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Barrios and Burbs: Residential Context and Health-Risk Behaviors among Angeleno Adolescents*

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The increasing size of the Latino immigrant population in the United States underscores the need for a more complete understanding of the role that social context plays in influencing the health of immigrants and their children. This analysis explores the possibility that residential location influences the health-risk behaviors of Latino youth in Los Angeles County, California. The data come from the Los Angeles Family and Neighborhood Survey. We apply multivariate, multilevel Rasch models to two scales of adolescent health-risk behaviors (substance use and delinquency). The findings suggest that residence in Census tracts characterized by above-county-average levels of Latinos and above-county-average levels of poverty is associated with increased odds of health-risk behaviors for Latino adolescents, particularly for those born in the United States. The findings lend support to the contention, put forth in the segmented assimilation literature, that disadvantaged urban contexts increase the risk that U.S.-born children of immigrants will experience downward assimilation.

Immigrants and their children are one of the fastest-growing components of the U.S. population. One in five Americans under the age of 18 is an immigrant or a child of an immigrant (Jensen 2001). How they ultimately fare in American society is important, not only for immigrants and their children, but also because their prospects will bear heavily on the well-being of the entire country.

In the context of health outcomes, immigrants appear to be faring quite well, with mortality and morbidity rates that are equivalent to or lower than those of non-Latino whites (Singh and Siahpush 2001). These patterns occur in spite of higher rates of poverty and lower rates of education among many immigrant groups. Debates over the explanations behind the “paradoxical” patterns have been split between the protective effects of immigrants’ cultures and patterns of immigration/migration that select for better health status (Landale, Oropesa, and Gorman 2000; Palloni and Arias 2004).

More recently, several studies have highlighted a sociospatial dimension to the positive health profiles of many immigrant groups, specifically Latinos (Bond Huie, Hummer, and

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Rogers 2002; Sampson, Morenoff, and Raudenbush 2005; Eschbach et al. 2004). In the case of a positive immigrant/co-ethnic concentration effect, salubrious health behaviors are hypothesized to foster special "sociocultural environments" that improve the health of community residents (Eschbach et al. 2004).

Others argue that the influence of residential context—and, in particular, co-ethnic concentration—may be less beneficial, particularly for children of immigrants. In the case of Latinos, residence in communities marked by high levels of segregation and concentrated disadvantage, particularly those with high levels of native-born minorities, including U.S.-born co-ethnics, are understood to expose children of immigrants to negative peer influences (Lopez and Stanton-Salazar 2001). The theoretical framework of "segmented assimilation" argues that residence in these communities may contribute to a process of "downward assimilation" whereby children of immigrants assimilate into social and economic hardship (Portes and Zhou 1993).

However, beyond allusions to cumulative disadvantage and close proximity to other U.S. minority groups, very little is known regarding the process by which residential context may or may not influence the health and well-being of children of immigrants. Nor do we know the ways in which some neighborhoods may actually provide a buffer against such negative outcomes.

The present study evaluates the role of residential context in contributing to the health-risk behaviors of children of immigrants. We examine substance use and delinquent activity, two distinct aspects of adolescent health. For those interested in the incorporation of the latest waves of immigrants, the prevalence of substance use and delinquency represent measures for gauging whether there is support for the notion of "downward assimilation," i.e., the idea that certain immigrants and their descendants are not only experiencing economic stagnation but also adopting unhealthy and antisocial behaviors. Our focus is on Latinos, who are now the largest minority youth group in the United States.

ADOLESCENTS AND RISK-TAKING BEHAVIOR

Adolescence is a period in the life course marked by increasing independence from family and increasing engagement with the larger

social environment. During this time of heightened exploration and change, many adolescents begin to experiment with health-risk behaviors that have subsequent consequences for their lifetime well-being.

