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Published in final edited form as:

J Youth Adolesc. 2016 January ; 45(1): 17–34. doi:10.1007/s10964-015-0333-x.

The Role of Immigrant Concentration Within and Beyond Residential Neighborhoods in Adolescent Alcohol Use

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Abstract

Neighborhoods are salient contexts for youth that shape adolescent development partly through informal social controls on their behavior. This research examines how immigrant concentration within and beyond the residential neighborhood influences adolescent alcohol use. Residential neighborhood immigrant concentration may lead to a cohesive, enclave-like community that protects against adolescent alcohol use. But heterogeneity in the immigrant concentrations characterizing the places residents visit as they engage in routine activities outside of the neighborhood where they live may weaken the social control benefits of the social ties and shared cultural orientations present in enclave communities. This study investigates whether the protective influence of residential neighborhood immigrant concentration on adolescent alcohol consumption diminishes when youth live in communities where residents collectively are exposed to areas with more diverse immigrant concentrations. This study tests this contention by analyzing survey and geographic routine activity space data from the Los Angeles Family and Neighborhood Survey, and the 2000 census. The sample includes 793 adolescents (48.7% female, 16.5% foreign-born Latino, 42.5% US-born Latino, 11.0% black, 30% white/other) between the ages of 12 and

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Authors' contributions

AJ participated in the study design, performed statistical analyses, and helped develop and draft the manuscript; CB participated in the study design and helped develop and draft the manuscript; LK participated in the study design and helped develop the manuscript; MK participated in the study design and helped develop the manuscript; HW participated in data analysis. All authors read and approved the final manuscript.

Conflicts of Interest

The authors report no conflicts of interests.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

17 who live in 65 neighborhoods in Los Angeles County. Immigrant concentration among these neighborhoods derives primarily from Latin America. The results from multilevel models show that immigrant concentration protects against adolescent alcohol use only when there is low neighborhood-level diversity of exposures to immigrant concentration among the contexts residents visit outside of their residential neighborhood. This research highlights the importance of considering the effects of aggregate exposures to non-home contexts on adolescent wellbeing.

Keywords

Social disorganization; Ethnic enclave; Neighborhoods; Activity space; Immigrant concentration; Alcohol use

Introduction

In the US, alcohol use is relatively common among adolescents compared to the use of other illicit substances. For instance, the 2013 National Survey on Drug Use and Health found that 11.6% of youth ages 12 to 17 reported drinking alcohol in the past month, whereas only 8.8% of youth reported using marijuana (Substance Abuse and Mental Health Services Administration 2014). And the 2014 Monitoring the Future Study shows that 9.0% of 8th graders and 37.4% of 12th graders drank alcohol in the past 30 days (Johnston et al. 2014). This common behavior is especially concerning given its adverse effects on adolescent development (Brown et al. 2008). Adolescent alcohol use is associated with worse neurocognitive functioning (Brown et al. 2000), substance disorders, risky sex, delinquency, mental health problems, and poor educational outcomes during adolescence and into early adulthood (Wells, Horwood and Fergusson 2004). It, therefore, is imperative to understand the factors that protect against or increase the risk of adolescent alcohol use.

Studies on adolescent alcohol use primarily focus on individual, peer, or family influences. But research increasingly investigates the contextual determinants of alcohol use (Bryden et al. 2013). In particular, the neighborhood is a salient context for youth that is associated with various outcomes related to adolescent development and wellbeing (Gephart 1997; Leventhal and Brooks-Gunn 2000; Leventhal, Dupéré and Brooks-Gunn 2009; Sampson and Morenoff 1997), including alcohol consumption (Maimon and Browning 2012; Snedker and Herting 2008; Snedker, Herting and Walton 2009). In this study, we focus on one structural feature of the neighborhood context—immigrant concentration—and examine its effect on adolescent alcohol use. Specifically, we consider two ways that the neighborhood context exposes youth to immigrant concentration. First, we integrate social disorganization (Kornhauser 1978; Shaw and McKay 1969) and ethnic enclave approaches (Martinez, Lee and Nielsen 2004; Portes and Zhou 1993) to explain why residing *within* a neighborhood with a high concentration of immigrants might protect against adolescent alcohol use. Second, we propose that adolescents are influenced by the collection of neighborhoods to which co-residents are exposed as they engage in routine activities *beyond* the neighborhood where they live (self-cite; Browning and Soller 2014; Browning, Soller and Jackson 2015; Kwan et al. 2008). Specifically, we expand on social disorganization accounts to explain how diversity in the immigrant concentration characterizing neighborhoods away from home

that residents visit may be a source of sociospatial heterogeneity that weakens the beneficial social ties and shared cultural orientations characteristic of enclave communities, and thereby increases the likelihood of adolescent alcohol use.

Ethnic Heterogeneity, Immigrant Concentration, and Adolescent Alcohol Use

Social disorganization theory (Shaw and McKay 1969) has occupied a prominent position among macrolevel theories of crime and deviance for decades. Disorganization theory emphasizes how neighborhood-level poverty, residential instability, and ethnic heterogeneity affect the process by which communities come together to achieve shared goals—principally, the informal social control of public space. Of these three central structural characteristics, poverty receives the lion's share of research attention and exhibits the most consistent and pronounced associations with higher crime and delinquency (Brooks-Gunn, Duncan and Aber 1997; Peterson and Krivo 2010). This structural feature also is the focus of several studies examining neighborhood effects on adolescent alcohol use. But unlike much of the research on crime, the associations between neighborhood socioeconomic disadvantage and adolescent alcohol use are inconsistent across studies (Bryden et al. 2013; Jackson et al. 2014). Several multilevel analyses—which assess neighborhood effects net of individual-level factors—find no (Ennett et al. 2008; Fagan et al. 2007; Huckle et al. 2008; Rowland et al. 2014) or even negative associations between neighborhood disadvantage and adolescent alcohol use (Maimon and Browning 2012; Snedker and Herting 2008; Snedker et al. 2009). Residential instability also is linked to various problem behaviors, although evidence in support of the criminogenic role of population turnover is less consistent (Hipp, Tita and Greenbaum 2009; Morenoff and Sampson 1997; Sampson, Morenoff and Gannon-Rowley 2002), with some multilevel studies finding no association with adolescent alcohol use (Kulis et al. 2007; Musick, Seltzer and Schwartz 2008; Snedker et al. 2009).

Ethnic Heterogeneity

The third key structural characteristic emphasized in the social disorganization model—ethnic heterogeneity—receives comparatively less attention in macro- and multilevel models of health and problem behaviors, and exhibits the most equivocal findings (Sampson et al. 2002). As articulated by Shaw and McKay (1969) and later elaborated by authors such as Kornhauser (1978), ethnic heterogeneity—which refers to a high level of neighborhood diversity by race, ethnicity, and nativity—should decrease the capacity of residents to recognize and implement shared values. For example, Shaw and McKay's original study site—early 20th century Chicago—was characterized by unprecedented rates of immigration and the ongoing migration of African Americans from the southern United States. Although immigrant and migrant subcultures shared the value of a crime-free environment, linguistic differences and other superficial distinctions obscured common objectives. The resulting distrust and attenuation of informal social control orientations were hypothesized to increase the prevalence of delinquency and crime in these communities (Shaw and McKay 1969; Suttles 1968).

Shaw and McKay's (1969) early empirical work supports the hypothesis of a positive association between ethnic heterogeneity and problem behaviors. More recent studies also find higher crime in more racially and ethnically heterogeneous neighborhoods (Sampson and Grove 1989; Hipp 2007). But some measures of ethnic heterogeneity focus more directly on the prevalence of immigrants within contemporary urban communities and exhibit mixed findings regarding the connection with crime and delinquency (Feldmeyer 2009; Sampson, Morenoff and Earls 1999; Sampson et al. 1997).

Immigrant Concentration

The dominance of Latin American countries—particularly Mexico—as sources of recent immigration to the United States led to significant overlap in the concentration of Latino and foreign-born residents within many large urban areas (e.g., Chicago, Miami, Los Angeles). This led researchers to use a combined measure of Latino and foreign-born concentration at the neighborhood level as indicative of ethnic heterogeneity, with the expectation that higher levels of such concentration will increase the prevalence of problem behaviors (Feldmeyer 2009; Sampson et al. 1999). For instance, in analyses of Chicago, Sampson and colleagues (1997) examined a combined measure of the percentage Latino and foreign-born residents assuming communities with greater concentrations of Latinos and immigrants are characterized by higher levels of ethnic and linguistic heterogeneity, and corresponding deficits in social capital and collective efficacy (i.e., the level of mutual trust and collective willingness to intervene on behalf of the public good). They found that neighborhoods with greater immigrant concentration have lower collective efficacy and more violent victimization. Frank, Cerdá, and Rendón's (2007) multilevel study using data from the Los Angeles Family and Neighborhood Survey (L.A. FANS) also shows that adolescents who live in neighborhoods with above-county levels of Latino concentration engage in more delinquent behaviors.

Although some research suggests that higher neighborhood immigrant concentration is associated with more crime (Sampson et al. 1997) and delinquency (Frank et al. 2007), other studies find no (Alaniz et al. 1998) or even negative associations (Ouimet 2000) with adolescent delinquency. Importantly, some findings suggest that immigrant concentration may *protect* against adolescent alcohol use and alcohol use disorders (Kim and McCarthy 2006; Molina, Alegría and Chen 2012). These disparate findings challenge the social disorganization assumption that greater immigrant concentration produces an increase in diversity and associated levels of crime and other problems. Instead, immigrant concentration may be indicative of ethnic group cohesion, which enhances a community's capacity for the informal social control of youth. Ultimately, this is an empirical question that hinges on a particular place under consideration, and the operationalization of ethnic difference.

We argue that, in many contemporary US cities, areas characterized by high levels of immigrant concentration are increasingly dominated by Latino residents. For instance, highly immigrant concentrated neighborhoods in Chicago are overwhelmingly Latino, particularly of Mexican origin. A similar pattern is observed for foreign-born communities in Los Angeles (LA), our study site. In census tracts in LA County, Latino and Mexican

immigrants, on average, comprise 54% and 38% of the foreign-born population, respectively. In our analytic sample (N=65 tracts), these figures are even higher. Thus, contemporary immigrant concentrated communities in US cities like Los Angeles may reflect cohesive enclave-like settings instead of the heterogeneous neighborhoods characteristic of early 20th century urban areas. Although early disorganization theory hypothesized that racial and ethnic diversity within communities likely increases problem behaviors, it also acknowledged that *cohesive* immigrant ethnic groups may effectively control delinquency (Kornhauser 1978).

