1990-2000) through the use of data from the U.S. Census and the Philadelphia Police Department. Latino immigration was found to be positively related to homicide in Latino ethnic enclaves, and had little to no effect on homicide in non-enclave neighborhoods.

THE EFFECT OF LATINO IMMIGRATION AND SETTLEMENT PATTERNS
ON NEIGHBORHOOD HOMICIDE RATES IN PHILADELPHIA: 1990-2000

by
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CHAPTER I: Introduction

From the year 1990 to the year 2000, the Latino¹ population in the United States grew by 58% (U.S. Census Bureau 2000). A large portion of this growth can be attributed to Latino immigrants²; the number of new Latino immigrants entering the United States per year has grown from 209,200 in 1980 to 1,105,000 in 2000 (Massey and Capoferro 2008). In Philadelphia, the nation's sixth-largest city, census data reveals immigrants from Latin America comprise the largest growing immigrant population in the city (U.S. Census Bureau 2006). From 1990 to 2000, the Latino immigrant population increased by over 54%, while the overall population of Philadelphia decreased by over 4% (U.S. Census Bureau 2000). The American Community Survey reveals that from 2000 to 2006, the Latino immigrant population increased by 6.5%, while the city's population declined by 5% (U.S. Census Bureau 2006). Despite this surge in the immigrant population, the assessment of the effect of Latino immigration on neighborhood crime rates has largely been left up to the media and popular culture, which tied these new waves of Latino immigrants with drug subcultures and urban violence, stoking the flames of public fear of crime (Martinez 2002). Rigorous scientific analysis of such dramatic shifts in population demographics is sorely needed.

¹ In this study, the term 'Latino' is used as the identifier for individuals belonging to cultural groups originating in one of 23 Spanish-speaking countries located in Latin America (Martinez 2002). Martinez (2002) provides a detailed description of the similarities found among the groups with Spanish-speaking national origins, and argues that aside from a national-origin specific identity (i.e. Mexican, Cuban), the term 'Latino' is the most precise label for these groups.

² I use the term 'immigrant' to refer to individuals who indicated they were foreign-born (not a U.S. citizen at time of birth) and living in the United States. No distinction is made in this study between legal and illegal immigrants as the census indicators used do not distinguish between individuals who are in the United States legally or illegally.

Ecological theories traditionally have viewed immigration as leading to the destabilization of communities, causing heightened rates of neighborhood crime (Sampson 2008). Social processes, such as internal migration and immigration are hypothesized to weaken neighborhood levels of social control (i.e. the ability of social institutions to regulate behavior), which will then contribute to a rise in crime (Lee and Martinez 2002; Bursik and Grasmick 1993). Despite these concerns, crime rates over the past 15 years have failed to rise in accordance with surges in immigration. One hypothesized reason for such antithetical findings is that new immigrants may actually diffuse inner city codes of violence by establishing close social ties and connections to the formal economy instead of merely absorbing these street codes and becoming violent criminals (Sampson 2008; Anderson 1999). Other research counters the long-held notion that new immigrants contribute to disorder by increasing levels of heterogeneity (Lee et al. 2001). Strong familial and communal ties found among new immigrants may offset the negative effects of heterogeneity by promoting adaptive forms of social organization within neighborhoods (Lee et al. 2001; Martinez 2006). Research is needed to assess the validity of these and other explanations for the apparent negative relationship between immigration and crime.

This study examines whether variations in homicide rates correlate with neighborhood changes in Latino immigrant populations in Philadelphia over a 10-year period (1990-2000) through the use of data from the U.S. census and the Philadelphia Police Department. While traditionally, ecological studies have employed static, cross-sectional designs to investigate neighborhood differences in crime, this study will examine how the change in neighborhood characteristics from

1990-2000 affected neighborhood homicide rates. Two specific questions are addressed in this study: (1) What has been the effect of the change in Latino population on neighborhood violence in Latino immigrant ethnic enclaves³ in 1990 and 2000; and (2) How has the change in Latino immigrant population affected neighborhood violence rates in neighborhoods that were not Latino immigrant ethnic enclaves in 1990 or 2000?

This thesis proceeds as follows. First, I provide a historical overview of Latino immigration in the United States to provide a context for the examination of Latinos as a distinct ethnic group, and to highlight the similarities and differences both between Latino populations and with other minority populations. Second, I provide a theoretical discussion of the link between immigration and neighborhood crime rates and take stock of the empirical literature examining this relationship. Third, I use this discussion to highlight remaining questions about immigration and crime and outline the research design which will be used to address these questions. Lastly, I present the results of the analysis and offer directions for future research on this topic.

³ Martinez (2002) describes barrios or enclaves as neighborhoods where Latinos comprise at least 50% of the population. Massey and Denton (1988) utilize an index of exposure consisting of isolation and interaction, which reflect both “the extent to which minority group members are exposed only to one another” (288) and the probability a member of a minority group shares a unit area with that of a majority person. Neighborhood ethnic isolation ranges from 0 (total exposure to the majority group) to 1 (total isolation, indicating no exposure to the majority group). Ethnic isolation is a key component used to identify enclave neighborhoods (Martinez 2002). I define enclaves as those neighborhoods with an isolation index that exceeds 0.5 (where isolation exceeds exposure). To assess the sensitivity of my results to different measures of enclaves, I re-estimate my statistical models with varying cutoff points for distinguishing Latino ethnic enclave from non-enclave neighborhoods.

CHAPTER II: Immigration Theory, Trends, and Neighborhood Rates of Violence

Latino Immigration: A Historical Context

The history of Latino immigration in the United States is irrefutably tied with U.S. economic expansion and political disruption in Latin America. The arrival of the earliest Latino immigrants coincided with massive European immigration at the turn of the twentieth century. The dispersion of these different immigrant groups, with European immigrants settling in the industrial northeast and midwest, and Latinos in the sparsely populated southwest, kept Latino immigration largely out of the public focus. Cities such as San Diego and El Paso continued to augment their pre-existing Mexican enclaves with a continuous stream of migrants drawn to economic opportunities in the U.S. and driven from Mexico by the economic and political strife in the aftermath of the Mexican Revolution (Chasteen 2001).

Post World War II, Latino immigration surged as refugees arrived from the Caribbean and Central America. After the Cuban Revolution, Florida saw an increase in the Cuban population; the first arrivals established a close-knit community in Miami (Little Havana), which gradually expanded with later waves of refugees. These earlier arrivals tended to be more affluent and well-educated relative to the later waves (Martinez 2002). The passage of the Immigration and Nationality Act of 1965 ended the nationality quotas which gave preference for European immigrants. According to Martinez (2002), by the 1980s, the public image of the Mariel refugees along with the post-1965 immigrants (which were primarily from Asia and Latin America) raised concerns over rising crime rates and the expansion of illegal drug markets in border cities.

Despite differing opportunity structures in their native countries and the historical events which led to changes in ethnic immigration patterns to the United States, Latinos from different regions faced similar challenges as a group upon reaching the U.S. (Chasteen 2001). The language barrier led many immigrants to seek solace among other Spanish-speakers, creating ethnic enclaves. Social and economic discrimination forced these groups of new immigrants to areas with less desirable housing and unskilled, low paying jobs (Bourgois 1996). These universal experiences led to comparable neighborhood structures in enclaves nationwide.

California and Illinois were popular destinations for post-1965 Latino immigrants due to the historic Latino enclaves (predominantly Mexican) and the high demand in this area for immigrant labor (Portes and Rumbaut 2006). Beginning in the late 1980s and continuing through the present, the destinations of Latino immigrants have moved beyond these traditional states and regions, and the absolute size of new Latino immigrant cohorts each year dropped in size in California and Illinois. While Florida, Texas, California, Illinois, and New York remain the top destinations for immigrants from Latin America, urban areas in numerous other states have had record growth in the population of Latino immigrants. The Latin American immigrant population in Colorado, Washington, and North Carolina increased to over 500,000 from 2000 to 2006, and during this same time period increased by over 50% in Georgia, Tennessee, Alabama, South Carolina, and Arkansas (U.S. Census Bureau 2006). Massey and Capoferro (2008) hypothesize that changing labor demand, including the saturation of markets in areas which were traditional destinations, along with increasing border security in Texas and California have led to a diversification

of immigrant destinations. For instance, from 1990 to 2000, the total percent of both Mexican and other Latin American immigrants who chose Pennsylvania as a destination increased by over 30% (U.S. Census Bureau 2006).

Los Angeles has been one of the most prominent destinations for recent Latino immigrants, leading to abrupt changes to the racial-ethnic composition of city neighborhoods. As Zubrinsky Charles (2001) observed, many traditionally African American neighborhoods with high crime rates (such as South Central Los Angeles) have rapidly growing populations of Mexican and Central American immigrants. Latino enclaves, such as East Los Angeles, continue to have more households living in poverty and large immigrant populations relative to other neighborhoods in the city. Zubrinsky Charles (2001) hypothesizes that Latino neighborhood segregation can be understood in terms of socioeconomic disparity and self-segregation, and is less likely to be the product of ethnic/racial discrimination.

The expansion of the Latino immigrant population into neighborhoods outside of ethnic enclaves is not isolated to Los Angeles; a similar pattern was noted by Morenoff and Tienda (1997) regarding patterns of Latino settlement in Chicago. Neighborhoods classified as transitional working class in 1990 resulted from one of two trajectories: the neighborhood in 1970 was classified as a stable middle class neighborhood and shifted to working class by 1990; or the neighborhood in 1970 was considered to be a working class neighborhood and remained as such in 1990. Many of the neighborhoods which began as middle class in 1970 but declined in socioeconomic status and increased in residential instability over the ensuing decade saw a dramatic and rapid growth of their Latino population (through immigration and

migration), coinciding with a rapid decline in the non-Latino white population. The second trajectory of consistent working class neighborhoods was illustrated by communities which also saw an influx in the Latino population, yet these neighborhoods were traditionally Latino ethnic enclaves already characterized by lower socioeconomic status and higher levels of residential stability relative to the middle class neighborhoods.

Recent patterns of Latino immigration, coupled with the depopulation of major cities (such as Philadelphia), have dramatically changed the demographics of many urban neighborhoods. As noted in Los Angeles and Chicago, the Latino immigrant population remains clustered in neighborhoods characterized by poverty and ethnic segregation (Zubrin 2001; Morenoff and Tienda 1997). Despite the continuing popularity of enclave neighborhoods as immigrant destinations, recent surges in population have resulted in the dispersal of the Latino immigrant population into traditionally non-immigrant neighborhoods (Massey and Capoferro 2008). Scholarly literature has long noted a strong relationship between homicide and population change (Morenoff and Sampson 1997), I now turn to criminological and sociological theory to understand the potential implications of these immigration patterns for neighborhood crime.

Immigration and Neighborhood Crime – Theoretical Framework

The influx of European immigrants at the turn of the twentieth century sparked scholarly interest in examining how these new residents affected American society and culture, and also how these immigrant groups were affected by their new

surroundings. These early European immigrants, along with the more recent groups of Latino immigrants, have tended to settle in urban neighborhoods that share similar characteristics regardless of time or region, including poverty and high crime rates (Martinez 2002). Two groups of theories are commonly used to explain the relationship between immigration and crime, one focusing on structural factors, the other on the process of assimilation.