There is considerable variation across racial/ethnic/nativity groups in propensities to engage in risky behavior, with the exact pattern depending on the outcome under study. Data from the National Longitudinal Study of Adolescent Health (Add Health) demonstrate that, with regard to substance use, non-Latino whites are significantly more likely to use substances than any of the other 24 racial/ethnic groups examined (Harris 1999). With respect to delinquent behavior (e.g., theft, running away from home, selling drugs), the pattern shifts, with many racial/ethnic minority groups exhibiting higher rates than non-Latino whites. The racial/ethnic patterns evident in the Add Health data are all contingent on nativity status, with the general pattern reflecting increases in health-risk behaviors as the line of descent progresses, from the foreign-born to the second generation and from the second to the third generation. Among Latino youth in particular, foreign-born adolescents have lower rates of substance use, health problems, delinquency, violence, and sexual activity than second- and third-generation Latino adolescents (Harris 1999).

One of the leading explanations for the increases in risk-taking behavior with time in the United States and across generations is that the social values and normative standards of U.S. mainstream society are more permissive of problem behavior than those of the adolescents' immigrant parents (Vega, Gil, and Wagner 1998). What has yet to be considered is whether the health-risk behaviors of immigrants' children are influenced by their residential context, above and beyond individual and family-level influences. The absence of such an investigation is all the more surprising given the central role accorded to social context in formulations of immigrant adaptation.

IMMIGRANTS AND SOCIAL CONTEXT

Historically, urban social context has been a central component of studies on immigrants and their adaptation to U.S. society (Waldinger 1989). In the early work of the Chicago school, the study of cities *was* the study of immigrants, as scholars worked to spatially depict the process by which immigrants were integrated

into city life. More recently, urban social context has caught the attention of health researchers and criminologists in their efforts to estimate spatial influences on health and crime in the form of "neighborhood-level effects." At the intersection of immigration research and neighborhood-effects studies lies the question of whether the particular characteristics of immigrant-receiving areas influence the outcomes of immigrants and their children.

Ethnic Immigrant Enclaves

Strong co-ethnic immigrant communities are hypothesized to be one of the key resources available to immigrant parents in their struggle to successfully raise children in disadvantaged urban communities. Zhou and Bankston (1998) illustrate the potential for a positive enclave effect in their study of Vietnamese youth living in Versailles Village, a Vietnamese community located in a predominately poor African American area in New Orleans. The authors found that Vietnamese youth achieve positive educational outcomes through dense overlapping networks of social relations that result in community-prescribed values and norms. The values and norms then work to socially control the actions of the community's youth and limit delinquent behavior. Portes, Fernandez-Kelly, and Haller (2005) connect this situation to what James Coleman (1988) labeled "closure," whereby adult relations and their cohesion at the community level reinforce parental expectations by encouraging a cohesive set of norms.

The potential for immigrant/co-ethnic communities to protect residents from the negative effects of neighborhood disadvantage has also been documented across a range of health outcomes. In the case of older adults, a recent study on the morbidity and mortality risk among Mexican Americans in the Southwest found that residence in areas with higher proportions of Mexican Americans was associated with a decrease in the odds of morbidity and mortality (Eschbach et al. 2004). The authors hypothesize that a diffusion of positive cultural practices, including a lower prevalence of substance use, superior nutrition, and higher levels of social support, function through a spatial dimension to lower the risk of negative health outcomes. In this case, the negative effects of neighborhood poverty on mortality risk are thought to be counterbalanced by the

positive effects associated with the spatial diffusion of protective health practices.

The positive effect of immigrant concentration may not only be limited to immigrants and their co-ethnics. A recent study of violent behavior among adolescents residing in Chicago neighborhoods documented a positive immigrant concentration effect among all Chicago adolescents included in the study. Non-Hispanic white, African American, and Latino adolescents living in neighborhoods that were 40 percent immigrant were close to 20 percent less likely to engage in violent behavior than their counterparts living in neighborhoods with no immigrants (Sampson, Morenoff, and Raudenbush 2005).

Barrios and Downward Assimilation

The potential of ethnic immigrant communities to mobilize toward positive ends is not without limits. In the case of children of immigrants, Portes and Zhou (1993) argue that the existence of a "large but downtrodden co-ethnic community" may be worse than having no co-ethnic community at all. A preexisting disadvantaged co-ethnic community raises the possibility that the local youth culture into which immigrants' children are at risk of assimilating may actually consist of their own ethnic counterparts (Lopez and Stanton-Salazar 2001).