We do not argue that protective enclave effects are unique to Latinos or Mexicans, but rather we propose that high immigrant concentration may create enclave-like settings that benefit youth. Moreover, it is possible that youth of different races/ethnicities similarly benefit from exposure to the same enclave normative environment. We, therefore, propose that communities with high concentrations of immigrants exhibit *lower* levels of delinquency, including alcohol use, because they maintain high levels of cohesion and the associated capacity to regulate local youth behavior. The now extensive literature on ethnic enclaves sheds light on how immigrant concentration may protect against adverse outcomes overall, and adolescent alcohol use in particular.

Integrating Disorganization and Ethnic Enclave Approaches

Immigrant Concentration within the Residential Neighborhood—The literature on ethnic enclaves emphasizes the protective effects of immigrant concentration for various outcomes. According to this approach, ethnic enclaves—as identified by the residential concentration of a particular ethnic group (as opposed to the concentration of ethnic businesses in a community [Portes and Jensen 1989])—may be characterized by high levels of social capital, including more extensive social ties and shared norms (Martinez et al. 2004). Enclave-based social networks may link immigrants with employment, educational, and other beneficial institutions that are inaccessible to those residing in other communities (Portes and Zhou 1993). Importantly, strong social bonds also may increase neighborhood levels of informal social control (Morenoff, Sampson and Raudenbush 2001).

Through attachments to conventional institutions as well as high levels of social capital, cohesion, and associated informal social control, immigrant concentrated communities may produce beneficial outcomes for residents despite their typical socioeconomic disadvantage, which early social disorganization approaches and segmented assimilation theories propose would otherwise increase the risk of problem behaviors (Martinez et al. 2004; Portes and Zhou 1993; Shaw and McKay 1969). For example, research suggests that immigrant concentrated communities foster economic mobility (Portes and Shafer 2007), improve health outcomes (Franzini et al. 2001), and reduce crime (Martinez et al. 2004; Shihadeh and Barranco 2010) and delinquency (Kim and McCarthy 2006; Maimon and Browning 2010; Molina et al. 2012). Moreover, research also suggests that immigrant concentration may protect against alcohol-related problem behaviors. A multilevel study of a nationally-representative sample of adults found that for Latinos, greater residential neighborhood immigrant concentration—captured by a combined measure of percent Latino and percent immigrant—is associated with a lower individual likelihood of having an alcohol use

disorder in the past year (Molina et al. 2012). Kimbro's (2009) multilevel analysis of L.A. FANS data also shows that Latino adults residing in highly immigrant concentrated neighborhoods are less likely to binge drink. Importantly, Kimbro found that neighborhood immigrant concentration protects against binge drinking but not smoking. She concludes that problematic alcohol use may be uniquely sensitive to contextual influences compared to other health-risk behaviors. Finally, Kim and McCarthy (2006) also employed a multilevel analysis in their study of California schools. They found that Asian students attending schools located in neighborhoods with high concentrations of Asian immigrants exhibit a lower likelihood of alcohol use in the past 30 days net of individual and school characteristics. They also found that Asian students are less likely to use alcohol when they attend Latino-majority schools, which tend to be located in neighborhoods with high percentages of Latino immigrants. This latter finding suggests that adolescents may benefit from immigrant concentration even if their ethnicity is different from that of the predominant immigrant group. We therefore expect that in the context of our study area—Los Angeles—higher levels of immigrant concentration are associated with less adolescent alcohol use net of individual race/ethnicity. But neighborhoods beyond the residential environment also may influence alcohol use. Thus, we investigate another source of heterogeneity that potentially modifies the association between residential neighborhood immigrant concentration and adolescent alcohol use.

Immigrant Concentration beyond the Residential Neighborhood—We propose that normative orientations, social capital, and attachments to institutions are influenced not only by the immigrant concentration of the *residential* neighborhood but also by that of the neighborhoods that residents visit *beyond* their home environment (hereafter, “non-home” neighborhoods) as they engage in routine activities, such as work and school. Non-home neighborhoods provide residents opportunities to be exposed to a variety of normative orientations, levels of social capital, or types of institutions that are associated with *varying* levels of immigrant concentration. High levels of immigrant concentration in the home neighborhood may promote similarity among residents along these three factors in terms of pro-social norms, high social capital, and strong ties to mainstream institutions, which we argue provide social control benefits. But exposures to conditions in non-home neighborhoods may strengthen or disrupt these effects of cohesion. In particular, the extent to which residents obtain the benefits of shared norms and overlapping enclave-based social capital or ties to institutions may depend on whether collectively they are exposed to neighborhoods with more homogenous or diverse levels of immigrant concentration when they travel beyond their home environment. We focus on this possibility by examining a factor absent from the enclave literature—neighborhood-level diversity in non-home immigrant concentration.

Residents' exposures to non-home contexts are homogenous to the extent that individuals and their neighbors visit neighborhoods beyond the residential environment with comparable levels of immigrant concentration. When neighborhood residents experience considerable homogeneity in immigrant concentration in the non-home communities they visit, they likely are exposed to shared normative orientations beyond those evident in their home environment. Accordingly, aggregate homogeneity of non-home immigrant concentration

may reinforce normative orientations present within residential neighborhoods and thereby strengthen group cohesion and the potential for the informal social control of neighborhood youth. For instance, a person might be more likely to intervene to control drinking among neighborhood youth when he or she spends his or her non-residential time in neighborhoods with normative orientations that are similar to those found in the places where his or her neighbors spend time. Thus, immigrant concentrated neighborhoods that also have homogeneity among residents' non-home exposures to immigrant concentration likely exhibit *more* cohesion and *stronger* social control than comparable neighborhoods with substantial diversity in non-home immigrant concentration. Moreover, homogeneity among residents' non-home exposures to immigrant concentration may reinforce residents' social capital within the neighborhood as well as connections to conventional institutions—such as employment, education, and family—especially those that are promoted by the ethnic solidarity present within immigrant enclaves. Stronger attachments to these institutions, in turn, may discourage problem behaviors including adolescent alcohol use (Wilson 1996).

While some communities share homogenous non-home exposures to immigrant concentration, others are characterized by quite diverse non-home exposures. Diversity of non-home exposures occurs when some residents travel to highly immigrant concentrated neighborhoods while others visit non-home neighborhoods with relatively fewer immigrants. The aggregate level of non-home exposure diversity among neighborhood residents thus may be understood as an additional source of sociospatial heterogeneity to the extent that cohesion is undermined when enclave residents experience less consistent reinforcement of social ties and normative orientations in their daily exposures. Consistent with social disorganization theory (Shaw and McKay 1969; Kornhauser 1978), undermined cohesion in turn may complicate a community's capacity for the effective informal social control of youth. For instance, residents may have confidence that they share norms with their neighbors to the extent that the level of immigrant concentration in their mutual home neighborhood promotes cohesion. But residents will have less confidence that norms are shared among their neighbors if collectively they visit other neighborhoods with diverse levels of immigrant concentration. Lacking this confidence, residents will be reluctant to publicly promote expectations for youth's avoidance of alcohol use as well as other behaviors that may serve as precursors to drinking, such as hanging out and engaging in unstructured activities (Osgood and Anderson 2004). In this way, the diversity in immigrant concentration among the collection of residents' non-home exposures may weaken the informal social control benefits of immigrant enclaves. In particular, we hypothesize that the negative association between immigrant concentration and adolescent alcohol use is attenuated by greater aggregate diversity of non-home immigrant concentration.

One specific mechanism through which aggregate diversity of non-home immigrant concentration may diminish the protective effect of residential immigrant concentration on adolescent alcohol use is through undermining social organizational processes thought to enhance a community's capacity for the informal social control of youth. Extensions of social disorganization theory propose that such social organizational processes link structural features of the neighborhood to individual-level outcomes (Sampson et al. 2002; Sampson et al. 1997). One such organizational process is collective efficacy, which refers to social cohesion and trust among neighbors and their willingness to intervene on behalf of the

public good, namely, their commitment to the informal social control of youth (Sampson et al. 1997). A second such process, intergenerational closure, refers to connections between neighborhood parents and children, and parents' collective supervision and support of local youth (Coleman 1990; Sampson et al. 1999). Importantly, research suggests both collective efficacy and intergenerational closure are influenced by structural features of the neighborhood (Sampson et al. 1997; Sampson et al. 1999). Moreover, research suggests that collective efficacy and intergenerational closure protect against adolescent delinquency (Browning et al. 2008; Maimon and Browning 2010), although some studies fail to find an association with adolescent alcohol use (Ennett et al. 2008; Maimon and Browning 2012). We propose that as a sociospatial source of heterogeneity that undermines neighborhood cohesion shared normative orientations, aggregate diversity of non-home immigrant concentration disrupts social organizational processes oriented toward the informal social control of youth. Accordingly, we examine whether aggregate diversity of non-home immigrant concentration attenuates the protective effect of residential immigrant concentration through weakened collective efficacy or intergenerational closure.

Current Study

We propose that immigrant concentration within and beyond the residential neighborhood influences adolescent alcohol use. Specifically, we propose that neighborhoods where immigrants are more concentrated are characterized by higher levels of social capital, cohesion, and attachments to conventional institutions, and related informal social control. These features help neighborhoods protect against problem behaviors. Therefore, we hypothesize that greater immigrant concentration *within* adolescents' residential neighborhoods is associated with a lower chance of adolescent alcohol use (H1).

We also propose that neighborhood residents' collective exposures to neighborhoods *beyond* the residential neighborhood weaken attachments to conventional institutions, normative orientations, group cohesion, and informal social controls on youth to the extent that these non-home contexts are characterized by diverse levels of immigrant concentration. Accordingly, we argue that aggregate diversity of immigrant concentration in residents' non-home exposures weakens the informal social control benefits of immigrant enclaves. Specifically, we hypothesize that greater aggregate diversity of *non-home* immigrant concentration attenuates the negative association between *residential* immigrant concentration and adolescent alcohol use (H2).