Structural Theories

One of the first scholarly works to examine the connection between early European immigration and crime was *The Polish Peasant*, by Thomas and Znaniecki (1920). Thomas and Znaniecki discussed the challenges faced by immigrants moving from homogenous rural areas in Poland to heterogeneous urban areas in America. The social controls in the disorganized neighborhoods in which these immigrants settled, coupled with weakened (or absent) social ties, freed these new immigrants from concern over violating social norms. Crime resulted from social change and the corresponding social disorganization. Immigrant youth were more vulnerable to social changes, which resulted in an increased likelihood of delinquency. In contrast, Thomas and Znaniecki (1920) found that older adult immigrants were socialized to the norms of their peasant communities and were therefore less likely to be influenced by the new values and norms in the disorganized communities. Thus, older immigrants were less prone to crime.

The breakdown of social norms observed by Thomas and Znaniecki (1920) and the exposure to new and potentially competing norms is the basis of the culture

conflict explanation of disorganization (Sellin 1938; Sutherland 1955). In a homogenous society, consensus exists on both societal goals and the agreed-upon means to achieve those goals (norms). An individual is likely to belong to several groups (i.e. family, a work group, a religious group, etc.), and each group will have a set of norms to regulate behavior in that group (Sellin 1938). As society grows more complex, the likelihood increases that the groups to which a person belongs will offer competing and potentially conflicting behavioral norms. Sutherland (1955) argued one source of culture conflict occurs when members of one culture migrate to another culture. In this process, the new immigrants may bring with them behavioral norms that clash with the host culture. The second generation may be more crime-prone than their parents as it is the second generation experiences the brunt of the conflict with the 'old country' norms and cultural norms of the host country. Sutherland (1955) argued the relative residential and social isolation of first generation immigrants protects that generation from competing norms, resulting in a lower crime rate than found among their children.

Shaw and McKay (1942) addressed the relationship between cultural migration and delinquency at the neighborhood level. Neighborhood rates of delinquency were found to be highly correlated with spatial dynamics; the neighborhoods closest to the industrial/business center were the most affected by the "disintegrative forces of industrialization", and as a result had the highest crime rates in the city (Byrne and Sampson 1986: 2). The traditional function of community as a form of social control was broken down by industrialization, and its corresponding racial/ethnic heterogeneity, population mobility/turnover, and low socioeconomic

status of its residents. Yet despite population turnover, Shaw and McKay found the rates of delinquency to be quite stable in these disorganized communities, and theorized that behavioral patterns linked to crime and delinquency persisted as they were passed down by each generation, creating delinquent subcultures which then dominated disorganized neighborhoods. Every new racial and ethnic group, including immigrants, that moves into a given community comes to inherit the character of the community. As the character of the community persists over time, so does the level and nature of delinquency (Shaw and McKay 1942; Bursik and Grasmick 1993).

Contemporary social ecologists have largely focused on the lack of informal social control as the contributing factor for crime rates in disorganized neighborhoods. Sampson, Raudenbush, and Earls (1997; also Sampson and Raudenbush 1999) utilize the dynamic concept of collective efficacy of neighborhoods to explain variations in crime rates and patterns across neighborhoods. Collective efficacy, which is defined as the ability of neighborhood residents to achieve common goals, mediates the influence of poverty and other socio-demographic characteristics on neighborhood crime (Sampson, Raudenbush, and Earls 1997). The strong social networks in many ethnic and immigrant enclaves would thus be hypothesized to lead to a higher level of collective efficacy than in other neighborhoods with similar levels of structural disadvantage and thus a lower crime rate.

In addition to the focus on informal social control and collective efficacy, neighborhood theorists have begun to reassess the role of poverty on crime rates in disadvantaged communities. Warner (1999) argued poverty in and of itself as a

contributing factor in neighborhoods may be theoretically inconsistent with social disorganization theory. Warner hypothesizes the lack of resources inherent in poverty stricken communities would lead residents to rely on their neighbors and pool resources, thus building social ties. Mobility and heterogeneity also contribute to neighborhood disadvantage by preventing neighborhood networks and diminishing informal social control. Poverty thus leads to cultural attenuation: in neighborhoods characterized by high rates of poverty, the failure to achieve middle class goals (such as legitimate work) is common. Consistent failure leads to a decrease in the expectations to achieve those goals, resulting in a weakening of informal social control. Martinez (2002) notes attachment to the formal economy as paramount in the development of Latino ethnic enclaves in numerous cities nationwide. Thus attachment to the economy, coupled with the need to pool resources, will mediate the negative effects of poverty in ethnic enclaves (Martinez 2002).

Immigration has long been viewed as a key process responsible for rises (perceived or real) in violent crime (Hagan et al. 2008). Whether empirical studies bear this out is important to consider. Martinez (2002) examined official police data on Latino homicide rates in 5 cities which have experienced a surge in immigration: San Diego, Miami, Houston, Chicago, and El Paso. Latino neighborhoods are generally characterized by many criminogenic risk factors, such as low socioeconomic status, a high number of youth, and changing population composition. Yet, Martinez found that since 1980, variation in neighborhood homicide levels in each of the 5 cities were not directly related to changing Latino immigration patterns. In comparison to other areas with the same risk factors yet a different racial and

ethnic composition, lower homicide rates were found in the Latino neighborhoods. Martinez argues that despite large immigrant populations and high levels of poverty, Latinos are highly integrated into both the formal and informal economies. Economic involvement, even through low-paying jobs, leads to higher levels of social integration in Latino communities, shielding these areas from spikes in crime related to population turnover (Martinez 2002).

Economic involvement is also noted as a crucial factor in neighborhood crime rates by Wilson (1996). Often the only available jobs in the inner city are low-wage service jobs, often subjecting the employee to long hours and harsh conditions. Wilson argues both whites and African Americans either outright reject those types of employment, or expect higher wages for that work than do recent Latino immigrants. These immigrants are more likely to accept low-wage jobs, as most immigrants come from regions with less economic opportunity. Illegal and criminal behaviors are much more likely in neighborhoods which dually have a high concentration of African Americans and high poverty rates, as the weak labor force participation and lack of informal job networks increases the likelihood of illegal activities (such as hustling). Participation in the labor force serves as a buffer against criminal activity regardless of ethnicity/race. Thus, given greater labor force participation, lower crime rates will be found in inner city Latino ethnic enclaves, relative to inner city African American neighborhoods (Wilson 1996).

The link between rates of participation in the labor force and homicide rates in Miami, El Paso, and San Diego was explored by Lee et al. (2001). All three cities are characterized by both historic Latino ethnic enclaves and a rise in the population of

new Latino immigrants. New immigration is not significantly associated with homicide; however, neighborhood rates of poverty were positively correlated with violence. New immigration was found to be a significant factor for both African American perpetrated crime and victimization in San Diego; this may be due to homicides which arise from conflict between new immigrants and existing African American neighborhood residents. Low socioeconomic status, high rates of residential instability, and low participation in the labor market were also associated with increases in both Latino and African American perpetrated homicide and victimization in all three cities. Lee et al. cast doubt on previous research which has emphasized the importance of the relationship between kinship ties and social networks with crime rates; however, the authors did not conduct individual level analysis, and as a result, the immigrant status of victims and offenders was not known (Lee et al. 2001).

In sum, social disorganization would predict an increase in neighborhood rates of homicide with immigration because of an increase in population heterogeneity and residential instability, coupled with a decline in socioeconomic status. The intervening mechanism in this case is informal social control. However, in the absence of heterogeneity, as in ethnic enclaves, we should not expect a decline in informal social control. In fact, social control may be enhanced in ethnic enclaves because of homogeneity and established ties to the formal economy. Thus, the expectations with respect to the effect of immigration on neighborhood violence from social disorganization theory depend upon whether the neighborhoods are

characterized by an enclave of Latino immigrants or a mixture of Latino immigrants with, for example, non-Latino black or white residents.

Assimilation Theories

Social ecology theories, including social disorganization, social capital, and culture of poverty theories have dominated the recent discourse on neighborhood crime rates. Despite early theorizing, only recently have researchers begun to re-examine the implications of assimilation theory as it pertains to neighborhood crime rates. Classic assimilation theory views immigrant integration into the three domains of social, residential, and economic life as a linear process (Massey and Sanchez 2007). To achieve socioeconomic mobility, an immigrant group must acculturate itself to the host society (Gordon 1964; Bui and Thongniramol 2005). Thus, adjustment and conformity to the host society is the desired goal. Assimilation as a process is inevitable, however, variation can occur in the rate at which the new immigrant group incorporates itself and what position it establishes within the three domains of the new society (Alba and Nee 2005). Assimilation is viewed in a positive light; immigrants who commit crimes are considered to have low levels of acculturation⁴, as they either lack knowledge of social norms or are unable to adjust to the host society (Bui and Thongniramol 2005). New variations on assimilation theory retain the linear model while also illustrating the dynamic nature of the

⁴ In this context, assimilation is defined as the process “for the absorption of immigrants into the host culture beginning with changing cultural patterns and completing with the absence of values and power conflicts” (Bui and Thongniramol 2005:76). Acculturation is the process by which a culture (norms, values, behavior) is instilled in an individual (Bui and Thongniramol 2005).

relationship; each new immigrant group changes the host society as it adopts its culture (Alba and Nee 2005; Massey and Sanchez 2007).

Contemporary research on classic assimilation theory has revealed the potential negative side effects of the process. Given the more traditional and hierarchical nature of many immigrant groups, assimilation to American culture is seen as negatively impacting parent-child relationships by reducing the role of the family. Acculturated immigrant youth spend less time at home and more time with peers than new immigrant youth, and are more prone to acculturate to the youth culture of the host society (Portes and Zhou 1993). In certain neighborhoods, such as those noted by Anderson (1999), the youth culture can include delinquency as a normative behavior. Additionally, length of time spent in the United States has been found to be positively related to high levels of educational achievement, yet is also related to an increase in self-reported delinquency and substance abuse (Bui and Thongniramol 2005). Acculturated immigrants may actually be more crime prone than those immigrants who have assimilated very little.

The linear nature of assimilation is challenged by segmented assimilation theory which highlights immigrant groups' resistance to acculturation. This version of assimilation theory is grounded in the more recent research on Asian and Latin American immigrants (Bui and Thongniramol 2005). The social structure of the host society drives variations in the assimilation process, as opposed to it being a linear process dictated by time (Portes and Zhou 1993). Segmented assimilation theory retains the importance of the role of both the generation of immigrant and the time the immigrant has spent in the United States in the acculturation process, and introduces

the influence of social class, race, and gender (Bui and Thongniramol 2005; Massey and Sanchez 2007). Thus, the social and economic context of the neighborhood in which the immigrant settles will largely dictate the process of acculturation (Portes and Zhou 1993). Immigrant youth in disadvantaged neighborhoods with little family and community support are theorized to assimilate into the youth subcultures of the inner-city, leading to higher involvement in crime and an increase in the overall crime rates (Morenoff and Astor 2006). This path of “downward acculturation” results in the adaptation of an oppositional identity (Suarez-Orozco and Paez 2002).