The Mexican American community in Los Angeles is offered as a classic example of a disadvantaged co-ethnic community (Dohan 2003; Moore and Vigil 1993; Ortiz 1996). In an analysis of the poor educational and occupational outcomes found within the Mexican American population, Portes and Rumbaut (2001) conclude that, while Mexican American communities are characterized by strong social ties, they are limited in their capacity to exert social control and provide economic aid to their members. They argue that a lack of human capital may limit the capacity of dense networks to help children of immigrants avoid the path of downward assimilation.

Limits on the positive effects of co-ethnic communities are observed in an analysis of mortality risk among U.S. adults. A nationally representative analysis of mortality risk found a protective immigrant concentration effect on adult mortality for older ages only (ages 45–64) (Bond Huie et al. 2002). For younger ages (18–44), neighborhood Hispanic concentration and immigrant concentration were as-

sociated with an increased risk of death. This finding raises the possibility that immigrant/co-ethnic concentration may not always be associated with positive outcomes, particularly with regard to health. In certain communities, or for particular age groups, i.e., youth and adolescents, the negative effects of neighborhood disadvantage may not be counterbalanced by the existence of a co-ethnic community.

“NEIGHBORHOOD EFFECTS” AND HEALTH-RELATED OUTCOMES

The relationship between residential context and adolescent development has been treated systematically in the extensive body of research on neighborhood-level effects (Kawachi and Berkman 2003). This body of work has found that structural characteristics of neighborhoods, such as poverty concentration or segregation, help explain a number of outcomes, over and beyond what would be expected given individual-level characteristics. Evidence of neighborhood-level effects has been particularly strong in the case of children and adolescents, who partially sidestep the ever-present selection issue by residing in neighborhoods chosen by their parents. A range of child and adolescent outcomes have been shown to be associated with neighborhood-level structural disadvantage, including infant mortality, low birth weight, teenage childbearing, and adolescent delinquency (see Leventhal and Brooks-Gunn 2000 for a comprehensive review).

Most recently, research on neighborhood effects has begun to move away from testing *whether* structural characteristics such as poverty concentration matter, and instead is beginning to focus on explaining *how* neighborhoods matter. Sampson and his colleagues have gone the furthest in articulating the role of social processes in mediating the structural effects of neighborhoods on well-being in their development of the concept of collective efficacy (Sampson, Raudenbush, and Earls 1997). The degree of collective efficacy in a neighborhood is understood to capture the capacity of residents to achieve social control over the environment and to engage in collective action to attain a specific collective goal that has positive effects on individual well-being.

This study aims to examine the influence of residential context on two key adolescent health outcomes: substance use and delinquency. We explore the impact of both structural

neighborhood characteristics and neighborhood social processes on these health-risk behaviors. In particular, we borrow from the neighborhood effects literature to explore whether residential context influences health-risk behaviors for children of immigrants and to test whether these contexts influence racial/ethnic groups and generational statuses differently. We test whether characteristics of disadvantaged “inner city” or “barrio” communities, such as co-ethnic concentration and poverty concentration, influence youth outcomes more negatively compared to other types of neighborhoods, as suggested by the segmented assimilation thesis. We also explore the possibility that co-ethnic and immigrant concentration may have positive impacts on youth health-risk behaviors, as suggested by the ethnic enclave hypothesis. While the data do not allow us to explore the influence of ethnic social ties, they do allow us to test whether collective efficacy, a well-supported protective neighborhood social process, influences the health-risk behaviors of youth in Los Angeles.

DATA AND METHODS

Data

The data for this analysis come from the Los Angeles Family and Neighborhood Survey (LAFANS). The LAFANS is a representative study of families in 65 different Census tracts in Los Angeles County, California. The survey was designed explicitly to model multilevel processes. In total, 3,250 households were chosen to participate in the survey, with 3,090 eventually completing the survey. In households with children under age 17, a randomly selected child was chosen to be included in the child sample. If the randomly selected child had any siblings in the household, one of his or her siblings was also randomly selected. For the purposes of this analysis, we only use information collected on children ages 12–17 ($n = 890$) who were asked questions on their health-risk behaviors. Estimation of an overdispersion parameter allows us to adjust for the slight clustering that occurs at the family level.