To further investigate one potential mechanism underlying hypothesis H2, we examine whether the differential effect of residential neighborhood immigrant concentration across levels of the aggregate diversity of non-home immigrant concentration is accounted for by neighborhood social organizational processes related to the informal social control of youth. We hypothesize that the attenuating influence of aggregate diversity of non-home immigrant concentration on the protective effect of residential immigrant concentration will no longer be linked to an increased likelihood of adolescent alcohol use after accounting for lower levels of collective efficacy or intergenerational closure (H3).

We expect that the associations specified in our three hypotheses will persist net of demographic characteristics (i.e., age, sex, race/ethnicity) as well as the following individual and household characteristics that prior research suggests are associated with adolescent alcohol use or related outcomes: socioeconomic status (Hanson and Chen 2007), household structure (Duncan et al. 2002), the parent-child relationship (Simmons et al. 1991), impulsivity (Stautz and Cooper 2013), cognitive ability (Molina and Pelham), and English language preference (Hyeouk, Lahiff and Guterman 2003; Marsiglia and Waller 2002; Kimbro 2009).

We also expect that our hypothesized associations will persist net of differences in household exposures to the residential and non-home neighborhoods. Specifically, we control for residential mobility to account for the possibility that salience of the neighborhood context depends on the amount of time one has resided in the neighborhood. We control for the household number of exposures to non-home neighborhoods to account for the possibility that the significance of any one location in a household's activity space—which may be thought of as the collection of locations where household members engage in routine activities as well as the location where the household resides—is reduced to the extent that it must compete with the influences from exposures to other locations. To account for the degree to which a household's non-home activity space reinforces the cultural norms of immigrant enclaves, we also control for the extent to which the concentration of immigrants in the areas where household members go away from home is different from that of other households in the neighborhood.¹

We further expect that our hypothesized associations will persist net of two structural characteristics of the neighborhood that social disorganization theory proposes impede informal social control—concentrated disadvantage and residential stability (Kornhauser 1978; Shaw and McKay 1969). Finally, because homogeneity among residents' exposures to non-home immigrant concentration may be confounded with residents visiting the same non-home places, we control for the geographic overlap in residents' exposures to locations outside of the residential neighborhood.

Method

Data

We test our hypotheses using multilevel analyses of data from the Los Angeles Family and Neighborhood Survey (L.A. FANS), which include detailed geographic information regarding respondents' routine activities, and from the 2000 census. L.A. FANS collected data for households within a stratified, random sample of 65 census tracts in Los Angeles County, California. High-poverty tracts were oversampled. Households were sampled within each tract, and within each household a randomly selected adult was interviewed. If children under age 17 lived in the household, the primary caregiver, a randomly selected child, and one of the child's siblings also were interviewed. Because respondents' neighborhood

¹A household whose activity space beyond the residential neighborhood is characterized by low immigrant concentration compared to that of other neighborhood households may be less oriented toward the cultural norms associated with immigrant enclaves. Conversely, a non-home activity space characterized by relatively high immigrant concentration may reinforce the cultural norms of immigrant enclaves.

residence can be identified, these data are well suited for multilevel modeling. An additional advantage is the availability of geographic coordinates not only for the home location, but also for respondents' non-home, routine activities.²

We derive the dependent and individual-level independent variables from the first wave of the L.A. FANS data, which were collected between 2000 and 2002.³ The wave 1 dependent variable captures alcohol use in the past 30 days. It is likely that conditions captured by the wave 1 independent variables were in place prior to alcohol use even though these variables are measured contemporaneously with the outcome.

Neighborhood variables are based on 2000 census data. Because the L.A. FANS sampling design is based on 1990 tracts, we applied the 2000 data to the 1990 tract boundaries (for more information on this crosswalk procedure, see Peterson et al. 2007). We use tracts to approximate neighborhoods because this approach is consistent with the L.A. FANS sampling strategy and prior research. We acknowledge that using such administrative boundaries has limitations (Hipp 2007), but the persistent effects of tract characteristics on various outcomes suggest that this unit is a reasonable approximation of neighborhoods (Ellis et al. 2004; Peterson and Krivo 2005).

Sample

We limit our sample to adolescents ages 12 to 17 (N=889). This sample includes both the randomly selected child in a household and one of his or her siblings, if present. Respondents are excluded from the sample if they have missing data on the dependent or on any independent variables. The resulting sample size includes 793 adolescents nested within a total of 65 neighborhoods. Approximately 51% of sampled adolescents are male and their average age is 14.5 years. Approximately 17% of sampled adolescents are foreign-born Latinos, 42% are US-born Latinos, 11% are non-Latino blacks, and the remaining 30% identify as non-Latino white or another race/ethnicity.

Measures

Descriptive statistics for individual/household- and neighborhood-level measures are listed in Table 1.

Adolescent Alcohol Use—The adolescents in the sample were asked how many days in the past 30 they consumed alcohol. Approximately 86.5% of the adolescents reported no alcohol use in the past 30 days. Of the 13.5% who reported alcohol use in the past 30 days, most reported consuming alcohol fewer than 3 days. Given this skewed distribution and consistent with prior research (Maimon and Browning 2012), we use a dichotomous indicator of any alcohol use in the past 30 days. To test the robustness of our findings, we

²L.A. FANS location and other sensitive data are restricted-use and can be accessed and reported only in accordance with the confidentiality agreement made with RAND. Under this agreement, we are prohibited from reporting information on specific geographic locations, individual cases, and cross-tabulations identifying fewer than 10% of sampled cases.

³Although L.A. FANS conducted a wave 2 in 2006–2008, we use wave 1 data because they were collected more proximately to our neighborhood-level measures capturing structural characteristics (e.g., immigrant concentration), which are based on 2000 census data. Neighborhood conditions in the past two years likely are better predictors of alcohol use than those six to eight years prior to the 2006–2008 data.

replicate final models using a measure of the number of days an adolescent used alcohol in the past 30. Although not shown, findings from count models are discussed under “Results: Additional Considerations.”

Residential Neighborhood Immigrant Concentration—Immigrant concentration in the residential neighborhood is measured by the average of the standardized percentages of the tract population who is foreign born (mean=40.22, standard deviation=15.35) and of the population ages five and older who does not speak English well or at all (mean=20.46, standard deviation=13.44) ($\alpha=.92$).

Aggregate Diversity of Non-Home Immigrant Concentration—To capture aggregate diversity in non-home immigrant concentration, we first identify the routine activity locations nominated by the L.A. FANS primary caregivers including those reported on behalf of the randomly selected child and his or her sibling, if present. We consider the locations of the caregiver as well as of the children because we are interested in measuring exposures among potential norm enforcers in the neighborhood. Activities at these locations include grocery shopping, healthcare, school, employment, attendance at religious services, and childcare. To capture exposures to non-home neighborhoods, we omit locations within the residential tract. We also exclude locations outside of California because these remote places are unlikely to be part of daily routines, and we only consider locations with valid latitude and longitude coordinates. We then identify the 2000 census block group corresponding to each nominated activity location using ArcGIS 9.2.

Next, we calculate the immigrant concentration x of each unique block group b . Immigrant concentration is measured by the average of the standardized percentages of the block group population who is foreign born and of the population ages five and older who does not speak English well or at all ($\alpha=.91$).⁴ We then calculate the mean immigrant concentration of all unique block groups nominated by household i in neighborhood j

($HhldNhImCon_{ij} = \frac{\sum_{b=1}^B x_{bij}}{B_{ij}}$). Finally, we compute the standard deviation of the household non-home immigrant concentration scores within the adolescent’s residential neighborhood

($AgDivNhImCon_j = \sqrt{\frac{1}{I_j} \sum_{i=1}^{I_j} (HhldNhImCon_{ij})^2}$) to capture aggregate diversity of non-home immigrant concentration.

Collective Efficacy—The collective efficacy measure combines two subscales—social cohesion and informal social control. The social cohesion scale includes the following five items: (1) “People around here are willing to help their neighbors;” (2) “This is a close-knit neighborhood;” (3) “People in this neighborhood can be trusted;” (4) “People in this neighborhood generally don’t get along with each other” (reverse-coded) and (5) “People in this neighborhood do not share the same values” (reverse-coded). The informal social

⁴Although the percentage of the population who is foreign-born and Latino or who is foreign-born and Mexican are available at the tract-level of aggregation, the Census does not publish these figures at the block-group level, which we use to construct the household and neighborhood non-home exposure measures. Thus, we use the overall percentage foreign-born in our measure of immigrant concentration. Nonetheless, in our analytic sample of tracts (N=65), the correlation of the overall percentage foreign-born with the percentage of Latinos who are foreign-born is .75, and with the percentage Mexicans who are foreign born is .54.

control scale includes three items and captures whether neighbors would intervene if (1) “children were skipping school and hanging out on a street corner,” (2) “children were spray-painting graffiti on a local building,” and (3) children were “showing disrespect to an adult.” Responses to these items capture the extent to which the respondent agrees with each statement and they range from strongly disagree (“1”) to strongly agree (“5”). Higher values indicate more collective efficacy. The collective efficacy measure comprises the level-three empirical Bayes (EB)-adjusted intercepts derived from a three-level item response theory (IRT) model of the scale items nested within individuals nested within neighborhoods (multilevel reliability=.90) (Sampson et al. 1997).

Intergenerational Closure—The intergenerational closure measure captures bonds between adults and children within the neighborhood (Sampson et al. 1999) and is based on the following five items: (1) “Parents in this neighborhood know their children’s friends;” (2) “Adults in this neighborhood know who the local children are;” (3) “There are adults in this neighborhood that children can look up to;” (4) “Parents in this neighborhood generally know each other;” and (5) “You can count on adults in this neighborhood to watch out that children are safe and don’t get in trouble.” Responses to these items range from strongly disagree (“1”) to strongly agree (“5”). Higher values indicate more intergenerational closure. The intergenerational closure measure comprises the level-three EB-adjusted intercepts derived from a three-level IRT model (multilevel reliability=.85).