Conversely, immigrant youth in highly integrated ethnic neighborhoods (or enclaves) are more likely to retain the values and norms of those neighborhoods, benefiting from the social capital of the enclave and safeguarding the youth from criminal involvement. These ethnic enclaves will have lower rates of crime than other inner city neighborhoods with comparative poverty rates (Morenoff and Astor 2006).

Thus, the neighborhood context shapes the relation between immigration and crime.

Critics of immigration often cite segmented assimilation theory as proof the incorporation of new immigration into neighborhood structures will eventually drive up crime rates to surpass those of other similar economically disadvantaged communities (Hagan et al. 2008). Central to this argument is the belief that new immigrants (along with their children and grandchildren) will engage in crime and delinquency at a higher rate than the native-born population of those communities and cities. Segmented assimilation, or “acculturation to the United States” instead results in similar rates and patterns of delinquency as the non-immigrant population (Hagan et al. 2008).

Differing rates of violence in neighborhoods was explored by Nielsen et al. (2005) in their examination of homicide rates in Miami and San Diego. Nielsen et al. found numerous differences in homicide rates between the two cities; overall, homicide rates for Latinos and African Americans were higher in Miami than in San Diego for all motives (whether drug-related, intimate), but for both cities, the Latino homicide rate exceeded that of African Americans. Economic disadvantage was not as highly correlated with motive-specific homicides for Latinos as it was for African Americans. Additionally, the percent of recent immigrants in both cities either had no effect or a negative effect on homicide rates for both groups. Nielsen et al. illustrate the need to examine neighborhood-specific characteristics and introduce the incorporation of assimilation theories into traditional ecological theory, as it appears higher homicide rates were linked to third (and later) generation Latinos. Those individuals assimilated into U.S. society appear to be more likely to engage in criminal and delinquent acts relative to recent immigrants (Nielsen et al. 2005).

Sampson et al. (2005) expand on neighborhood research through a longitudinal study of differing rates of violence among races/ethnicities in Chicago. Rates of violence were linked with immigrant status; first and second generation immigrants of all ethnicities were less prone to violence than third generation immigrants, except for Puerto Ricans/other Latinos, whose rates were comparable across generations. Additionally, third-generation Mexican Americans had higher rates of violence than Whites, differing from the overall rates of violence for Mexican Americans, providing some support for segmented assimilation. Neighborhoods with an immigrant population of at least 40% experienced significantly lower rates of

violence when compared to neighborhoods which were similar on all other aspects. Household characteristics differed among race/ethnicities, contributing to rates of violence; Mexican Americans represented the lowest crime rates coupled with the highest likelihood of youth being raised in 2-parent households; African Americans were on the opposite end of the spectrum. Sampson et al. reveal the importance of understanding specific cultural and structural aspects of neighborhoods both with and without immigrant populations.

Segmented assimilation theory predicts new immigrants and immigrant youth will sustain pre-existing levels of neighborhood crime and violence. New immigrants will differentially acculturate to American society according to the status awarded to their race/ethnicity, socioeconomic status, and gender. Family and community ties will be broken down in neighborhoods rife with social problems, resulting in adaptation to normative delinquency. However, as seen with social disorganization theory, the ethnic enclave again will serve as a protective factor mediating the negative effects of poverty and discrimination, resulting in lower crime rates than seen in other neighborhoods with similar factors of disadvantage. By recognizing the impact of both cultural (assimilation, subcultures) and structural (poverty) factors, we can gain a comprehensive understanding of the effect of immigration on neighborhood crime.

CHAPTER III: The Current Study

To date, the effect of Latino immigration on neighborhood homicide rates has not been a prime focus of scholarly research. Additionally, research which has studied this relationship has largely examined border cities, cities with large immigrant populations, and traditional immigrant destination cities (Lee et al. 2001; Martinez 2002). Many of these cities may benefit from the existence of historic Latino ethnic enclaves, which have been shown to be protective against involvement in crime (Morenoff and Astor 2006). This raises the question as to the possible effect of new Latino immigrant populations in cities which traditionally have been characterized by an African American/white dichotomy and a history of residential segregation, such as Philadelphia (Adams et al. 1991). The Latino immigrant population in Philadelphia continues to increase, despite the depopulation of the city as a whole (U.S. Census Bureau 2006). The current study will provide an assessment of the impact a burgeoning Latino immigrant population has on neighborhood dynamics both in a city with a historic racial dichotomy, and in one that has seen a loss of population in the late twentieth century. Given the differing results on city-wide comparisons of homicide in Latino neighborhoods (Martinez 2002; Nielsen et al. 2005), examining the effect of Latino immigration on a city that was not a traditional immigrant destination will contribute to a greater understanding of the relationship between neighborhood demographic changes and urban violence.

Incorporating both the arguments of social disorganization and segmented assimilation, I hypothesize that the effects of Latino immigration on violence are mediated by neighborhood structural and population factors. Early social

disorganization theory emphasized the destabilizing effect on neighborhoods caused in part by influxes in first generation immigrants. Subsequent research has illustrated the opposite effect; first generation immigrants, and specifically, first generation Latino immigrants, tend to be highly integrated into the economy and are more likely to exhibit family structures which serve as buffers to crime (Wilson 1996; Sampson et al. 2005). The importance of ethnic enclaves for both incorporating and assimilating new immigrants, as well as providing a continuing support network for future generations has been noted in research on several large cities (Morenoff and Astor 2006; Nielsen et al. 2005). I hypothesize that in neighborhoods with an isolation index of less than 0.5 there will be a positive association between Latino immigrant concentration and homicide. In contrast, I hypothesize there will be a negative association between immigrant concentration and homicide in Latino ethnic enclaves (those neighborhoods with an isolation index of 0.5 and higher).

CHAPTER IV: Data and Methods

The prior research summarized in the previous chapters demonstrates the need for longitudinal studies to describe the relationship between Latino immigration and neighborhood homicide trends (Butcher and Piehl 1998, Lee et al. 2001, Martinez 2002). The primary goal of this study is to better explain how agents of neighborhood change, such as Latino immigration, affect levels of violence in those communities. This section will discuss the data, variables, and analytic strategy used to better understand the relationship between Latino immigration and neighborhood levels of violence.

Data

This study uses data from two sources: the U.S. Census and the Philadelphia Police Department. Homicide data for the years 1990 and 2000 from the Philadelphia Police Department was aggregated to the tract-level. The U.S. Census data from 1990 and 2000 provided demographic information at the level of the census tract and was obtained from the GeoLytics Neighborhood Change Database.

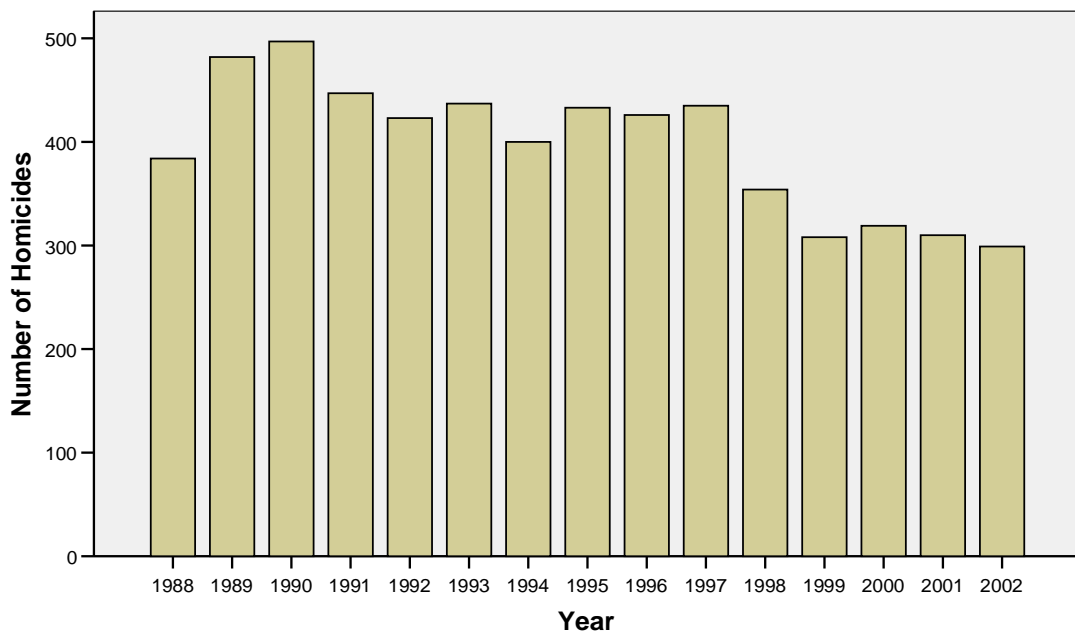
Dependent Variable

Homicide is the sole crime type used by this study for a variety of reasons. In general, homicide statistics are the most reliable form of official statistics as it is consistently reported and recorded with relative accuracy (Mosher et al. 2002). The Philadelphia Police Department in particular was subject to a review and overhaul of

their crime reporting system in 1998, after it was determined that over 10% of all crimes (excluding homicide) were either undercounted or excluded from official reports (Philadelphia Inquirer 1998). Thus, any official statistics prior to 1999-2000 are not reliable, except for those of homicide.

Homicide data for the years 1990 and 2000 was obtained from the University of Pennsylvania’s Cartographic Modeling Lab. The University of Pennsylvania gathered the data from the Philadelphia Police Department’s Incident Transmittal System which reports offenses categorized at the time of the incident. Figure 1 illustrates the homicide trend in Philadelphia over a 16 year period; for the years 1990 and 2000 the number of homicides (at time of incident) were 497 and 319, respectively.

Figure 1. Homicides in Philadelphia, 1988-2002



Source: Philadelphia Police Department (2008)

The number of homicides significantly decreased in the 1990s and into the 2000s, this was also a time of population loss in the city. Table 1 demonstrates the average homicide rate per 10,000 residents across census tracts calculated for both 1990 and 2000.

Table 1: Tract Homicide Rate (Per 10,000 Residents)

	City-wide	Minimum	Maximum	Mean	Std. Deviation
Homicide Rate 1990	3.13	0	22.85	3.45	4.83
Homicide Rate 2000	2.10	0	15.71	1.96	3.34

Independent Variables

Neighborhood changes will be assessed through several variables consistent with ecological theories as indicators of overall structural disadvantage, residential instability, and immigrant concentration. By using the census tract as the unit of analysis, this study follows past precedent established by prior neighborhood research (Lee et al. 2001). The concept of neighborhood or community varies according over time and situation, and by employing the use of the census tract an element of analytic stability is allowed. Census tracts were specifically developed to approximate neighborhoods which are homogenous with respect to population characteristics, economic status, and housing conditions (U.S. Census 2008).

Additionally, recent research on the effect of Latino immigration on neighborhood crime has also employed census tracts as the unit of analysis (Lee et al. 2001; Nielsen et al. 2005), allowing for a comparison of this study to findings from other research on this topic.