The LAFANS modules were administered using Computer Assisted Personal Interviewing technology. The interviews were administered in either English or Spanish. Response rates were 89 percent for primary caregivers and 86 percent for child respondents. There is no evidence of differential response rates by individual characteristics, with

the exception of Asian Americans, who had higher refusal rates, likely due to language restrictions (see Sastry and Pebley 2003 for more detail).

Los Angeles County is unique in that it contains a large, concentrated, and historically mature Latino population. More than 80 percent of all Latinos in Los Angeles County are either Mexican American or Central American, and the LAFANS sample closely corresponds to this percentage (U.S. Census Bureau 2001). While we would prefer to distinguish our Latino sample by national-origin group, sample size precludes this possibility.¹

Measures

Outcome variables. The present study is focused on how the residential environments of Latino youth affect their individual well-being, and we are principally interested in determining if these influences vary by generational group. In order to assess this relationship, we concentrate on two indices of health-risk behaviors. Each respondent between the ages of 12 and 17 answered a series of questions regarding their drug and alcohol use as well as their participation in various "high-risk" activities.

Given the sample size and interrelatedness among these items, viewing each item as a separate outcome would be inappropriate. There are also differences in the prevalence of each item that make a summary measure of health-risk behavior equally inappropriate. To address these issues, we created two multi-item scales and use a multivariate, multilevel Rasch model that accounts for differences in item severities and person propensities (Raudenbush, Johnson, and Sampson 2003).

We conducted a factor analysis of thirteen different risky behaviors about which the LAFANS respondents were asked, and we found two distinct scales. The first scale captures substance use behavior and includes four items: (1) cigarette use in the previous month, (2) alcohol use in the previous month, (3) marijuana use in the previous month, and (4) other drug use in the previous month. The second scale taps delinquency and includes four items: (1) sexual activity in the past year, (2) gang membership in the past year, (3) ran away from home, and (4) gun ownership in the past year. The decision to model sexual activity in the past year as part of the delinquency scale is based on past research that has shown sexual

activity to be a predictor of other risk behaviors (Ohene, Ireland, and Blum 2005; MacDonald et al. 2005).² All questions in the child module were self-administered by respondents who used a computer to read the questions and enter their answers.

The rates of risky behavior in our sample are uniformly lower than those found in national samples. This is true for every racial/ethnic group. One possible explanation is that rates of substance abuse in California are, on a whole, lower than national rates (Brindis et al. 2004; Centers for Disease Control and Prevention 2004). Even if the adolescents in the LAFANS sample did not accurately report their participation in these health-risk behaviors, the problem of nonreporting bias in the findings is reduced because we are concerned with differences between racial/ethnic/nativity groups, and there is no evidence of differential underreporting in the sample (Johnston et al. 2006).

Individual-level explanatory variables. Each respondent is distinguished by his or her racial/ethnic background. There are four racial/ethnic groups in the LAFANS data with sufficient sample sizes to enable separate analysis: non-Latino white, non-Latino black, Asian, and Latino (more than three-quarters are of Mexican origin, with the majority of those remaining represented by several Central American countries).

Only Latinos in the LAFANS sample have a large enough sample size to distinguish by generational status. The analysis relies on the primary caregiver as the determining factor in the nativity categorization, as country of birth was not asked of both of the children's parents (Kao and Tienda 1995). If the child was born outside of the United States, the child is categorized as foreign-born. The second generation is defined as consisting of Latinos who were born in the United States and whose primary caregiver was born outside of the United States. Respondents are classified as third generation or later if they were born in the United States and their primary caregiver was also born in the United States. To examine whether the traditional generational categories (i.e., foreign-born, second generation, third generation) capture meaningful differences among groups of adolescents, we examined three indicators of acculturation: (1) the year of initial arrival for the primary caregiver, (2) the primary language of the household, and (3) the legal status of the primary caregiver. We were particularly interested

in determining whether there were substantive differences between foreign-born and second-generation children, both of whom have foreign-born parents. We found significant differences between the two groups along all of these three measures. These differences become even clearer when we look at familial socioeconomic differences across Latino generations.