Parent-Child Relationship—We control for the parent-child relationship with an index of adolescents’ responses to six questions. Adolescents rated whether they “think highly of,” “want to be like,” or “enjoy spending time with” their mothers or fathers. Each dimension is coded as “0” if they disagree, “1” if they are not sure, and “2” if they agree. For each dimension, we use the highest score reported for either parent. The parent-child relationship index equals the mean of these standardized scores. Higher values on this index indicate greater parental attachment ($\alpha=.64$).

Impulsivity—Our measure of impulsivity is based on the primary caregiver’s responses to items on the Behavior Problems Index about her or his child’s behavior (Peterson and Zill 1986). The primary care giver indicated whether the child never (“0”), sometimes (“1”), or often (“2”) has: (1) been nervous or high strung; (2) had trouble paying attention; (3) been easily confused or in a fog; (4) been impulsive; (5) been restless; or (6) demanded lots of attention. The impulsivity measure equals the mean of these six standardized scores. Higher values on this scale indicate greater impulsivity ($\alpha=.77$).

Cognitive Ability—Cognitive ability is measured using the mean of the adolescent’s reading and mathematical reasoning standardized scores on the Woodcock-Johnson Test of Achievement ($\alpha=.84$) (Woodcock, Johnson and Mathner 1990).

Household Non-home Immigrant Concentration—We group-mean center the *household non-home immigrant concentration* score previously described to capture the level of this measure *relative* to that of other neighborhood households

$$(\text{RelHhldNhImCon}_{ij} = \text{HhldNhImCon}_{ij} - \overline{\text{HhldNhImCon}_{.j}})$$
. Three households did not

nominate block groups outside of the residential neighborhood for any activity location. For these households, the relative non-home immigrant concentration score is set to zero (i.e., the neighborhood mean).

Concentrated Disadvantage—At the neighborhood level we control for concentrated disadvantage, which is computed as the weighted least-squares scores from a factor analysis of six items (Johnson and Wichern 2002). Components of this index capture the prevalence of poverty, female-headed households, joblessness among the population ages 16 to 64, employment in the secondary labor sector, employment in managerial or professional occupations (reverse coded), and college attainment among the population ages 25 and older (reverse coded) ($\alpha=.92$).

Aggregate Overlap of Non-home Geographic Exposures—Also at the neighborhood level we control for the aggregate overlap of non-home geographic exposures. To calculate this measure we first create a two-mode network for each neighborhood j based on the routine activity location data previously described. Each two-mode network consists of households residing in a given tract (I_j) and the set of unique block groups B_j nominated by those households. Within the neighborhood-network j , a tie (bi) is observed if household i nominated block group b . The aggregate overlap of non-home geographic exposures measure captures the number of ties within a network standardized by the number of

possible ties ($AgOvNhGeoExp_j = \frac{\sum_{b \in B_j} b_{i,j}}{B_j \times I_j}$). Thus, this measure equals 1 if there is complete overlap in geographic non-home contexts where households in the neighborhood go, that is, if all households are tied to all block groups within the network (Borgatti and Everett 1997).

Other Control Variables—At the individual level we control for several additional variables that measure key adolescent and family characteristics. *Age* is measured in years. We include a dummy variable for *male* sex. The measure of *race/ethnicity* consists of three dummy variables specifying whether the respondent is foreign-born Latino, US-born Latino, or non-Latino black (non-Latino white/other is the reference category). Socioeconomic status is captured with a measure indicating the highest level of education achieved by either parent. Consistent with prior measurement of education using L.A.FANS data (Krivov et al. 2013), *parents' education* is operationalized as a set of dummy variables that indicate whether the adolescent's parent completed high school, some college, or college and beyond (less than high school is the reference category). We capture *household structure* with a dummy variable for whether the adolescent lives with both parents. We include a measure of *English language preference* that is a variable is coded "1" if the child completed the L.A. FANS questionnaire in English and "0" if he or she completed it in Spanish (the questionnaire was not offered in other languages). *Residential mobility* measured with a variable coded as "1" if either parent changed residence within the past two years and "0" otherwise. The number of non-home nominated block groups B for household i residing in neighborhood j (B_{ij}) captures the degree of *household non-home geographic exposures*. At the neighborhood level we also control for *residential instability*, which is measured with the percentage of the population ages five and older who moved between 1995 and 2000.

Analytic Strategy

All models are estimated in HLM 7, and all independent variables are grand-mean centered except for relative household non-home immigrant concentration, which is group-mean centered as previously described. The models are two-level—with individuals nested within neighborhoods—logistic regressions with random intercepts and robust standard errors.⁵ All models control for the following adolescent and household characteristics at level one: age, male sex, race/ethnicity, parents' education, parent-child relationship, household structure, impulsivity, cognitive ability, English language preference, and residential mobility. Model 1 is a baseline model that includes only these level-one covariates. Additionally, to test whether residential neighborhood immigrant concentration protects against adolescent alcohol use (i.e., H1), immigrant concentration is included at level two. In Model 2 we add the measure of aggregate diversity of non-home immigrant concentration at level two to assess the independent effect of this variable on adolescent alcohol use. In Model 3, we test whether the effect of aggregate diversity of non-home immigrant concentration moderates the protective effect of immigrant concentration (i.e., H2) by adding an interaction between these two variables at level two. To further test this interactive effect, in Model 4 we add the controls for the number of household non-home geographic exposures and relative household non-home immigrant concentration at level one, and the remaining neighborhood control variables at level two.

Level one of Model 4 is as follows:

$$\eta_{ij} = \beta_{0j} + \sum_{p=1}^P \beta_{pj} X_{pij}.$$

Here, β_{pj} are the coefficients on a series of p covariates X , which represent the aforementioned individual and household characteristics, and β_{0j} is the intercept. At level two, β_{0j} is modeled as follows:

$$\begin{aligned} \beta_{0j} = & \gamma_{00} + \gamma_{01} \text{ResImCon}_j \\ & + \gamma_{02} \text{AgDivNhImCon}_j \\ & + \gamma_{03} (\text{ResImCon}_j * \text{AgDivNhImCon}_j) \\ & + \sum_{s=4}^S \gamma_{0s} W_{sj} + \mu_{0j}, \quad \mu \sim N(0, \tau_{00}), \end{aligned}$$

where γ_{00} is the grand mean, γ_{01} is the main effect of residential immigrant concentration, γ_{02} is the main effect of aggregate diversity of non-home immigrant concentration, γ_{03} is the interactive effect of these two variables, γ_{0s} are the coefficients on the remaining neighborhood-level control variables—concentrated disadvantage, residential instability, and aggregate overlap of geographic exposures—and μ_{0j} is the random effect.

⁵Three-level models of individuals nested within households nested within neighborhoods produce equivalent results.

Finally, in Models 5 and 6 we test whether social organizational processes mediate the combined effect of residential immigrant concentration and aggregate diversity of non-home immigrant concentration on adolescent alcohol use (i.e., H3). These models build off of Model 4 and add one of the two social organizational processes measures—collective efficacy or intergenerational closure—at level two with coefficient γ_{07} .

Results

Table 2 presents the results from multilevel logistic regressions testing the hypotheses about the relationships between neighborhood immigrant concentration and adolescent alcohol consumption. The statistical significance on coefficients is assessed with two-tailed tests. The results from an unconditional model show that there is significant variation in adolescent alcohol use between neighborhoods ($\tau_{00}=.32$, $p<.05$).

Residential Neighborhood Immigrant Concentration (H1)

In Model 1, we test our first hypothesis (H1), which predicts a negative association between residential neighborhood immigrant concentration and adolescent alcohol use. We do not find support for hypothesis H1 in this model; immigrant concentration is not significantly associated with the outcome. At the individual level, we find that older adolescents are more likely to use alcohol in the past month. Black adolescents are less likely to drink than those who are white/other. Adolescents with stronger parent-child relationships also are less likely to consume alcohol. None of the other individual-level variables reaches statistical significance at the $p<.05$ level.

Aggregate Diversity of Non-Home Immigrant Concentration

In Model 2, we add aggregate diversity of non-home immigrant concentration at the neighborhood level to see if it exerts an independent effect on adolescent alcohol use. The coefficient on aggregate diversity of non-home immigrant concentration, however, is not significant. But with its inclusion, greater residential neighborhood immigrant concentration is significantly associated with a lower odds of recent alcohol use among adolescents, consistent with hypothesis H1. Age, black race, and the parent-child relationship remain significant.

Moderating Effect on Residential Immigrant Concentration (H2)—In Model 3, we add the interaction between residential neighborhood immigrant concentration and aggregate diversity of non-home immigrant concentration. This interaction effect tests our second hypothesis (H2) that aggregate diversity of non-home immigrant concentration attenuates the protective effect of residential neighborhood immigrant concentration. Consistent with hypothesis H2, we find a positive and significant interaction term suggesting that the negative effect of residential neighborhood immigrant concentration on alcohol use is diminished when aggregate diversity of non-home immigrant concentration is greater. The same individual characteristics are significant as in Model 2, and residential mobility also is linked to a lower odds of adolescent alcohol use in this model.

Finally, in Model 4 we add the remaining individual-level control variables for household non-home geographic exposures and relative household non-home immigrant concentration, and the neighborhood-level control variables for concentrated disadvantage, residential instability, and aggregate overlap of geographic exposures.⁶ None of these additional control variables is significantly associated with adolescent alcohol consumption. The coefficient on the *residential neighborhood immigrant concentration * aggregate diversity of non-home immigrant concentration* interaction term maintains significance supporting hypothesis H2.

Figure 1 shows how the effect of residential neighborhood immigrant concentration on adolescent alcohol use changes as the aggregate diversity of non-home immigrant concentration increases. In this figure, each line represents the predicted probability of consuming alcohol in the past month by residential neighborhood immigrant concentration when aggregate diversity of non-home immigrant concentration is two standard deviations below the mean (black line), one standard deviation below the mean (dotted line), or at the mean (gray line). The predictions are based on Model 4 results when household relative non-home immigrant concentration is held constant at its group means and all other variables are held constant at their grand means. The graph demonstrates that when the aggregate diversity of non-home immigrant concentration is very low (two standard deviations below the mean), greater residential neighborhood immigrant concentration is associated with a lower chance of adolescents consuming alcohol. As the other two lines indicate, this negative slope becomes less steep at moderately low and mean levels of aggregate diversity of non-home immigrant concentration. A test of the significance region shows that when aggregate diversity of non-home immigrant concentration reaches .38 (i.e., .93 standard deviations below the mean), the negative association between immigrant concentration and adolescent alcohol use no longer is statistically significant at the $p < .05$ level. Thus, consistent with hypothesis H2, this finding demonstrates that greater aggregate diversity of non-home immigrant concentration attenuates the protective influence of residential neighborhood immigrant concentration on adolescent drinking. More broadly, this suggests that the protective influence of residential neighborhood immigrant concentration on adolescent alcohol use predicted by the enclave literature is conditional on homogeneity among residents' exposures to immigrant concentrated neighborhoods outside their residential neighborhood.