The layout of the 381 census tracts in Philadelphia changed from the 1990 Census to the 2000 Census; the GeoLytics Neighborhood Change Database provided data normalized to 2000 census tracts. GeoLytics utilizes geographic information system (GIS) software to overlay the boundaries of the tracts used in the 2000 census with those used in the 1990 census. Block data from 1990 is then used to determine the proportion of the population in the 1990 tract that were moved to the 2000 tract; the portion going into the 2000 tract (if the tract changed) is then weighted (GeoLytics, Inc.)

Eighteen tracts were eliminated as they neither contained residents nor residential units (i.e. tracts that included the two major airports and the zoo), leaving 363 tracts for analysis. None of the eliminated tracts had any recorded homicides for either 1990 or 2000.

Factor Analysis

In using a multivariate approach to measure the relationship between Latino immigration and homicide rates, one major problem that is often encountered is that of multicollinearity. This issue arises when the independent variables are strongly correlated with one another (a correlation of 0.8 or above) which leads to inefficient estimations (Weisburd and Britt 2003). The census variables used in this study are all

measured at the tract level, and include percent Latino, percent Latino immigrant, percent of female headed households, percent under the poverty line, percent unemployed, percent age 16-24, vacant housing units, percent renters, and percent living in dwelling for less than five years.

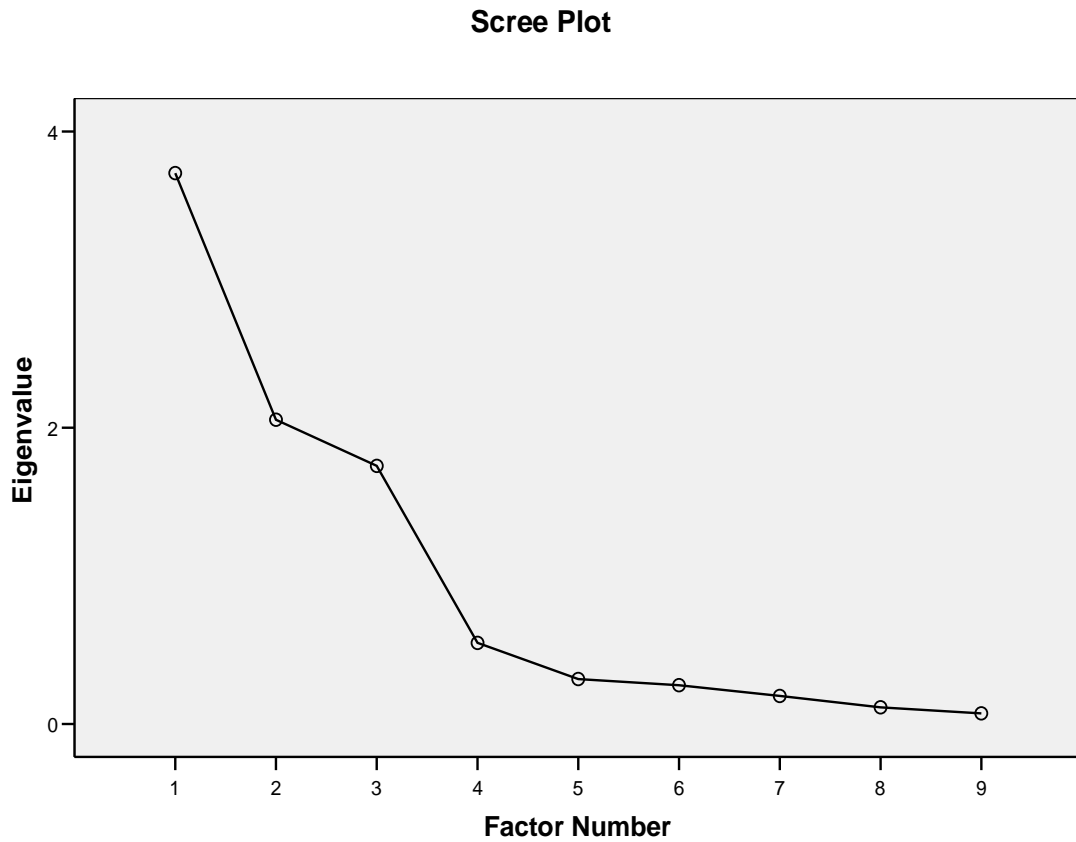
As these variables are hypothesized to be related to immigrant concentration, structural disadvantage, and residential mobility, maximum likelihood factor analysis was utilized to provide justification for the summarization of multiple variables into latent constructs (Hair et al. 1992). Factor analysis was chosen over Principal Components Analysis as there is a hypothesized underlying factor structure to the data (i.e. poverty is related to the factor of structural disadvantage, percent Latino is related to immigrant concentration, etc.). Factor analysis will allow for the examination of the shared variance among the independent variables. The maximum likelihood method was chosen over other factor analysis methods given the normal distribution of the independent variables included in the analysis (Costello and Osborne 2005). Using eigenvalues with a value over one as the standard (Hair et al. 1992), Table 2 reveals 3 latent factors were extracted to be used in the latent variable path model. The cumulative variance is within the range of 80%-90%, illustrating the number of relevant factors to be appropriate (Child 2006). The scree plot in Figure 2 provides further validation for the extraction of three factors given the sudden drop in eigenvalue after the third factor, followed by a gradually sloping line (Child 2006).

Table 2: Total Variance Explained

Factor	Initial Eigenvalues			Rotation
	Total	% of Variance	Cumulative %	Total
1	3.719	41.322	41.322	2.321
2	2.054	22.819	64.141	3.188
3	1.743	19.362	83.502	1.818

Extraction Method: Maximum Likelihood
Rotation Method: Oblimin with Kaiser Normalization
Chi Square (df=16) = 334.25, p<0.000

Figure 2: Scree Plot of Factors



Shaw and McKay (1942) argued social disorganization was the result of several structural factors (including immigration, poverty, residential instability) that did not operate independently of each other. An oblique rotation method was chosen

(oblimin) as the factors are allowed to correlate with each other (Costello and Osborne 2005).

As two time points are used in the data, Table 3 reveals the variables for both 1990 and 2000 load on the same three factors as the merged data. Thus, the same three factors are utilized for both years examined in this study⁵.

Table 3: 1990 and 2000 Factor Loadings

	Factor 1990			Factor 2000		
	1	2	3	1	2	3
Latino Population	0.948	0.024	-0.086	0.923	-0.003	-0.018
Latino Immigrant Population	0.981	-0.052	-0.035	0.901	-0.043	-0.007
Female Headed Households	-0.106	0.853	0.074	-0.089	0.786	0.113
Lived in Dwelling Less than 5 Years	-0.170	0.086	0.878	-0.106	0.055	0.848
Population Under Poverty	0.199	0.865	-0.184	0.181	0.870	-0.213
Unemployment	0.080	0.892	0.130	0.097	0.826	-0.093
Vacant Housing Units	-0.088	0.560	-0.259	-0.088	0.754	-0.006
Renter Occupied Housing Units	-0.120	0.284	0.819	-0.015	0.234	0.842
Percent 16-24	0.350	0.517	0.481	0.268	0.552	0.452

Extraction Method: Maximum Likelihood

Rotation Method: Oblimin with Kaiser Normalization

Chi-Square for 1990 (df=7) = 35.386, p<0.000

Chi-Square for 2000 (df=7) = 113.45, p<0.000

⁵ A factor analysis conducted with the pooled data from both 1990 and 2000 was conducted (results not shown). The pooled factor analysis extracted 3 factors with each variable loading on the same factor as the separate analysis conducted for the variables as measured in 1990 and 2000.

Table 4 reveals the independent variables of immigrant concentration, structural disadvantage, and residential instability constructed in the factor analysis are not highly correlated with each other as measured at both 1990 and 2000. Each variable at each time point is highly correlated with itself.

Table 4: Independent Variable Correlation Matrix

	1	2	3	4	5	6
1. Immigrant Concentration 1990	1	0.921*	0.369*	0.386*	0.117*	-0.035
2. Immigrant Concentration 2000	0.921*	1	0.308*	0.386*	0.057	-0.025
3. Structural Disadvantage 1990	0.369*	0.308*	1	0.889*	-0.102	0.015
4. Structural Disadvantage 2000	0.386*	0.386*	0.889*	1	-0.091	0.006
5. Residential Instability 1990	0.117*	0.057	-0.102	-0.091	1	0.907*
6. Residential Instability 2000	-0.035	-0.025	0.015	0.006	0.907*	1

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

Immigrant Concentration

Principle to the discussion of neighborhood change is the immigrant concentration of the neighborhood, or census tract, under observation. With an eigenvalue over 3, this first factor had very high loadings (>0.900) in both 1990 and 2000. This factor captures the tracts in Philadelphia that underwent transformation from an influx in Latino and Latino immigrant population. The 2000 Census used different measurements for race than the 1990 Census as more racial categories were made available, making longitudinal racial comparisons difficult (Mosher et al. 2002). However, the measurement for Hispanic and non-Hispanic ethnicity remained

the same; the percent Latino will include the variable of proportion of residents that are Hispanic/Latino.

Table 5: Ethnic Distribution (per census tract)

	1990 Mean	1990 Std Dev	2000 Mean	2000 Std Dev
Non-Hispanic Black	0.3821	0.3959	0.4367	0.3779
Non-Hispanic White	0.5376	0.3961	0.4396	0.3669
Non-Hispanic Asian	0.0261	0.0538	0.0432	0.0689
Non-Hispanic Other	0.0026	0.0044	0.0033	0.0073
Hispanic/Latino	0.0516	0.1269	0.0772	0.1448

The change in the Latino immigrant population is illustrated in Table 5, and was measured using the census information regarding the foreign-born population country of origin indicators. These indicators do not specify between individuals that arrived legally or illegally, thus will include respondents who are illegal immigrants. Puerto Ricans arriving during this time frame will be included as new ‘immigrants’ despite their American citizenship, as Puerto Ricans arriving in the U.S. undergo a similar ‘immigrant’ experience as other legal Latino immigrants and are included in prior research on this topic (Bourgeois 1996, Martinez 2002). The following is a list of the countries of origin (per census option) of Philadelphia’s Latino immigrant population:

- Mexico
- Puerto Rico
- Caribbean
 - Cuba*
 - Dominican Republic*
- Central America
 - Guatemala*
 - Honduras*
 - Nicaragua*
 - Panama*
 - El Salvador*
 - Other*
- South America
 - Columbia*

Ecuador
Peru
Other
 Other Latin American

I combined these categories to create a new variable indicating the number and percent of Latino immigrants per census tract⁶. As Table 6 illustrates, Philadelphia's Latino immigrant population experienced a growth in population from all regions/countries of origin from 1990-2000, despite Philadelphia's drop in population by 68,027 residents. The population of residents born in Puerto Rico far outnumbers those from other Latin American countries⁷.