Neighborhood-level variables. Aspects of social environment that are important for adolescent development include both the structural features of a neighborhood and the social processes that characterize the neighborhood. Information on the structural conditions of the neighborhood come from the 2000 Census and are based on 1990 Census tract boundaries in accordance with the initial sampling strategy of the LAFANS data-collection effort. Information on neighborhood social processes come from an aggregation of responses from all randomly selected adults interviewed ($n = 3,557$).

One of the issues we faced is one that plagues many analyses of neighborhood-level effects: the high level of racial and economic segregation in the United States. While a high level of spatial social patterning highlights the importance of accounting for the possibility of unique neighborhood-level influences, it also complicates the quantification of these influences. Because of the lack of distributional overlap for many neighborhood properties, it is difficult to distinguish differences in the distribution of a variable from differences in the effects of that variable. It also makes comparisons unreliable if there are insufficient numbers of members of one group living in a particular type of neighborhood (McNulty 2001).

In order to address this issue, we categorized our neighborhood-level predictors so as to minimize a lack of distributional overlap. Instead of continuous measurement schemes that would result in sparse data at the extremes, we chose to distinguish Census tracts using location quotients (LQs), which are measures of under- and overconcentration of particular variables in comparison to the county distribution (Wright, Ellis, and Parks 2005). In the final models we dichotomize the LQs so that a value of 0 indicates below-county-average levels, and a value above 1 indicates above-county-average levels. We include LQs for the following measures: (1) poverty, (2) Latino concentration, (3) African American concentra-

tion, (4) immigrant concentration, and (5) non-Latino white concentration.

We also include a neighborhood-level variable that aggregates three different dimensions of neighborhood social organization that have been shown to affect the lives of children (Sampson, Morenoff, and Earls 1999). The first, labeled social cohesion, measures the degree to which adults and children in a community are linked to one another. The second dimension of neighborhood social organization, reciprocated exchange, captures the intensity of interfamily and adult interaction with respect to child rearing. The third dimension captures informal social control and mutual support of children. We created a measure of neighborhood collective efficacy for children by aggregating the sample means of each dimension of neighborhood social organization. Each Census tract is distinguished by whether it falls above or below the sample mean of collective efficacy.

ANALYTIC STRATEGY

To account for variation in the odds of engaging in risky behaviors, we use a three-level Rasch model with random effects (Raudenbush, Johnson, and Sampson 2003). The first level entails item responses, which depend on item difficulties and person propensities. The second level describes variation and covariation between person propensities within clusters (i.e., within neighborhoods). The third level describes variation and covariation between clusters (across neighborhoods).

The models that include neighborhood measures also include controls for the propensity to live in a particular neighborhood, i.e., "propensity scores" (Oakes and Johnson 2006). Propensity scores allow us to (1) assess whether sufficient numbers of subjects were sampled at different levels of the neighborhood exposure of interest, in order to allow us to conduct a robust estimation of the association between such a characteristic and the behavioral outcome; (2) adjust for confounding by individual characteristics of neighborhood residents in a single score, thus increasing statistical power; and (3) test whether neighborhood effects are independent of individual selection into such a neighborhood, i.e., from the propensity to live in a particular type of neighborhood, such as a higher-poverty neighborhood.

Confounding factors that were used as predictors in the propensity score model include the following: (1) number of children in the household, (2) sex of parent, (3) age of parent, (4) race/ethnicity of parent, (5) nativity of parent, (6) education of parent, (7) occupation of parent, (8) language spoken in household, (9) welfare receipt, (10) marital status of parent, (11) residential history of parent, (12) family income, (13) home ownership, (14) family structure, (15) church attendance, (16) parent-child relationship quality, (17) presence of familial problems with fighting/arguing, (18) documented status for immigrant parents, and (19) time since arrival in the United States for immigrant parents. Missing confounding variables were given "0" if categorical and the mean value if continuous, and dummy variables indicating the presence of missing observations for each specific covariate were included in the propensity score model. This imputation of missing data for the construction of the propensity scores affected 12.7 percent of the sample. Each estimated propensity score was introduced into the final outcome model as a continuous variable in order to allow for fine stratification of subjects by the established set of confounding factors.