Mediation by Social Organizational Processes (H3)—Finally, we assess whether neighborhood-level measures of social organizational processes related to the informal social control of youth account for the interactive effect of residential neighborhood

⁶In additional models (results not shown but available upon request), we find that neither the number of days in the past 30 that the primary caregiver drank (mean = 1.72, standard deviation = 4.66) nor whether the primary caregiver binge drank (i.e., had 5 or more drinks on at least 2 occasions) in the past 30 days (mean = .05, standard deviation = .21) is associated with the adolescent alcohol use. Moreover, the other findings persist despite the inclusion of either variable. Alcohol use among peers is another factor that potentially influences adolescent alcohol use (Brenner, Baumeister and Zimmerman 2011), but we are unable to test this effect because L.A. FANS did not ask about peer drinking. We also separately tested for cross-level interactions between residential neighborhood immigrant concentration and each of the level-one non-home exposure measures—household non-home geographic exposures and relative household non-home immigrant concentration—as well as for the interaction between residential neighborhood immigrant concentration and aggregate overlap of geographic exposures. None of these interaction terms reaches statistical significance (results not shown available upon request). This suggests that the negative influence of residential neighborhood immigrant concentration on adolescent alcohol use is not modified by geographic or immigrant concentration exposures at the household level, or by overlap in geographic exposures at the neighborhood level.

immigrant concentration and aggregate diversity of non-home immigrant concentration on adolescent alcohol use (i.e., H3). These results are presented in Table 3. In Models 5 and 6, which include all covariates from Model 4 (coefficients not shown but available upon request), we incorporate measures of collective efficacy and intergenerational closure, respectively. Neither of these neighborhood factors is associated with the outcome. Moreover, the interaction between residential neighborhood immigrant concentration and aggregate diversity of non-home immigrant concentration persists with the inclusion of either social organizational process measure. Thus, we do not find support for hypothesis H3; the combined influences of immigrant concentration within and beyond the residential neighborhood affect adolescent alcohol use in ways not accounted for by our measures of collective efficacy or intergenerational closure.

Additional Considerations

Alternative Dependent Variable—To test the robustness of our findings, we analyze an alternative measure of adolescent alcohol use—a count of the number of days the adolescent used alcohol in the past 30 (mean=.52, standard deviation=2.41)—using multilevel Poisson regressions with robust standard errors and adjusted for overdispersion (results not shown but available upon request). In a model otherwise identical to Model 2, we find a negative effect of immigrant concentration. And in a model otherwise identical to Model 3, we find a negative coefficient on immigrant concentration and a positive coefficient on the *residential neighborhood immigrant concentration*aggregate diversity of non-home immigrant concentration* interaction term. In each instance, however, the coefficient is only marginally significant ($p < .10$, two-tailed test). Nonetheless, in a model otherwise identical to Model 4, the coefficient on the interaction term is positive and marginally significant. Although not as robust, these results are consistent with findings from analyses of the dichotomous outcome supporting hypothesis H2.

Household Non-Home Immigrant Concentration—We find strong evidence that the aggregate diversity of non-home immigrant concentration attenuates the protective influence of immigrant concentration on adolescent alcohol use. Again, this measure focuses on differences among the non-home exposures of neighborhood residents. This measure, therefore, does not consider whether the contexts of non-home exposures are different from the residential neighborhood context. In fact, we find the tract-level mean of *households'* non-home immigrant concentration scores and the residential *neighborhood* immigrant concentration are correlated at .92.⁷ This strong correlation precludes us from including both variables in our models. But the correlation between the average of household non-home immigrant concentration scores and the neighborhood measure of aggregate diversity of non-home immigrant concentration is only .13 after controlling for residential neighborhood immigrant concentration, concentrated disadvantage, and residential instability. This suggests that the effect of aggregate diversity of non-home immigrant concentration on adolescent alcohol use is not simply capturing adolescents' exposures to neighborhoods with

⁷Differences between the two measures could not be assessed because households' non-home scores are based on the distribution of immigrant concentration scores measured at the 2000 block group level, and the residential neighborhood variable is based on immigrant concentration measured using 2000 census data crosswalked to 1990 tract boundaries. To our knowledge, no crosswalk procedure exists for block groups.

lower immigrant concentrations than their residential neighborhoods. Instead, these results suggest that when neighborhood residents lack a common context for non-home activities, the community's capacity to protect against adolescent problem behaviors—in this case, alcohol use—is compromised.

Racial/Ethnic Differences—In supplemental models, we test whether the findings hold for adolescents of different race/ethnicities to assess whether the relationships we identify are limited to Latinos or extend to other groups. To do so, we include two-way interactions between immigrant concentration and the race/ethnicity dummy variables, as well as three-way interactions between immigrant concentration, race/ethnicity dummy variables, and the aggregate diversity of non-home immigrant concentration. Due to the relatively small sample size of level-one observations (N=793 individuals) compared to the number of level two units (N=65 neighborhoods), the coefficients on these interaction terms are unstable. We also estimate a model limiting the sample to only Latino adolescents (N=468 individuals, N=60 neighborhoods) (results not shown but available upon request). Consistent with hypothesis H2, we find that aggregate diversity of non-home immigrant concentration attenuates the protective influence of residential neighborhood immigrant concentration. Future research with a larger sample could further investigate whether adolescents of other race/ethnicities are similarly influenced by residential enclave conditions and collective exposures to non-home contexts.

Discussion

By the end of high school, approximately two-thirds of youth have drunk alcohol (Johnston et al. 2014). Given its widespread use and adverse effects on adolescent development and wellbeing (Brown et al. 2007; Wells et al. 2004), we sought to identify contextual factors that influence the likelihood adolescents will drink alcohol. In particular, we focused on the neighborhood environment because it is a primary context in which youth are embedded. Moreover, the neighborhood environment exposes youth to normative orientations, conventional institutions, adult supervision, and community-level processes that shape adolescent development through social control and socialization (Leventhal et al. 2009; Sampson and Morenoff 1997).

Studies increasingly have examined neighborhood influences on adolescent delinquency, including alcohol use, and often are rooted in the social disorganization tradition (Bryden et al. 2013; Jackson et al. 2014; Leventhal et al. 2009). But one key feature of the neighborhood emphasized in social disorganization theory—ethnic heterogeneity—remains relatively understudied in research on crime and other risk behaviors (Peterson and Krivo 2010). To address this gap in the literature, we focused on one potential source of ethnic heterogeneity—immigration. The role of immigration, particularly from Latin America, in adolescent development is especially important given changing US demographics. Additionally, much of the literature on racial and ethnic disparities focuses on the various disadvantages that blacks and Latinos experience compared to whites. But the growing literature on the immigrant paradox emphasizes that better health and lower crime often are associated with immigration despite socioeconomic disadvantage (Desmond and Kubrin 2009; Lee and Martinez 2006; Peterson and Krivo 2005). Importantly, studies find that being

embedded in a neighborhood with a high concentration of immigrants may benefit adolescent development (Leventhal et al. 2009).

Our study also contributes to the literature on neighborhoods and adolescent development by considering neighborhood contexts beyond the home environment. Previous research on neighborhood effects focuses primarily on the residential neighborhood. But individuals often travel beyond their residential neighborhoods as part of their daily routines and they likely are influenced by these non-home exposures (Browning and Soller 2014; Kwan et al. 2008). Indeed, nascent research suggests that patterns of non-home exposures among residents influence social organizational processes within the neighborhood (self-cite) and adolescent risk behaviors (Browning et al. 2015). Building on these insights, we investigated how immigrant concentration within and beyond residential neighborhood influences an adolescent's likelihood of consuming alcohol in the past 30 days. Specifically, we integrated social disorganization and enclave accounts to explain how higher residential immigrant concentration may reduce the likelihood adolescents will consume alcohol, and how the diversity among residents' exposures to immigrant concentration beyond the residential neighborhood may hinder this protective effect.

Early conceptualizations of social disorganization often assumed ethnic diversity among immigrants within the same community. Accordingly, they proposed that increased immigration reduces a community's capacity to come together to achieve shared goals and consequently leads to more delinquency (Shaw and McKay 1969; Suttles 1968). But current trends in cities like Los Angeles—where Mexican and other Latino immigrants are numerous—suggest that, in some contexts, immigrants residing in the same neighborhood have similar ethnicities or countries of origin. Immigrant groups therefore could be cohesive and consequently effectively control delinquency—a point that early scholars acknowledged (Kornhauser 1978) but that was largely ignored in the social disorganization literature. Research on ethnic enclaves, however, suggests that elevated levels of immigrant concentration foster social ties, attachments to conventional institutions, and shared normative orientations toward adolescent behavior, thereby reducing the likelihood adolescents will engage delinquency (Kim and McCarthy 2006; Maimon and Browning 2010; Martinez et al. 2004; Molina et al. 2012). And research by Kimbro (2009) suggests that immigrant concentration may be particularly salient for alcohol use compared to other health-risk behaviors. Therefore, we hypothesized that adolescents residing in highly immigrant concentrated communities would be less likely to consume alcohol (H1).

Consistent with hypothesis H1, our results from multilevel regressions of L.A. FANS and 2000 census data reveal a negative association between residential neighborhood immigrant concentration and adolescent alcohol use net of various individual and household characteristics. This finding is consistent with the enclave hypothesis, which suggests that the high levels of social capital and shared norms characteristic of ethnic enclaves protect against problem behaviors by strengthening informal social control in the neighborhood. But our results also uncover something not captured by previous research on enclave effects; we find that higher immigrant concentration in the residential neighborhood decreases the likelihood of adolescent alcohol use only when we account for diversity in the immigrant

concentration characterizing residents' exposures to neighborhoods beyond their residential environment.