Table 6: Distribution of Region of Origin of Latino Immigrants

Region of Origin	Frequency 1990	Percent of Latino Immigrant Population 1990	Percent of Total Population of Philadelphia 1990	Frequency 2000	Percent of Latino Immigrant Population 2000	Percent of Total Population of Philadelphia 2000
Mexico	2961	3.5	0.19	6309	4.9	0.4
Puerto Rico	65015	77.2	4.1	90877	70.1	6
Caribbean	3532	4.2	0.22	7092	5.5	0.5
Central America	1774	2.1	0.11	2857	2.2	0.2
South America	3871	4.6	0.24	6151	4.7	0.4
Other	7033	8.4	0.44	16454	12.6	1
Total	84196	100	5.3	129740	100	8.5

⁶ A common criticism of recent studies of Latino immigration is the combining of various races and nationalities into one 'Latino immigrant' category (Martinez 2002). Given the number and distribution of Latino immigrants in Philadelphia, it is not feasible at this point to conduct separate enclave analysis by country or region of origin, as this would entail using a very small sample size (under 5) for most groups.

⁷ Given the predominance of Puerto Ricans in the Latino population in Philadelphia (in all tracts), the results of this study generally speak to migration with this group.

Structural Disadvantage

The second factor reflects a measure of structural disadvantage, a key component of social disorganization theory (Warner 1999)⁸. Several variables are included as measures of this factor, with two of the variables loading high (>0.80) in both 1990 and 2000, and all variables loading over 0.50. First, the percent of individuals in each census tract living below the poverty line gives a strict indication of poverty in the tract. The percent of female headed households in each tract is included as a variable as prior research has found it to be an accurate measure indicating neighborhood disadvantage (Anderson 1999, Wilson 1996). The variable of unemployment reflects the census indicator of those individuals who are 16 and older who identify as being in the labor force but are unemployed. The use of this variable eliminates the concern with other unemployment statistics which may count stay at home parents as unemployed (Wilson 1996). The variable of percent of residents aged 16-24 targets the population that is most represented in official criminal statistics. The census variable of vacant housing units provides an indicator of structural disadvantage which would be visible in the neighborhood. Table 7 reveals the characteristics of each indicator variable for structural disadvantage; the mean for each variable measured in 1990 is slightly higher in 2000. The mean for vacant housing units and unemployment was relatively stable (differing by less than 0.01), while the mean for female headed households increased from 1990 to 2000 by close to 0.05.

⁸ While not presented in this study, neighborhood racial composition (percent African American) is highly correlated with structural disadvantage in Philadelphia.

Table 7: Structural Disadvantage (per census tract)

	Mean: 1990	Std. Deviation: 1990	Mean: 2000	Std. Deviation: 2000
Female Headed Households	0.3842	0.2324	0.4356	0.2134
Population Under Poverty	0.2038	0.1608	0.2307	0.1508
Unemployment	0.1043	0.0748	0.1168	0.0757
Vacant Housing Units	0.1066	0.0729	0.1108	0.0859
Population Age 16-24	0.2311	0.0834	0.2446	0.0903

Residential Instability

Residential instability is the third factor extracted which is consistent with the theoretical motivation of this study. Two variables are used to describe residential instability in each census tract; both load over 0.80 for both 1990 and 2000. The percent of residents who have lived at their residency for less than 5 years gives an overall indication of population turnover in the tract. Additionally, the percent of housing units that are renter occupied provide additional indication of residential instability, and are found in the relevant literature for this topic (Lee and Martinez 2002), again allowing for comparison of findings across studies. The mean for residents living in their dwelling for less than five years decreased from 0.6325 in 1990 to 0.6131 in 2000, while the mean of renter occupied units per census tract increased from 0.386 in 1990 to 0.3628 in 2000.

Table 8: Residential Instability (per census tract)

	Mean: 1990	Std. Deviation: 1990	Mean: 2000	Std. Deviation: 2000
Lived in Dwelling for Less than 5 Years	0.6325	0.1389	0.6131	0.1321
Renter Occupied Units	0.3386	0.1829	0.3628	0.1756

Analytic Strategy

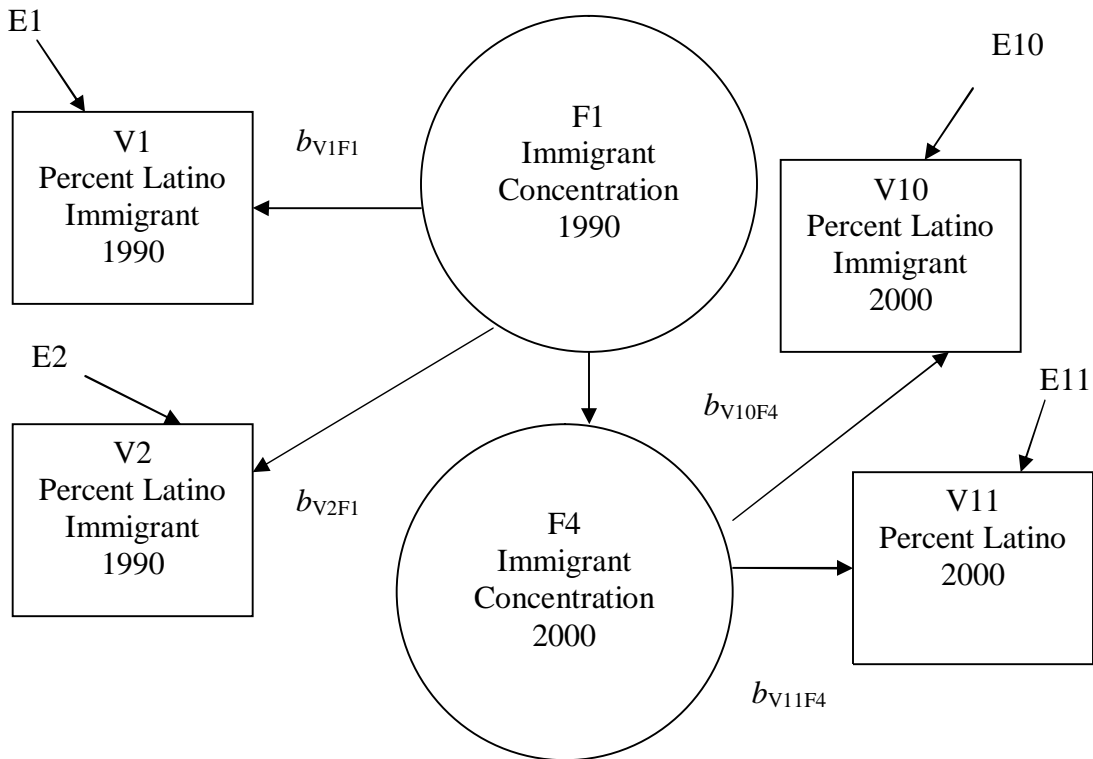
The three latent factors were modeled utilizing a latent variable path model of the variables over time in LISREL 8.8. Structural equation modeling allows the measured variables of interest to covary due to the underlying factors of interest (as extracted during the factor analysis). Additionally, it will allow the testing of the hypothesized theory that includes structural links among the measured variables and the latent factors (Hancock and Mueller 2009).

Figures 3 through 5 demonstrate the relationships between the measured variables and the respective factors, along with the structural equations used to model those relationships. Each variable (V) represents an indicator (one of the measured census variables), which is the endogenous variables. The error term (E) allows for both measured and unmeasured variance to be included in variable. Each factor (F) represents the latent construct (drawn from the factor analysis) and is represented in the measurement model as an exogenous variable. The factor is presumed to be the underlying cause of the observed indicator variables (Hancock and Mueller 2009). The relationship depicted in each of the following models between the indicator variable and the factor is drawn from the results of the factor analysis. The structural

equations represent the measurement of the indicator variable, including the path from the latent construct to the variable, along with the variance associated with the indicator variable.

Figure 3 represents the measurement model for the latent factor of immigrant concentration, measured at both 1990 and 2000. The latent factor of immigrant concentration has a direct causal path from the factor to the two indicator variables of percent Latino and percent Latino immigrant (in both years), which were extracted during the factor analysis. F1 is also drawn to have a direct effect on F4, as the level of immigrant concentration in 1990 in each census tract is hypothesized to be causally related to the immigrant concentration in the tract in 2000 (for example, an established enclave is hypothesized to attract new immigrants).

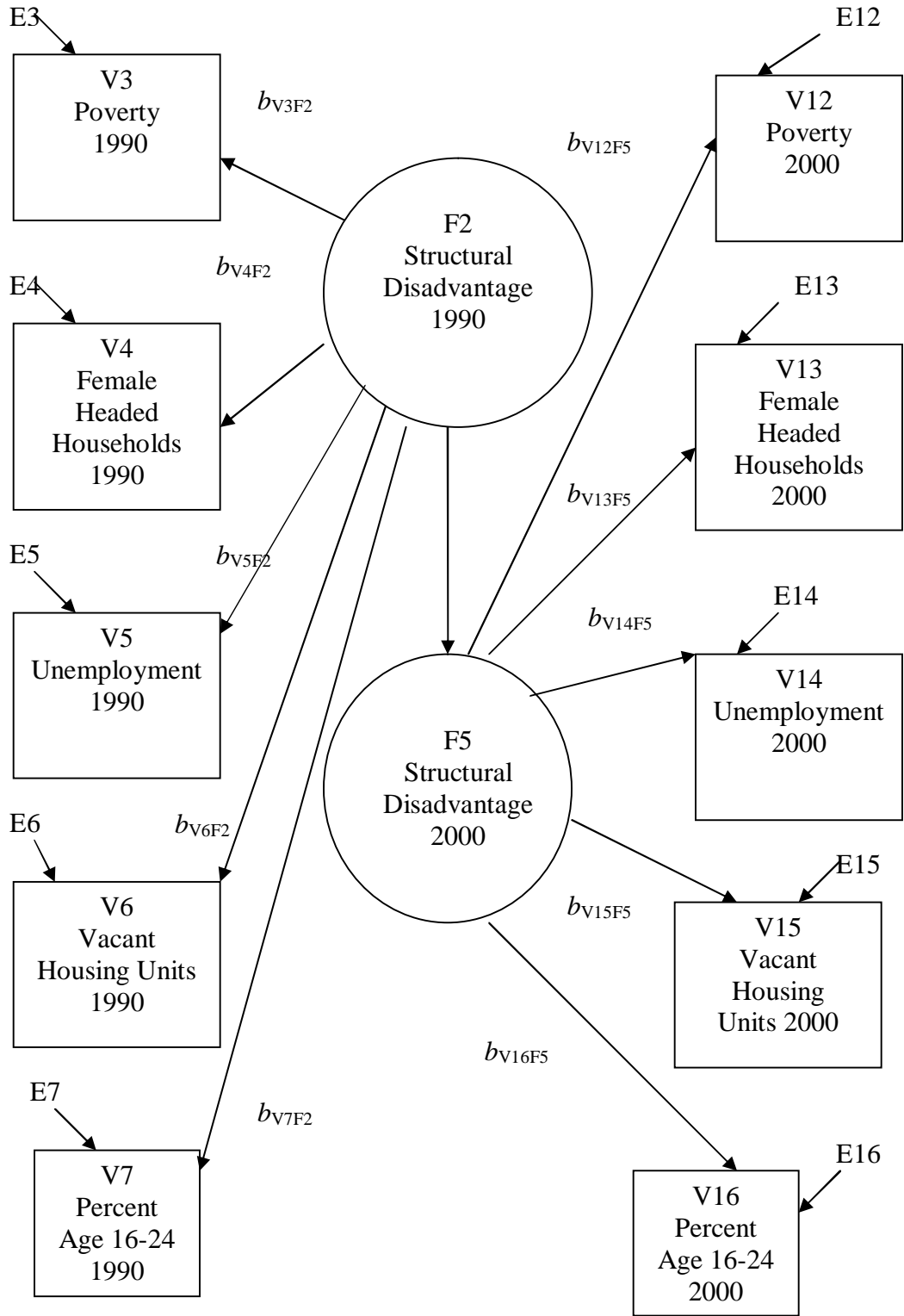
Figure 3: Immigrant Concentration



<u>Endogenous Variable</u>	<u>Structural Equation</u>	<u>Exogenous Variable</u>
Percent Latino Immigrant 1990	$V1 = b_{V1F1}F1 + E1$	Concentration 1990
Percent Latino 1990	$V2 = b_{V2F1}F1 + E2$	
Percent Latino Immigrant 2000	$V10 = b_{V10F4}F4 + E10$	Concentration 2000
Percent Latino 2000	$V11 = b_{V11F4}F4 + E11$	

Figure 4 represents the measurement model for the latent factor of structural disadvantage, measured at both 1990 and 2000. The latent factor of structural disadvantage has a direct causal path from the factor to the five indicator variables of poverty, female headed households, unemployment, vacant housing units, and percent youth; the indicator variables were extracted during the factor analysis. F2 is also drawn to have a direct effect on F5, as the level of structural disadvantage in 1990 is hypothesized to be causally related to structural disadvantage in the census tract in 2000.