The models first estimate the racial/ethnic/nativity differences in the probability of engaging in substance use and delinquency, respectively (Table 2, models 1a and 1b). Next, we determine whether selected structural neighborhood characteristics, such as immigrant concentration, racial/ethnic concentration, and poverty, have an average influence on adolescents of different racial/ethnic groups in Los Angeles. The neighborhood measures are entered into separate models to ensure stable estimates, and only those that are statistically significant are presented in the table (Table 2, models 2a–4b).

The final set of models tests for interactions between neighborhood context and individual racial/ethnic/nativity affiliation to determine whether neighborhood structural and social contexts influence the odds of engaging in substance use and delinquency differently for each specific racial/ethnic group, and more notably, for different immigrant generations of Latino youth (Table 3). We only test for interactions between variables that have sufficient sample size in order to conduct stable comparisons. All cross-level interaction models also include as main effects: (1) race/ethnicity/nativity affilia-

tion, (2) a propensity score predicting exposure to the specific neighborhood-level characteristic of interest, and (3) five neighborhood-level control variables (neighborhood poverty, Latino concentration, African American concentration, immigrant concentration, and non-Latino white concentration).

RESULTS

Descriptive Results

Individual. Table 1 presents the distributions for the individual-level predictors included in the analysis, distinguished by the respondent's racial/ethnic/nativity background. Around 40 percent of the LAFANS child sample consists of Latino children with foreign-born parents (i.e., first- and second-generation Latinos). There are considerably fewer Latino children with native-born parents in the sample (13 percent). There are also a limited number of children identified as Asian (9 percent).

More than one-quarter of the sample have parents who have not completed high school, although this pattern is highly dependent on individual racial/ethnic/nativity affiliation. The starkest disparity in education level and household income is found between children with non-Latino white parents and Latino children with immigrant parents. On average, non-Latino white children live in households with median annual incomes of \$66,000, while foreign-born Latino children reside in households with median incomes of less than \$25,000. Third-generation Latino children live in households with median household incomes that are similar to that of non-Latino blacks, but still considerably lower than those of non-Latino whites. There are also remarkable differences across the Latino generations in education, so that more than three-fourths of native-born Latinos' parents complete high school, compared to only one-third of foreign-born Latinos' parents. With regard to marital status, more than three-fourths of non-Latino white and Asian adolescents live in households with married parents. For African American children, this proportion drops to less than one-half. For third-generation Latinos, a little more than one-half have parents who are married.

Table 1 also presents the distribution of health-risk behaviors by respondents' racial/ethnic background. Non-Latino white children in the LAFANS sample have the highest mean number of high-risk behaviors. They are followed by third-generation Latinos. These dis-

TABLE 1. Percent Distribution of Selected Variables, by Race/Ethnicity and Generational Group

	Non-Latino			Latino			Asian	X and F Tests of Difference
	White	Non-Latino African American	1st Generation	2nd Generation	3rd Generation	Asian		
<i>Individual-level variables</i>								
Weighted percent of sample	23.5	12.8	13.7	27.8	13.0	9.3		
Primary caregiver education								
< 12 years	9.6	9.7	68.7	69.1	19.9	2.5	318.90***	
≥ 12 years	90.4	90.3	31.3	30.9	80.1	97.5		
Median household income								
Primary caregiver marital status								
Unmarried	21.4	55.7	36.3	30.8	44.9	24.4	48.84***	
Married	78.6	44.3	63.7	69.2	55.2	75.6		
Mean for all behaviors	.70	.52	.43	.54	.57	.09	3.84***	
Mean for substance use	.45	.22	.20	.25	.32	.04	4.74***	
Mean for delinquency	.25	.30	.22	.29	.25	.04	2.65**	
<i>Neighborhood-level variables</i>								
Above county level								
White	84.0	29.6	7.5	13.0	37.3	42.9	303.97***	
Black	31.3	56.9	22.6	22.3	34.3	7.8	69.53***	
Latino	9.5	42.9	89.5	82.4	50.7	22.4	338.03***	
Poverty	30.2	58.0	83.5	69.9	37.4	16.6	170.10***	
Foreign-born	30.5	39.0	88.0	79.2	37.7	47.7	187.6***	
Above sample mean level								
Collective efficacy	85.2	52.8	41.2	48.5	70.7	87.5	119.02***	
Unweighted n (total N = 844)	193	95	143	264	94	55		