We proposed that when residents travel to diverse neighborhoods with respect to immigrant concentration, they experience less consistent reinforcement of attachments to conventional institutions, social ties, and shared normative orientations. In short, they introduce a sociospatial source of heterogeneity to their home neighborhoods. This heterogeneity, in turn, may weaken the social control benefits that immigrant concentration within the residential neighborhood otherwise provides. Thus, we expected that greater aggregate diversity of non-home immigrant concentration would attenuate the protective effect of residential neighborhood immigrant concentration on adolescent alcohol use (H2).

Using L.A. FANS's unique geographic data on respondents' routine activities, we created a measure that captures the extent of variation among neighbors' non-home exposures to immigrant concentration, that is, of aggregate diversity of non-home immigrant concentration. We do not find an independent effect of this measure on adolescent alcohol use. Nonetheless, the inclusion of this measure is key to understanding how immigrant concentration affects youth. Once we control for this non-home, sociospatial source of heterogeneity, we find that consistent with hypothesis H1, higher residential neighborhood immigrant concentration is associated with a lower likelihood of adolescent alcohol use. A further examination of this association reveals that this protective effect depends on the level of aggregate diversity of non-home immigrant concentration.

Consistent with hypothesis H2, we find that higher levels of residential immigrant concentration are associated with a decreased likelihood of adolescent alcohol use only at low levels of aggregate diversity of non-home immigrant concentration. As aggregate diversity of non-home immigrant concentration increases, the protective effect of residential immigrant concentration diminishes. We find that this moderating effect persists even after controlling for neighborhood concentrated disadvantage, residential instability, and geographic overlap in residents' non-home exposures. These robust findings suggest that the social control benefits of highly immigrant concentrated communities—that is, of enclave-like settings—may depend upon sociospatial exposures to neighborhoods beyond the shared residential environment.

Given the support we found for hypothesis H2, we investigated a potential mechanism through which residential neighborhood immigrant concentration and aggregate diversity of non-home immigrant concentration influence adolescent alcohol use. We proposed that immigrant concentrated communities are characterized by high levels of cohesion and informal social control, both of which reduce the likelihood of adolescent alcohol use. Moreover, we argued that the heterogeneity introduced to the neighborhood by aggregate diversity of non-home immigrant concentration undermines these social organizational processes. We therefore tested two potential mediators related to the informal social control of youth (H3)—collective efficacy (Sampson et al. 1997) and intergenerational closure (Coleman 1990; Sampson et al. 1999).

Inconsistent with hypothesis H3, neither collective efficacy nor intergenerational closure significantly predicted the outcome nor accounted for the interactive effect of residential neighborhood immigrant concentration and aggregate diversity of non-home immigrant concentration on adolescent alcohol use. Thus, we did not find evidence of mediation. It is possible, however, that the social organizational processes through which immigrant concentration influences youth simply are not captured by our measures of collective efficacy or intergenerational closure. Alternatively, immigrant concentration might influence adolescent alcohol use through prevailing norms or attitudes about drinking within the neighborhood. But one limitation of L.A.FANS is that it did not ask about views towards adolescent drinking. More research is needed to further investigate the mechanisms through which immigrant concentration within and beyond the residential neighborhood influences youth development and wellbeing.

Another limitation of our research is that we do not know if immigrant concentration itself is protective against adolescent alcohol use independent of the ethnic homogeneity of the community. Additionally, we were unable to determine whether the combined effect of residential immigrant concentration and aggregate diversity of non-home immigrant concentration varies across racial and ethnic groups. Models testing whether the combined effect of residential neighborhood immigrant concentration and aggregate diversity of non-home immigrant concentration varies by race/ethnicity produced unstable coefficients on the three-way interaction terms. This is an unfortunate limitation given research by Frank and colleagues (2007), who found that the positive association between residence in a neighborhood with above county-average Latino concentration and health-risk behaviors is pronounced among US born Latino adolescents, but not among black, Asian, or white adolescents. On the other hand, Kim and McCarthy (2006) found that both that Latino-majority schools as well as neighborhoods with high concentrations of Asian immigrants are associated with a lower likelihood of drinking among Asian high school students. Future research with larger samples could investigate whether the combined effects of these sources of ethnic heterogeneity differentially influence youth of different immigrant generations, races, or ethnicities.

Finally, although the L.A.FANS data are unique in that they contain detailed geographic information on the routine activities of a large, neighborhood-based sample of individuals, they were collected almost 15 years ago. Over this time period, adolescent drinking has decreased. But alcohol still remains the most commonly used illicit substance among adolescents (Johnston et al. 2014; Substance Abuse and Mental Health Services Administration 2014). Furthermore, our analyses would be threatened only if the *association* between immigrant concentration and aggregate diversity of non-home immigrant concentration with adolescent alcohol use changed over time. But our theoretical framework is history-specific only inasmuch as it proposes that contemporary US immigration patterns, at least in cities like LA, are homogenous in terms of ethnicity and country of origin. American Community Survey data show that the percentage of foreign-born residents from Latin America has been increasing since the 1960s, with 2009 estimates indicating that Latinos comprise over half of all foreign-born residents in the US, and Mexicans, specifically, comprise almost 30% (Greico 2010; Greico and Trevelyan 2010). Still, future research with comparable routine activity location data could investigate whether immigrant

concentration exerts a similar influence on adolescent alcohol use as immigration and alcohol use patterns evolve.

Conclusions

The strong tradition of neighborhood research rooted in social disorganization theory has led researchers to incorporate measures of immigrant concentration within models of neighborhood effects. But despite ambiguous findings, nuanced efforts to understand the effects of immigrant presence on local well-being—particularly for youth—are lacking. Our analyses suggest that youth may respond in complex but theoretically plausible ways to their structural environment. We find that immigrant concentration in the residential neighborhood protects against adolescent alcohol use—that is, it provides social control benefits characteristic of ethnic enclaves—but only if is reinforced by homogeneity among residents' exposures to immigrant contexts beyond their shared neighborhood. Thus, we find that the character of residents' non-home exposures plays an important role in the informal social control of youth, which has implications for youth development and wellbeing. Future research may benefit from attention to the mechanisms through which neighborhood immigrant concentration—both within and beyond the residential environment—influence adolescent development. More broadly, our findings suggest, that to fully understand how neighborhoods contribute to adolescent development and wellbeing, research should consider how residents are influenced by the various contexts in which they engage in routine activities, and how these influences combine to shape neighborhood social dynamics that affect youthful drinking in particular, and adolescent problem behaviors more generally.

Acknowledgments

This research was supported by a grant from the National Institute on Drug Abuse (5R01DA025415-02). Thanks to Bethany Boettner, Ruth Peterson, Catherine Calder, Brian Soller, Timothy Hawthorne, and William Darnieder for their invaluable support and feedback.

References

- Alaniz ML, Cartmill RS, Parker RN. Immigrants and violence. *Hispanic Journal of Behavioral Sciences*. 1998; 20(2):155–174.
- Blau, PM. *Inequality and Heterogeneity*. New York: The Free Press; 1977.
- Brooks-Gunn, J., Duncan, G., Aber, JL., editors. *Neighborhood poverty, volume 1: Context and consequences for children*. New York: Russell Sage Foundation; 1997.
- Brenner AB, Bauermeister JA, Zimmerman MA. Neighborhood variation in adolescent alcohol use: Examination of socioecological and social disorganization theories. *Journal of Studies on Alcohol and Drugs*. 2011; 72(4):651–659. [PubMed: 21683047]
- Brown SA, Tapert SF, Granholm E, Delis DC. Neurocognitive functioning of adolescents: Effects of protracted alcohol use. *Alcoholism: clinical and experimental research*. 2000; 24(2):164–171.
- Brown SA, McGue M, Maggs J, Schulenberg J, Hingson R, Swartzwelder S, Murphy S. A developmental perspective on alcohol and youths 16 to 20 years of age. *Pediatrics*. 2008; 121(Supplement 4):S290–S310. [PubMed: 18381495]
- Browning CR, Burrington LA, Leventhal T, Brooks-Gunn J. Neighborhood structural inequality, collective efficacy, and sexual risk behavior among urban youth. *Journal of Health and Social Behavior*. 2008; 49(3):269–285. [PubMed: 18771063]
- Browning CR, Soller B. Moving beyond neighborhood: activity spaces and ecological networks as contexts for youth development. *Cityscape*. 2014; 16(1):165. [PubMed: 25105172]