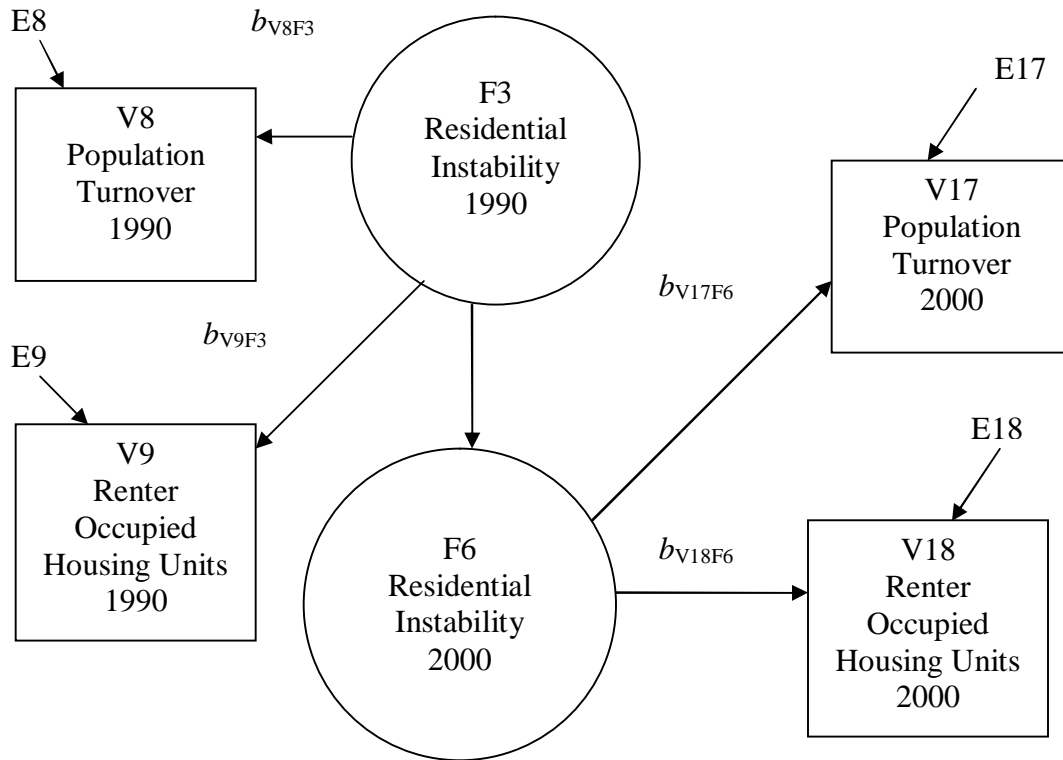
Figure 4: Structural Disadvantage



Endogenous Variable	Structural Equation	Exogenous Variable	
Poverty 1990	$V3 = b_{V3F2}F2 + E3$	Structural Disad 1990	
FHH 1990	$V4 = b_{V4F2}F2 + E4$		
Unemployment 1990	$V5 = b_{V5F2}F2 + E5$		
Vacant Housing 1990	$V6 = b_{V6F2}F2 + E6$		
Percent Youth 1990	$V7 = b_{V7F2}F2 + E7$		
Poverty 2000	$V12 = b_{V12F5}F5 + E12$		Structural Disad 2000
FHH 2000	$V13 = b_{V13F5}F5 + E13$		
Unemployment 2000	$V14 = b_{V14F5}F5 + E14$		
Vacant Housing 2000	$V15 = b_{V15F5}F5 + E15$		
Percent Youth 2000	$V16 = b_{V16F5}F5 + E16$		

Figure 5 represents the measurement model for the latent factor of residential instability, measured at both 1990 and 2000. The latent factor of residential instability has direct causal paths to the two indicator variables (extracted during factor analysis) of renter occupied units and those living in their dwelling for less than five years. Residential instability measured at 1990 is also hypothesized to have a direct causal path to residential instability in 2000.

Figure 5: Residential Instability



<u>Endogenous Variable</u>	<u>Structural Equation</u>	<u>Exogenous Variable</u>
Pop Turnover 1990	$V8 = b_{V8F3}F3 + E8$	Res Instability 1990
Renter Occ 1990	$V9 = b_{V9F3}F3 + E9$	
Pop Turnover 2000	$V17 = b_{V17F6}F6 + E17$	Res Instability 2000
Renter Occ 2000	$V18 = b_{V18F6}F6 + E18$	

Structural Model

In addition to the relationship between the latent factor measured at 1990 and 2000 (along with the indicator variables), each latent factor is hypothesized to covary, and also have direct causal relationships between the two time points. For example, immigrant concentration 1990 and structural disadvantage 1990 have a hypothesized

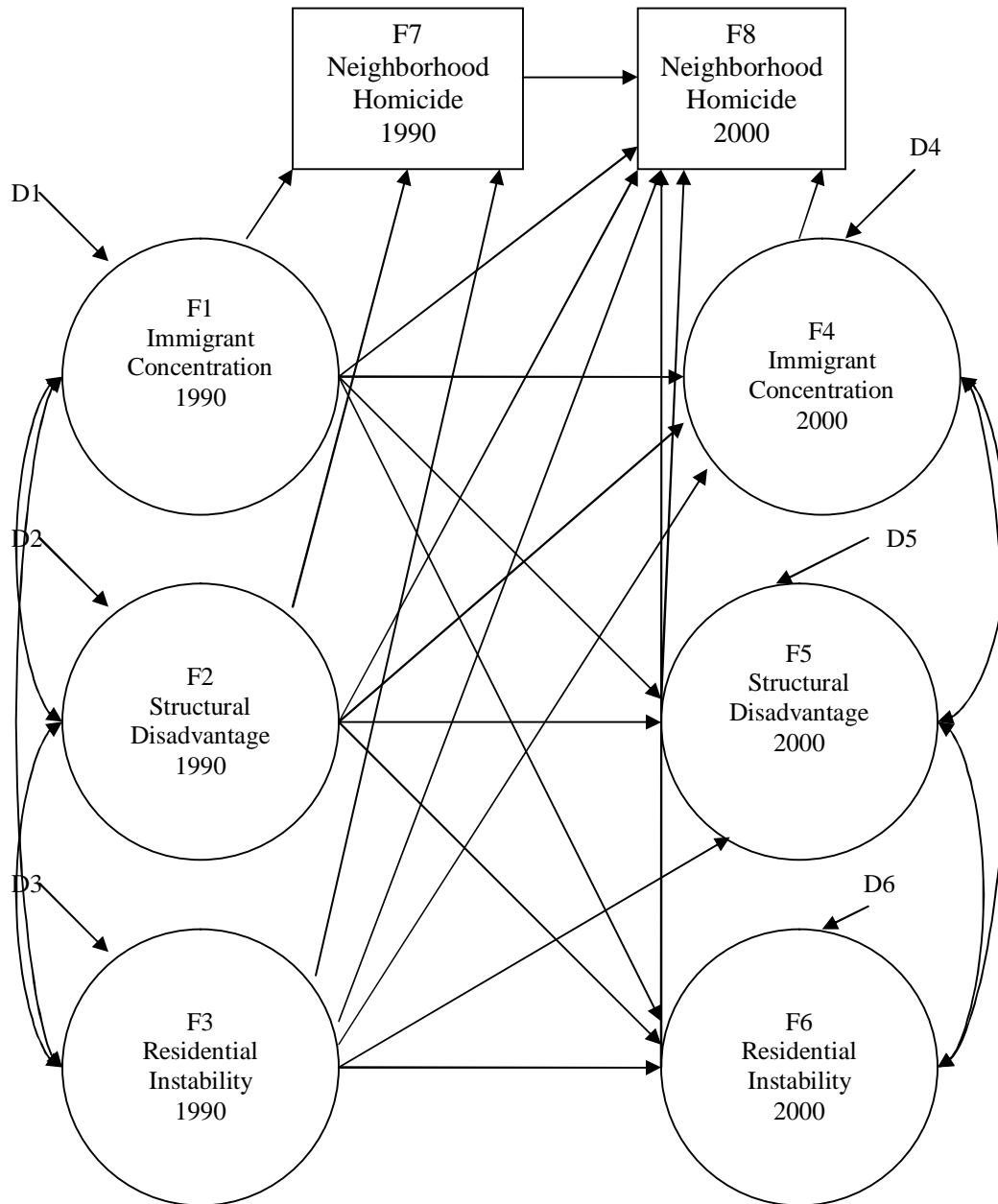
non-directional relationship, but both have a hypothesized causal relationship on homicide 1990. Additionally, immigrant concentration 1990, structural disadvantage 1990, and residential instability 1990 all have a hypothesized causal relationship with immigrant concentration 2000, which in turn has a hypothesized causal relationship with homicide 2000.

Relating to the hypotheses of this study, the effect of immigrant concentration is measured with both direct, causal paths, and additionally with mediating effects on structural variables⁹. Immigrant concentration in 1990 is hypothesized to be causally related to homicide in 1990 and 2000. Additionally, immigrant concentration is modeled to be indirectly related to homicide in 2000 by the path from immigrant concentration 1990 to structural disadvantage 2000 and residential instability 2000 (with both of those variables having direct paths to homicide 2000).

Figure 6 illustrates the structural model of all latent factors with the dependent variable of homicide; the 2000 value of homicide is predicted with the 1990 value of homicide, as well as the 1990 and 2000 values of the latent factors.

⁹ This study is interested in examining the direct effect between Latino immigration and neighborhood homicide, and the mediating effect of Latino immigration on structural factors in predicting 2000 homicide. While segmented assimilation implies a differential effect of Latino immigration on structural disadvantage, and thus on homicide, a conditioning/moderating relationship will not be explored given the intended scope of this study.