* $p < .05$; ** $p < .01$; *** $p < .001$

* F-test of difference.

tributions are largely driven by substance use, as there are fewer differences in delinquent behavior by group. For both behavior types (substance use and delinquency), first-generation Latinos and Asian adolescents exhibit the lowest averages. Among the Latino subgroups, the general pattern in health-risk behavior corresponds to what has been previously documented, i.e., foreign-born adolescents have lower mean numbers of health-risk behaviors than native-born adolescents (i.e., second-generation and third-generation).

The bottom panel of Table 1 presents the racial/ethnic/nativity differences in neighborhood characteristics. Reflecting the high level of segregation characterizing Los Angeles County, the racial/ethnic groups are differentially distributed along every neighborhood characteristic. Close to 85 percent of foreign-born Latino adolescents in the sample live in Los Angeles neighborhoods characterized by above-county-average rates of poverty, compared to only 30 percent of the non-Latino whites and 16 percent of Asians. Foreign-born and second-generation Latinos are also most likely to live in neighborhoods that are characterized by above-county-average levels of Latino co-ethnics. In contrast, only 50 percent of third-generation Latinos in the sample live in neighborhoods that are characterized by an above-county-average level of Latino co-ethnics. With regard to neighborhood collective efficacy, the majority of non-Latino whites and Asians live in neighborhoods with high levels of collective efficacy (more than 80 percent). In comparison, less than half of foreign-born Latinos in the sample live in neighborhoods characterized by high levels of collective efficacy.

Multivariate Analysis

Individual-level and neighborhood-level main effects. In order to examine the relationships between neighborhood characteristics and adolescent health-risk behavior, we model individual behavior as a function of individual and neighborhood characteristics. Table 2 presents the results from the Rasch models that specify the relationship between the predictor variables and the risk of substance use and delinquent behavior. These results are in reference to an underlying propensity to engage in risky behavior. For each scale, the reference category is the behavior with the highest preva-

lence (alcohol use and sex in the last year, respectively).

The first model illustrates the extent of racial/ethnic/nativity variation in the odds of engaging in risky behavior. Column 1a presents the overall propensity for substance use, and column 1b presents the overall propensity for delinquent behavior. In the case of substance use (column 1a), every racial/ethnic group, with the exception of third-generation Latinos, is significantly less likely to engage in substance use than non-Latino whites. The starkest difference is between non-Latino whites and Asians, who have more than 80 percent lower odds of using substances than non-Latino whites (coefficient = -2.10 ; OR = $.12$). Among the Latino subgroups, foreign-born Latinos exhibit more than 60 percent lower odds of using substances than non-Latino whites (coefficient = $-.95$; OR = $.39$), while third-generation Latinos exhibit health-risk behavior that is closest to, and not significantly different from, non-Latino whites.

There is less racial/ethnic/nativity variation in the overall propensity for delinquent behavior (model 1b). Only Asian adolescents demonstrate a significantly different risk from non-Latino whites and are less likely to engage in delinquent behavior. None of the other racial/ethnic/nativity groups in this sample of Los Angeles adolescents is at a significantly higher risk of delinquency as compared to non-Latino whites.

Model 2 addresses the possibility that the characteristics of an adolescent's residential context may influence his or her health-risk behaviors. The coefficients illustrate the effect of neighborhood characteristics on health-risk behaviors for the *general* sample of Los Angeles adolescents. Each model also includes a measure for the propensity to live in that particular type of neighborhood, which controls for all measurable confounding factors in a single composite and provides robust estimates of the neighborhood-level effects. We present the racial/ethnic neighborhood concentration coefficients that were significantly associated with adolescent health-risk behaviors. In the case of substance use, the only neighborhood structural feature that is significantly related to adolescent risk behavior is neighborhood non-Latino black concentration. Adolescents living in neighborhoods with above-county-average levels of non-Latino black residents have 60 percent higher odds of using substances than