- Browning CR, Soller B, Jackson AL. Neighborhoods and adolescent health-risk behavior: an ecological network approach. *Social Science & Medicine*. 2015; 125:163–172. [PubMed: 25011958]
- Bryden A, Roberts B, Petticrew M, McKee M. A systematic review of the influence of community level social factors on alcohol use. *Health & place*. 2013; 21:70–85. [PubMed: 23454663]
- Bursik RJ. Social disorganization and theories of crime and delinquency. *Criminology*. 1988; 26(4): 677–703.
- Caetano R, Ramisetty-Mikler S, Rodriguez LA. The Hispanic Americans Baseline Alcohol Survey (HABLAS): the association between birthplace, acculturation and alcohol abuse and dependence across Hispanic national groups. *Drug and Alcohol Dependence*. 2009; 99(1):215–221. [PubMed: 18945554]
- Coleman, JS. *Foundations of social theory*. Boston, MA: Harvard University Press; 1990.
- Desmond SA, Kubrin CE. The power of place: Immigrant communities and adolescent violence. *The sociological quarterly*. 2009; 50(4):581–607.
- Duncan SC, Duncan TE, Strycker LA, Chaumeton NR. Relations between youth antisocial and prosocial activities. *Journal of Behavioral Medicine*. 2002; 25(5):425–438. [PubMed: 12442559]
- Ellis M, Wright R, Parks V. Work together, live apart? Geographies of racial and ethnic segregation at home and at work. *Annals of the Association of American Geographers*. 2004; 94(3):620–637.
- Ennett ST, Foshee VA, Bauman KE, Hussong A, Cai L, Reyes HLM, DuRant R. The social ecology of adolescent alcohol misuse. *Child development*. 2008; 79(6):1777–1791. [PubMed: 19037949]
- Fagan AA, Van Horn ML, Hawkins JD, Arthur M. Using community and family risk and protective factors for community-based prevention planning. *Journal of Community Psychology*. 2007; 35(4):535–555.
- Feldmeyer B. Immigration and Violence. *Social Science Research*. 2009; 38(3):717–731. [PubMed: 19856706]
- Frank R, Cerdá M, Rendón M. Barrios and burbs: Residential context and health-risk behaviors among angeleno adolescents. *Journal of Health and Social Behavior*. 2007; 48(3):283–300. [PubMed: 17982869]
- Franzini L, Ribble JC, Keddle AM. Understanding the Hispanic paradox. *Ethnicity & Disease*. 2001; 11:496–518. [PubMed: 11572416]
- Gephart, MA. Neighborhoods and communities as contexts for development. In: Brooks-Gunn, J., Duncan, G.J., J. Laber, J., editors. *Neighborhood poverty*. Vol. 1. New York: Russell Sage Foundation; 1997. p. 1-43.
- Grieco, EM. American Community Survey Briefs. US Census Bureau; 2010. Race and Hispanic origin of the foreign-born population in the United States: 2007.
- Grieco, EM., Trevelyan, EN. American Community Survey Briefs. US Census Bureau; 2010. Place of birth of the foreign-born population: 2009.
- Hahn HC, Lahiff M, Guterman NB. Acculturation and parental attachment in Asian-American adolescents' alcohol use. *Journal of Adolescent Health*. 2003; 33(2):119–129. [PubMed: 12890603]
- Hanson MD, Chen E. Socioeconomic status and health behaviors in adolescence: a review of the literature. *Journal of behavioral medicine*. 2007; 30(3):263–285. [PubMed: 17514418]
- Hipp JR. Block, tract, and levels of aggregation: Neighborhood structure and crime and disorder as a case in point. *American Sociological Review*. 2007; 72(5):659–680.
- Hipp JR, Tita GE, Greenbaum RT. Drive-bys and trade-ups: examining the directionality of the crime and residential instability relationship. *Social Forces*. 2009; 87(4):1778–1812.
- Huckle T, Huakau J, Sweetsur P, Huisman O, Casswell S. Density of alcohol outlets and teenage drinking: living in an alcogenic environment is associated with higher consumption in a metropolitan setting. *Addiction*. 2008; 103(10):1614–1621. [PubMed: 18821871]
- Hahn HC, Lahiff M, Guterman NB. Acculturation and parental attachment in Asian-American adolescents' alcohol use. *Journal of Adolescent Health*. 2003; 33(2):119–129. [PubMed: 12890603]

- Jackson N, Denny S, Ameratunga S. Social and socio-demographic neighborhood effects on adolescent alcohol use: A systematic review of multi-level studies. *Social Science & Medicine*. 2014; 115:10–20. [PubMed: 24937324]
- Johnson, RA., Wichern, DW. *Applied multivariate statistical analysis*. 5. Upper Saddle River, NJ: Prentice-Hall, Inc; 2002.
- Johnston, LD., O'Malley, PM., Miech, RA., Bachman, JG., Schulenberg, JE. *Monitoring the Future national survey results on drug use: 1975–2014: Overview, key findings on adolescent drug use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan; 2015.
- Kim J, McCarthy WJ. School-level contextual influences on smoking and drinking among Asian and Pacific Islander adolescents. *Drug and Alcohol Dependence*. 2006; 84(1):56–68. [PubMed: 16413142]
- Kimbrow RT. Acculturation in context: Gender, age at migration, neighborhood ethnicity, and health behaviors. *Social Science Quarterly*. 2009; 90(5):1145–1166.
- Kornhauser, RR. *Social sources of delinquency*. Chicago, IL: University of Chicago Press; 1978.
- Krivo LJ, Washington HM, Peterson RD, Browning CR, Calder CA, Kwan MP. Social isolation of disadvantage and advantage: The reproduction of inequality in urban space. *Social Forces*. 2013; 92(1):141–164.
- Kulis S, Marsiglia FF, Sicotte D, Nieri T. Neighborhood effects on youth substance use in a southwestern city. *Sociological Perspectives*. 2007; 50(2):273–301. [PubMed: 21339890]
- Kwan, MP., Peterson, RD., Browning, CR., Burrington, LA., Calder, CA., Krivo, LJ. *Geography and drug addiction*. Springer; Netherlands: 2008. Reconceptualizing sociogeographic context for the study of drug use, abuse, and addiction; p. 437–446.
- Lara M, Gamboa C, Kahramanian MI, Morales LS, Hayes Bautista DE. Acculturation and Latino health in the United States: a review of the literature and its sociopolitical context. *Annu Rev Public Health*. 2005; 26:367–397. [PubMed: 15760294]
- Lee, MT., Martinez, R. Immigration and Asian homicide patterns in urban and suburban San Diego. In: Martinez, R., Valenzuela, A., editors. *Immigration and crime: Race, ethnicity, and violence*. New York: New York University Press; 2006. p. 90–116.
- Leventhal T, Brooks-Gunn J. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychological bulletin*. 2000; 126(2):309. [PubMed: 10748645]
- Leventhal T, Dupéré F, Brooks-Gunn J. Neighborhood influences on adolescent development. *Handbook of Adolescent Psychology, Contextual Influences on Adolescent Development*. 2009; 2:411.
- Lopez-Class M, Castro FG, Ramirez AG. Conceptions of acculturation: A review and statement of critical issues. *Social Science & Medicine*. 2011; 72(9):1555–1562. [PubMed: 21489670]
- Maimon D, Browning CR. Unstructured socializing, collective efficacy, and violent behavior among urban youth. *Criminology*. 2010; 48(2):443–474.
- Maimon D, Browning CR. Underage drinking, alcohol sales and collective efficacy: Informal control and opportunity in the study of alcohol use. *Social science research*. 2012; 41(4):977–990. [PubMed: 23017864]
- Marsiglia FF, Waller M. Language preference and drug use among Southwestern Mexican American middle school students. *Children & Schools*. 2002; 24(3):145–158.
- Martinez R Jr, Lee MT, Nielsen AI. Segmented assimilation, local context and determinants of drug violence in Miami and San Diego. *International Migration Review*. 2004; 38(1):131–57.
- Molina KM, Alegría M, Chen CN. Neighborhood context and substance use disorders: a comparative analysis of racial and ethnic groups in the United States. *Drug and alcohol dependence*. 2012; 125:S35–S43. [PubMed: 22699095]
- Molina BS, Pelham WE. Substance use, substance abuse, and LD among adolescents with a childhood history of ADHD. *Journal of Learning Disabilities*. 2001; 34(4):333–342. [PubMed: 15503577]
- Morenoff JD, Sampson RJ. Violent crime and the spatial dynamics of neighborhood transition. *Social Forces*. 1997; 76(1):31–64.
- Morenoff JD, Sampson RJ, Raudenbush SW. Neighborhood inequality, collective efficacy, and the spatial dynamics of urban violence. *Criminology*. 2001; 39(3):517–558.

- Musick K, Seltzer JA, Schwartz CR. Neighborhood norms and substance use among teens. *Social science research*. 2008; 37(1):138–155. [PubMed: 18496598]
- Osgood DW, Anderson AL. Unstructured socializing and rates of delinquency. *Criminology*. 2004; 42(3):519–549.
- Ouimet M. Aggregation bias in ecological research. *Canadian Journal of Criminology*. 2000; 42(2): 135–156.
- Peterson RD, Krivo LJ. Macro-structural analyses of race, ethnicity and violent crime: Recent lessons and new directions for research. *Annual Review of Sociology*. 2005; 31:331–356.
- Peterson, RD., Krivo, LJ. *Divergent social worlds*. New York: Russell Sage Foundation; 2010.
- Peterson CE, Pebley AR, Sastry N. The Los Angeles neighborhood services and characteristics database: Codebook. RAND labor and population working paper series. 2007
- Peterson JL, Zill N. Marital disruption, parent-child relationships, and behavior problems in children. *Journal of Marriage and the Family*. 1986; 48(2):295–307.
- Portes A, Jensen L. The enclave and the entrants: patterns of ethnic enterprise in Miami before and after Mariel. *American Sociological Review*. 1989; 54:929–949.
- Portes A, Shafer S. Revisiting the enclave hypothesis: Miami twenty-five years later. *Research in the Sociology of Organizations*. 2007; 25:157–90.
- Portes A, Zhou M. The new second generation: segmented assimilation and its variants. *Annals of the American Academy of Political and Social Sciences*. 1993; 530(1):74–96.
- Rowland B, Toumbourou JW, Satyen L, Tooley G, Hall J, Livingston M, Williams J. Associations between alcohol outlet densities and adolescent alcohol consumption: A study in Australian students. *Addictive behaviors*. 2014; 39(1):282–288. [PubMed: 24183302]
- Sampson RJ, Groves WB. Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology*. 1989:774–802.
- Sampson RJ, Raudenbush SW, Earls F. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*. 1997; 277(5328):918–924. [PubMed: 9252316]
- Sampson, RJ., Morenoff, JD. Ecological perspectives on the neighborhood context of urban poverty: Past and present. In: Brooks-Gunn, J., Duncan, G.J., Aber, J.L., editors. *Neighborhood poverty*. Vol. 2. New York: Russell Sage Foundation; 1997. p. 1–22.
- Sampson RJ, Morenoff JD, Earls F. Beyond social capital: Spatial dynamics of collective efficacy for children. *American sociological review*. 1999:633–660.
- Sampson RJ, Morenoff JD, Gannon-Rowley T. Assessing "neighborhood effects": Social processes and new directions in research. *Annual Review of Sociology*. 2002:443–478.
- Shaw, Clifford, McKay, Henry. *Juvenile delinquency and urban areas*. Chicago, IL: University of Chicago Press; 1969. rev. ed
- Shihadeh ES, Barranco RE. Leveraging the power of the ethnic enclave: Residential instability and violence in Latino communities. *Sociological Spectrum*. 2010; 30(3):249–269.
- Simons RL, Whitbeck LB, Conger RD, Conger KJ. Parenting factors, social skills, and value commitments as precursors to school failure, involvement with deviant peers, and delinquent behavior. *Journal of Youth and Adolescence*. 1991; 20(6):645–664. [PubMed: 24263616]
- Snedker, KA., Herting, JR. The Spatial Context of Adolescent Alcohol Use*. In: Thomas, Y.F., Richardson, D., Cheung, I., editors. *Geography and Drug Addiction*. Springer; Netherlands: 2008. p. 43–63.
- Snedker KA, Herting JR, Walton E. Contextual effects and adolescent substance use. *Social Science Quarterly*. 2009; 90(5):1272–1297.
- Stautz K, Cooper A. Impulsivity-related personality traits and adolescent alcohol use: a meta-analytic review. *Clinical Psychology Review*. 2013; 33(4):574–592. [PubMed: 23563081]
- Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. *The NSDUH Report: Substance Use and Mental Health Estimates from the 2013 National Survey on Drug Use and Health: Overview of Findings*. Rockville, MD: 2014.
- Suttles, Gerald D. *The social order of the slum*. Chicago, IL: The University of Chicago Press, Ltd; 1968.