Figure 6: Structural Model



Endogenous Variable	Structural Equation	Exogenous Variables
F4	$F4 = b_{F4F1}F1 + b_{F4F2}F2 + b_{F4F3}F3$	F1, F2, F3
F5	$F5 = b_{F5F1}F1 + b_{F5F2}F2 + b_{F5F3}F3$	F1, F2, F3
F6	$F6 = b_{F6F1}F1 + b_{F6F2}F2 + b_{F6F3}F3$	F1, F2, F3
F7	$F7 = b_{F7F1}F1 + b_{F7F2}F2 + b_{F7F3}F3$	F1, F2, F3
F8	$F8 = b_{F8F1}F1 + b_{F8F2}F2 + b_{F8F3}F3 + b_{F8F4}F4 + b_{F8F5}F5 + b_{F8F6}F6 + b_{F8F7}F7$	F1, F2, F3, F4, F5, F6, F7, F8

Per my two hypotheses, I explore whether the effect of immigrant concentration differs between enclave and non-enclave neighborhoods. To subset Latino enclave neighborhoods and non-enclave neighborhoods, a measure of ethnic isolation was used. This measure of ethnic isolation allows me to assess the extent to which different ethnic groups (i.e. Latinos, blacks, whites, Asians) are isolated from each other. I conceptualize ethnic enclave as those census tracts which score 0.5 or higher on the measure of ethnic isolation as described by Massey and Denton (1988). The isolation measure used is as follows:

$$\sum_{i=1}^n \left[\left(\frac{x_i}{X} \right) \left(\frac{x_i}{t_i} \right) \right]$$

In this measure, “x” is the number of Latinos and Latino immigrants the neighborhood, “X” is the total number of Latinos and Latino immigrants in the city, and “t” is the number of other residents (non-Hispanic Whites, Blacks, Asians, and Others) in the neighborhood. If a neighborhood reveals ethnic isolation of Latinos and Latino immigrants (a score of above 0.5), it indicates the existence of an ethnic enclave with shared values and culture. A lack of isolation (a score of below 0.5) would reveal ethnic heterogeneity and potential conflict. Following this definition, of 363 tracts, 12 are defined as enclaves in 1990, and 15 are enclaves in 2000.¹⁰

Table 9 reveals the overall change in enclave status from 1990 to 2000. For each cutoff point of the isolation score (0.2, 0.3, 0.4, and 0.5) there were few tracts that were defined as enclaves in 1990 but became non-enclaves in 2000. At each

¹⁰ I also test the sensitivity of my results to different cutoff points for defining ethnic enclave. When I define enclaves as tracts with an isolation score of 0.4 or higher, there are 15 enclaves in 1990 and 19 in 2000. When I define enclaves as tracts with an isolation score of 0.3 or higher, there are 18 tracts in 1990 and 24 in 2000. When enclaves are defined as tracts with an isolation score of 0.2 or higher, there are 22 tracts in 1990 and 33 in 2000. While there were tracts with isolation scores higher than 0.6 and 0.7 in both 1990 and 2000, small sample size prevented appropriate model fit.

cutoff point, there were tracts defined as non-enclave in 1990 but became enclaves in 2000, with the most tracts changing in status at the cutoff point of 0.20.

Table 9: Tract Enclave Status 1990-2000 (out of 363 tracts)

	Non- Enclave 2000	Enclave 2000
Non-Enclave 1990 (0.20)	328	12
Enclave 1990 (0.20)	1	21
Non-Enclave 1990 (0.30)	337	6
Enclave 1990 (0.30)	1	17
Non-Enclave 1990 (0.40)	343	4
Enclave 1990 (0.40)	0	15
Non-Enclave 1990 (0.50)	347	3
Enclave 1990 (0.50)	0	12

CHAPTER V: Results

This section provides the results of the structural equations for the relationships hypothesized to exist between the latent factors and neighborhood homicide in 1990 and in 2000 (all results are given as x-standardized coefficients). The model was used to predict the overall impact of the factors on neighborhood homicide, and also to compare neighborhoods which were characterized as Latino ethnic enclaves, and those which were not.

The following table presents the results of the correlation between the factors and neighborhood homicide in 1990. Analyses presented in Tables 10 and 11 are based upon the full sample of neighborhoods combined, both enclave and non-enclave.

Table 10: Results for 1990 Homicide

Path From	Standardized Coefficient	R-Squared
Immigrant Concentration 1990	0.08*	0.04
Structural Disadvantage 1990	0.55*	0.23
Residential Instability 1990	-0.18*	0.03

SRMR = 0.10
CFI = 0.91
*p<0.05

Across all neighborhoods in Philadelphia, immigrant concentration and structural disadvantage were positively related to neighborhood homicide, while residential instability was negatively related. The standardized root mean square residual (SRMR) did not exceed the recommended 0.10, with the comparative fit

index (CFI) above the permissible threshold of 0.90 (Hancock and Mueller 2009). A standard deviation increase in immigrant concentration is associated with a 0.08 increase in the homicide rate; structural disadvantage is the largest predictor of homicide, as it is associated with a 0.55 increase in the homicide rate. Additionally, structural disadvantage explains more of the variance in 1990 homicide, with an R-squared of 0.23.

Both the 1990 factors and the 2000 latent factors were included to predict homicide in 2000, as illustrated in Table 11.

Table 11: Structural Factors for Predicting 2000 Homicide

Path From	Standardized Coefficient	R-Squared
Immigrant Concentration 1990	0.05*	0.07
Structural Disadvantage 1990	0.88*	0.21
Residential Instability 1990	-0.09	0.01
Homicide 1990	0.39*	0.19
Immigrant Concentration 2000	0.06*	0.06
Structural Disadvantage 2000	0.95*	0.26
Residential Instability 2000	0.03	0.01

SRMR = 0.06

CFI = 0.92

*p<0.05

A similar pattern is found in the predictors for 2000 homicide as were found for 1990 homicide. Structural disadvantage was the strongest predictor of homicide in 2000; a standard deviation increase in 1990 structural disadvantage leads to a 0.88 increase in the 2000 homicide rate, while a standard deviation increase in 2000

structural disadvantage leads to a 0.95 increase in the homicide rate. Immigration concentration remains a weak predictor of homicide for 2000, with 1990 levels resulting in a 0.05 increase in homicide, and 2000 levels leading to a 0.06 increase in 2000 homicide. Residential instability measured at 1990 remains negative at -0.09, and a standard deviation increase in residential instability leads to a 0.03 increase in the homicide rate; but residential instability in both years is not significant at $p < 0.05$. Neighborhood homicide in 1990 is positively related to neighborhood homicide in 2000, with an increase in 1990 levels leading to a 0.39 increase in 2000 levels. The SRMR (0.06) and CFI (0.92) indicate this model is a slightly better fit than the model constructed for 1990 homicide.

In order to more fully understand the impact of Latino immigration on neighborhood homicide, neighborhoods were divided in Latino ethnic enclave and non-ethnic enclave by the isolation index. Recall my hypothesis that immigrant concentration will be negatively associated to homicide in enclave neighborhoods, yet positively associated with homicide in non-enclave neighborhoods. Results presented to follow are used to test this hypothesis, starting with a model of 1990 homicide in enclaves.

Table 12: 1990 Homicide in Latino Ethnic Enclaves

Path From	Ethnic Isolation Index			
	Standardized Coefficient (R-squared)			
	0.20+	0.30+	0.40+	0.50+
Immigrant Concentration 1990	0.05* (0.07)	0.13 (0.06)	0.07* (0.04)	0.07* (0.04)
Structural Disadvantage 1990	2.01* (0.10)	0.92 (0.09)	0.64* (0.07)	0.53* (0.13)
Residential Instability 1990	0.01 (0.03)	-0.24 (0.06)	-0.21* (0.03)	-0.31* (0.03)
*p<0.05	SRMR= 0.10 CFI= 0.93	SRMR= 0.10 CFI= 0.93	SRMR= 0.10 CFI= 0.93	SRMR= 0.11 CFI= 0.90

Immigrant concentration is positively related to homicide for all definitions of ethnic enclave used in this analysis. Immigrant concentration has a similar effect on homicide across enclaves, with the exception of the enclave defined as 0.30 or higher on the isolation index, where a standard deviation increase in immigrant concentration will lead to a 0.13 increase in the neighborhood rate of homicide (yet this result is not significant). The SRMR and CFI indicate the model fit to be slightly better for the 0.20, 0.30, and 0.40 enclave models than for the 0.50 model. Contrary to my hypothesis, I do not find a negative association between immigrant concentration and homicide in ethnic enclaves.

Table 13: 1990 Homicide in Non-Enclave Neighborhoods

Path From	Ethnic Isolation Index			
	Standardized Coefficient (R-squared)			
	0.20 (under)	0.30 (under)	0.40 (under)	0.50 (under)
Immigrant Concentration 1990	0.00* (0.00)	0.02* (0.05)	0.02* (0.05)	0.03* (0.10)
Structural Disadvantage 1990	0.82* (0.25)	0.21* (0.25)	0.21* (0.16)	0.29* (0.24)
Residential Instability 1990	-0.11* (0.12)	-0.34* (0.12)	-0.33* (0.12)	-0.25* (0.07)
*p<0.05	SRMR= 0.09 CFI= 0.91	SRMR= 0.09 CFI= 0.91	SRMR= 0.09 CFI= 0.92	SRMR= 0.09 CFI= 0.91

The results for non-enclave neighborhoods display a similar pattern to prior results. Residential instability is negatively related to homicide, and structural disadvantage and immigrant concentration are positively related to homicide. Per my hypothesis, I find that immigrant concentration is positively related to the 1990 neighborhood homicide rate, but has a negligible effect, in non-enclaves. Additionally, immigrant concentration has no effect (and an R-squared of 0) for those neighborhoods with an isolation index of 0.20 and under. This indicates that in neighborhoods with very few Latino immigrants (in relation to both the Latino population and total population), a standard deviation increase in immigrant concentration will have no effect on the homicide rate.

The impact of neighborhood change is examined with 2000 neighborhood homicide, with the latent predictor factors including both 1990 and 2000 structural variables.

Table 14: Predictors of 2000 Homicide for Latino Enclave Neighborhoods

Path From	Ethnic Isolation Index			
	Standardized Coefficient (R-squared)			
	0.20+	0.30+	0.40+	0.50+
Immigrant Concentration 1990	0.21* (0.08)	0.24* (0.09)	0.20* (0.08)	0.08* (0.07)
Structural Disadvantage 1990	0.55* (0.09)	0.85* (0.07)	0.73* (0.07)	0.56* (0.05)
Residential Instability 1990	-0.38* (0.05)	-0.39* (0.06)	-0.31* (0.03)	0.31* (0.06)
Homicide 1990	0.88* (0.15)	0.54* (0.13)	0.44* (0.10)	0.83* (0.10)
Immigrant Concentration 2000	0.16* (0.06)	0.15* (0.07)	0.11* (0.06)	0.10* (0.04)
Structural Disadvantage 2000	0.65* (0.19)	0.38* (0.18)	0.39* (0.14)	0.22* (0.19)
Residential Instability 2000	-0.15* (0.02)	-0.05 (0.05)	-0.15* (0.03)	0.13 (0.02)
*p<0.05	SRMR= 0.10 CFI= 0.94	SRMR= 0.10 CFI= 0.94	SRMR= 0.09 CFI= 0.92	SRMR= 0.09 CFI= 0.90

Immigrant concentration in 1990 is found to have a positive effect on homicide for all enclave neighborhoods, however, the positive effect decreases as the isolation index increases, moving from a 0.21 increase in the homicide rate for neighborhoods with an index of 0.20 and above, to a 0.08 increase in the homicide rate for neighborhoods with an index of 0.50 and above. This indicates higher levels of ethnic isolation may lead to a lessening of the direct effect of immigrant concentration on homicide. A similar pattern is found for immigrant concentration measured at 2000; the positive effect of immigrant concentration on homicide moves from 0.16 to 0.10. I hypothesized there would be a negative relationship between

immigration and homicide in ethnic enclaves, which was not found in any of the enclave neighborhoods.

Table 15: Predictors of 2000 Homicide for Non-Enclave Neighborhoods

Path From	Ethnic Isolation Index Standardized Coefficient (R-squared)			
	0.20 (under)	0.30 (under)	0.40 (under)	0.50 (under)
Immigrant Concentration 1990	-0.01 (0.00)	0.01* (0.02)	0.01* (0.02)	0.01* (0.03)
Structural Disadvantage 1990	0.83* (0.08)	0.83* (0.08)	0.81* (0.07)	0.80* (0.07)
Residential Instability 1990	0.01 (0.01)	-0.08 (0.01)	-0.07 (0.01)	-0.07 (0.01)
Homicide 1990	0.85* (0.35)	0.82* (0.33)	0.81* (0.32)	0.81* (0.32)
Immigrant Concentration 2000	-0.01 (0.00)	0.00 (0.00)	0.01* (0.02)	0.01* (0.03)
Structural Disadvantage 2000	0.89* (0.19)	0.91* (0.19)	0.92* (0.19)	0.93* (0.20)
Residential Instability 2000	0.01 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)
*p<0.05	SRMR= 0.07 CFI= 0.96	SRMR= 0.07 CFI= 0.95	SRMR= 0.07 CFI= 0.95	SRMR= 0.08 CFI= 0.96

Similar to ethnic enclaves, increases in the standard deviation of the 1990 homicide rate, along with structural disadvantage 1990 and 2000 resulted in the largest increases in the 2000 homicide rate. However, a different pattern is found regarding the effect of immigrant concentration measured at both 1990 and 2000. I hypothesized there would be a positive association between immigration and homicide in non-enclaves, and I find essentially a zero association for all definitions of non-enclaves and for both years. A standard deviation increase in immigrant

concentration in 1990 and 2000 results in a 0.01 drop in the homicide rate for 2000 in non-enclaves with an isolation index of under 0.20 (but it is not significant), this is contrary to my hypothesis.

As structural disadvantage was the latent factor that was most consistently and positively associated with neighborhood homicide rates, I also wanted to explore if immigration had an indirect, or mediating effect, on homicide through the level of structural disadvantage.

Table 16: Immigrant Concentration (1990) as a Predictor of 2000 Structural Variables

Enclave		0.20+	0.30+	0.40+	0.50+
	Structural Disadvantage 2000	0.01	0.01	0.01	0.01
	Residential Instability 2000	-0.01	0.00	0.01	0.01
Non-Enclave		below 0.20	below 0.30	below 0.40	below 0.50
	Structural Disadvantage 2000	0.01	0.01	0.01	0.01
	Residential Instability 2000	0.00	0.00	0.00	0.00

*p<0.05

R-Square = 0.00

The 1990 level of immigrant concentration had a minimal impact on the 2000 level of structural disadvantage and residential instability in both enclave and non-enclave neighborhoods. Additionally, this relationship was not significant. These results indicate that the level of immigrant concentration in 1990 does not have a significant effect on predicting structural disadvantage in 2000.

Overall, immigrant concentration appears to have a negligible positive effect on neighborhood rates of homicide in both enclave and non-enclave neighborhoods. A change in immigrant concentration has more of an effect on the neighborhood homicide rate in ethnic enclaves than in non-enclaves (and is positive in both cases), regardless of the enclave definition used. In both enclaves and non-enclaves, immigrant concentration does not significantly account for the level of structural disadvantage, the factor that most strongly influences the neighborhood homicide rate.

CHAPTER VI: Conclusion

Despite the early scholarly attention paid to the relationship between immigration and crime, there is little empirical research on the connection between recent immigration (primarily Latino) and neighborhood crime rates. This objective of this thesis was to expand the study of the relationship between immigration and crime by examining a traditionally non-Latino immigrant destination city and by using multiple time points to provide an assessment of overall neighborhood change on homicide. Based on prior research on this topic (Lee and Martinez 2002; Martinez 2002) it was hypothesized there would be a strong relationship between structural disadvantage and neighborhood homicide rates that would mediate the effects of an increase in Latino immigration. Additionally, it was hypothesized there would be a ‘tipping point’ where once the isolation index exceeded 0.50, the relationship between neighborhood homicide and Latino immigration would move from positive to negative. Neither hypothesis in this study was supported by results, as there was almost no relationship between immigration and homicide in non-enclaves (regardless of cutoff point used), and there was a positive association with immigration and homicide in ethnic enclaves.

A major factor in studying the relationship between immigration and crime is the differential settlement patterns of immigrants. Prior research on this topic has focused on cities that have a large Latino immigrant population and have many neighborhoods in which new immigrants settle (Butcher and Piehl 1998; Lee and Martinez 2002). Comparatively, Philadelphia has a much smaller Latino immigrant population than many cities that have been studied. Despite a growth in the Latino

immigrant population from 1990 to 2000, Latino immigration has had little effect on neighborhood rates of homicide, particularly when compared with the effect of prior levels of neighborhood homicide and structural disadvantage.

While many scholars have noted the relationship between immigration and crime has been overstated (Sampson 2008), research has suggested the structure of the Latino ethnic enclave is protective against crime and other forms of disorder that characterize similarly disadvantaged communities (Martinez 2002; Morenoff and Astor 2006). However, it appears that immigration has a small, but positive association with neighborhood homicide, but this association decreases as ethnic isolation increases. This study reveals a potentially dissimilar relationship between immigration and homicide in enclaves than has been previously found in other cities. One potential cause for this positive relationship may be that the Latino population in Philadelphia is not isolated enough from other ethnicities to benefit from the enclave effect. While there was a general decrease in the coefficient for immigrant concentration as the isolation index increased, the relationship between homicide and immigrant concentration in extremely isolated tracts (such as those with an index of 0.60 or higher) remains unknown.

The results of this current study both support and negate prior research on the relationship between immigration and crime, as well as the relationship between neighborhood factors and crime. One main difference found in this current study is the negative relationship that was found between residential instability and neighborhood homicide. According to Shaw and McKay (1942), neighborhoods with a highly transitory population will be more disorganized as the residents are unwilling

or disinterested in promoting neighborhood sources of social control. Research on this topic has generally used variables reflective of time spent living in the neighborhood and renter/owner status of residents, as it is hypothesized that those residents who have lived in neighborhoods for a short amount of time and those renting will not be as invested in the neighborhood as those residents who own and/or have lived in the neighborhood for a longer period of time (Warner 1999). The theoretical motivation for including a factor of residential instability is reflective of the importance of social networks in a neighborhood; social networks may be weaker in neighborhoods with a transitory population as neighbors simply do not know each other. The results may suggest that a neighborhood comprised of a large percentage of renters may in fact have strong social ties among neighbors. The use of the variable that indicated the percent of residents who have lived in their dwelling for less than five years also may not capture residents that have changed dwellings yet remained in the same neighborhood, or within the same set of social networks. Additionally, scholars have illustrated that with the depopulation of inner cities, residents in neighborhoods with high levels of structural disadvantage may be unable to move (given lack of resources) (Wilson 1996), thus there would be a negative relationship between residential instability and homicide, particularly in disadvantaged communities. These results illustrate the need to incorporate analysis of social networks and social ties in the research on immigration and crime.

Several limitations of the current study suggest ample opportunities for further research of the relation between immigration and crime. The results of this study may be sensitive to the type of crime which was analyzed. Martinez (2002) has noted

the unique and often personal nature that is associated with many types of homicide (gang-related, etc.), and how homicide, particularly homicide in Latino communities, is often not comparable to other types of crime. Limitations existed in the data used for this study which restricted crime to homicide, the use of other types of crime (such as property crime) will enhance the understanding of the relationship between immigration and neighborhood crime changes. Disaggregating by type of homicide, or the relationship between the victim and offender, may also provide a more comprehensive understanding of the differences between Latino enclave and non-enclave neighborhoods that were unable to be explored in this study.

In addition to expanding the analysis by including other types of crime and disaggregating by type of homicide, the expanding the time frame used for this study will increase the generalization of the results. The homicide rate reached a peak in the late-1908s/early 1990s that to date has not been surpassed. Including homicide (and census) information from the early 1980s (prior to the peak), and homicide information from the 1990s will increase the explanatory power of the study.

Small sample size of those tracts considered to be Latino ethnic enclaves limited the enclave cutoff points that could be used, thus this study was not able to address the effect of neighborhood factors and Latino immigration on neighborhood homicide rates for those tracts that are considered to be highly ethnically isolated (with an index of over 0.60, 0.70, etc.). As the Latino population continues to grow in many urban and suburban areas, it will become more feasible to address the factors influencing crime in highly isolated areas as they become more prevalent. With Latino population expansion, there will also come more opportunity to analyze the

effects of group differences; as data becomes available on a widespread basis, variation between groups (such as Nicaraguans, Chileans, etc.) will provide a more complete exploration of this topic. The examination of second- and third- generation immigrants will enhance the understanding of the process of acculturation and segmented assimilation of later generations on crime rates in the inner city.

Future research will also benefit from the inclusion of moderating factors when examining the relationship between immigration and crime. As Sellin (1938) and Sutherland (1955) noted, population heterogeneity will contribute to an increase in crime and deviant behavior due to the conflict of norms and the availability of alternative means (such as criminal means). Bui and Thongniramol (2005) suggest the neighborhood level of disadvantage and the opportunity structure will moderate the effect of new (and future generations of) immigrants. This finding illustrates the importance of further exploration on the potentially differential effects of immigrant concentration, as perhaps immigrant concentration is not a cause of crime but may be moderated by other neighborhood structural or cultural factors.

The final limitation of this study, and consideration for future studies, is the use of spatial analysis. There is little evidence to suggest that neighborhoods operate as independent units; rather, factors relating to disorganization (such as poverty, property ownership) may be influenced by the structural conditions in neighboring areas, as well as larger city-wide governmental policies (Kirk and Laub 2009). The results of this study should be interpreted with caution as it did not include spatial regression that would take into account the extent to which conditions in spatially

proximate neighborhoods may influence both enclave and non-enclave neighborhoods.

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