- Wells JE, Horwood LJ, Fergusson DM. Drinking patterns in mid-adolescence and psychosocial outcomes in late adolescence and early adulthood. *Addiction*. 2004; 99(12):1529–1541. [PubMed: 15585044]
- Wilson, WJ. *When work disappears*. New York: Knopf; 1996.
- Woodcock, RW., Johnson, MB., Mather, N. *Woodcock-Johnson Psycho-Educational Battery--Revised*. DLM Teaching Resources; 1990.

Biographies

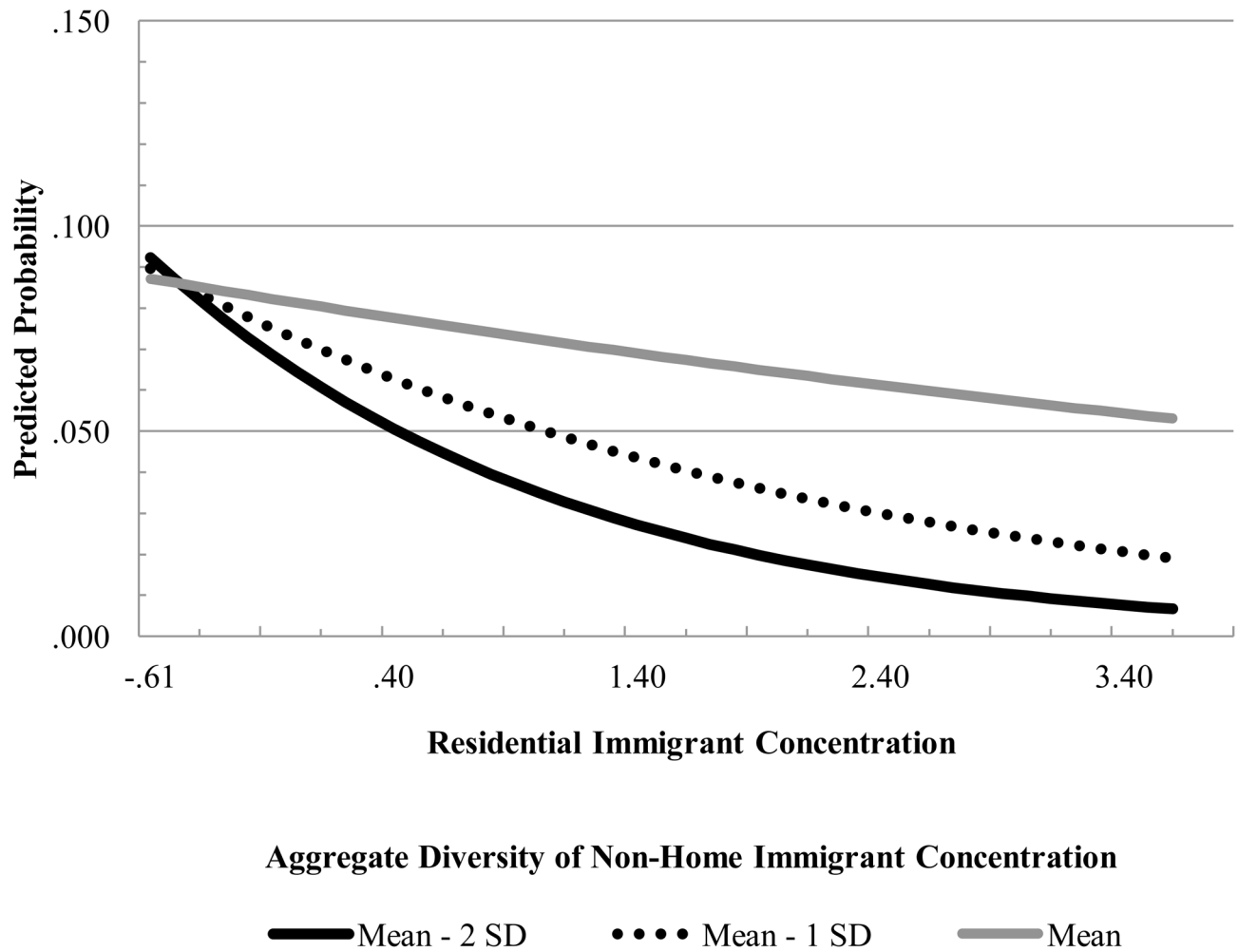
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**Fig 1.**

Predicted probability of adolescent alcohol use in the past 30 days by residential neighborhood immigrant concentration and aggregate diversity of non-home immigrant concentration (predictions are based on Model 4 results when household non-home immigrant concentration is held constant at its group means and all other variables are held constant at their grand means).

Table 1

Means and standard deviations for individual and neighborhood variables.

Variable	Mean	Std. Dev.
<u>Individual (N=793)</u>		
1 if drank alcohol in past 30 days	.135	.342
Age	14.467	1.657
Male	.513	
<i>Race/ethnicity (white/other is omitted)</i>		
Foreign-born Latino	.165	
US-born Latino	.425	
Black	.110	
<i>Parents' highest education (less than high school is omitted)</i>		
High school	.183	
Some college	.246	
College	.217	
Household structure	.596	
Parent-child relationship	.012	.744
Impulsivity	-.037	.666
Cognitive ability	.355	.878
English preferred	.897	.305
Residential mobility	.209	.407
Household non-home geographic exposures	3.971	1.519
Household non-home immigrant concentration	.705	.819
<u>Neighborhood (N=65)</u>		
Residential immigrant concentration	.995	1.105
Aggregate diversity of non-home immigrant concentration	.523	.149
Collective efficacy	3.153	.288
Intergenerational closure	3.362	.223
Concentrated disadvantage	.529	1.090
Residential instability	49.477	9.861
Aggregate overlap of geographic exposures	.346	.069

Table 2

Multilevel logistic regressions of adolescent alcohol use in the past 30 days on individual and neighborhood characteristics (log-odds and robust standard errors in parentheses).

Variables	Model 1	Model 2	Model 3	Model 4
<u>Individual (N=793)</u>				
Age	.578 *** (.077)	.575 *** (.078)	.603 *** (.079)	.621 *** (.084)
Male	-.026 (.214)	-.045 (.213)	-.057 (.209)	-.061 (.214)
<i>Race/Ethnicity</i>				
Foreign-born Latino	.148 (.488)	.144 (.496)	.120 (.508)	.304 (.523)
US-born Latino	.172 (.359)	.145 (.361)	.207 (.384)	.400 (.407)
Black	-1.072 * (.508)	-1.184 * (.538)	-1.049 * (.532)	-.847 (.548)
<i>Parents' Education</i>				
High school	.270 (.359)	.297 (.355)	.298 (.363)	.294 (.358)
Some college	.176 (.385)	.182 (.379)	.156 (.391)	.150 (.427)
College	.674 (.472)	.728 (.460)	.627 (.475)	.397 (.508)
Parent-child relationship	-.282 * (.141)	-.286 * (.143)	-.300 * (.143)	-.298 * (.143)
Household structure	-.117 (.261)	-.093 (.265)	-.141 (.268)	-.106 (.270)
Impulsivity	.086 (.160)	.097 (.162)	.094 (.160)	.101 (.159)
Cognitive ability	-.046 (.126)	-.019 (.128)	-.015 (.134)	-.046 (.133)
English preferred	-.337 (.482)	-.342 (.478)	-.481 (.479)	-.470 (.472)
Residential mobility	-.487 (.307)	-.535 (.300)	-.589 * (.291)	-.617 * (.286)
Household non-home geo. exposures				-.011 (.081)
Relative hhld. non-home im. con.				.174 (.236)
<u>Neighborhood (N=65)</u>				
Residential immigrant concentration	-.275 (.166)	-.340 * (.164)	-.341 * (.155)	-.127 (.155)
Ag. diversity of n.h. im. con.		1.778 (1.174)	2.073 * (.909)	2.578 * (1.040)
Res. im. con. * Ag. div. of n.h. im. con.			2.358 ** (.699)	1.744 * (.738)
Concentrated disadvantage				-.441 (.220)
Residential instability				.007 (.011)
Aggregate overlap of geo. exposure				.840 (1.513)
Intercept	-2.254 *** (.305)	-2.215 *** (.304)	-2.425 *** (.332)	-2.552 *** (.330)
τ_{00}	.214 *	.214+	.157	.096

*
p<.05

**
p<.01

p<.001, 2-tailed significance tests.

Table 3

Multilevel logistic regressions of adolescent alcohol use in the past 30 days on individual and neighborhood characteristics (log-odds and robust standard errors in parentheses).

Variables ^a	Model 5	Model 6
<i>Neighborhood (N=65)</i>		
Residential immigrant concentration	-.071 (.174)	-.108 (.180)
Aggregate diversity of non-home immigrant concentration	2.435* (1.130)	2.469* (1.141)
Res. immigrant concentration * Aggregate diversity of non-home immigrant concentration	1.849* (.770)	1.773* (.802)
<i>Social Organizational Processes</i>		
Collective efficacy	-.109 (.625)	-.548 (.845)
Intergenerational closure	-2.38**	-2.38**
Intercept	9* (.175)	0* (.176)
τ_{00}	.135	.135

*
p<.05

**
p<.01

p<.001, 2-tailed significance tests

^a All covariates from Model 4 included (coefficients not shown but available upon request).