TABLE 2. Coefficients from Multilevel Logistic Regression Model of Substance Use and Delinquency—Main Effects

	Substance Model 1a	Delinquency Model 1b	Substance Model 2a	Delinquency Model 2b	Substance Model 3a	Delinquency Model 3b	Substance Model 4a	Delinquency Model 4b
Individual race/ethnicity								
Black	-1.05* (.45)	-.01 (.35)	-.61 (.48)	-.24 (.44)	-.57 (.51)	-.29 (.44)	-.90 (.54)	-.19 (.45)
Foreign-born Latino	-.95** (.30)	-.44 (.30)	-.70 (.38)	-.92* (.42)	-.62 (.44)	-.96* (.47)	-.58 (.47)	-.65 (.44)
Second-generation Latino	-.60* (.27)	-.08 (.26)	-.47 (.30)	-.39 (.35)	-.38 (.35)	-.41 (.35)	-.25 (.39)	-.16 (.34)
Third-generation Latino	-.49 (.33)	-.01 (.31)	-.39 (.37)	-.28 (.29)	-.37 (.39)	-.26 (.30)	-.25 (.41)	-.15 (.31)
Asian	-2.10*** (.30)	-1.70** (.51)	-2.20*** (.31)	-1.82*** (.49)	-2.18*** (.32)	-1.82*** (.49)	-2.16*** (.30)	-1.77*** (.50)
Neighborhood structural features								
Above-county-average Latino				.56* (.27)		.38 (.28)		
Above-county-average black			.47* (.23)		.53* (.26)			
Above-county-average poverty					-.19 (.27)	.38 (.26)		
Neighborhood social organization								
Above-sample mean collective efficacy							-.15 (.23)	-.54* (.25)

* $p < .05$; ** $p < .01$; *** $p < .001$

Notes: Standard errors are in parentheses. Models include the following: Models 2a and 3a: a measure that captures the propensity to live in an above-county-average black Census tract. Models 2b and 3b: a measure that captures the propensity to live in an above-county-average Latino Census tract. Models 4a and 4b: a measure that captures the propensity to live in a Census tract with an above-sample mean of neighborhood collective efficacy. The variables included in the propensity scores are listed in the text.

otherwise similar individuals living in neighborhoods with below-county-average levels of non-Latino black residents (coefficient = .47; OR = 1.60). This neighborhood-wide effect of non-Latino black concentration occurs in spite of the finding that individual non-Latino black affiliation significantly decreases the odds of substance use.

Once neighborhood-level black concentration is added to the model, the individual race/ethnic effects all lose their significance, with the exception of Asian ethnic affiliation. The loss of significance is largely due to selection of families with particular characteristics into such neighborhoods, rather than to an independent neighborhood-level effect of a high concentration of blacks "explaining" racial/ethnic differences in substance use. In models that do not include a control for the propensity to live in a neighborhood with a high concentration of blacks, all of the racial/ethnic groups remain significantly less likely than whites to engage in substance use (results not shown). In the case of a high concentration of blacks, the individual-level predictors influencing selection into high-black-concentration neighborhoods account for more of the variation in racial/ethnic differences in substance use than actual residence in high-black-concentration neighborhoods.

For delinquent behavior (model 2b), residence in neighborhoods with above-county-average levels of Latino concentration increases the odds of engaging in delinquent behavior by 75 percent (coefficient = .56; OR = 1.75). Once a measure of neighborhood-level Latino concentration is added to the model, individual foreign-born Latino affiliation becomes significant, so that foreign-born Latino adolescents demonstrate a significantly decreased risk of delinquency compared to non-Latino whites. It is only after the disproportionate residence of foreign-born Latinos in high-Latino-concentration Census tracts is accounted for that their significantly decreased risk of delinquent behavior becomes apparent. This effect is robust to the inclusion of a measure for the propensity to live in a high-Latino-concentration neighborhood. That is, accounting for the propensity to live in high-Latino-concentration neighborhoods does not eliminate the observation that foreign-born Latinos, on average, have lower odds of engaging in delinquency than whites.

Model 3 adds neighborhood poverty level to the equation in order to determine the degree to which the racial/ethnic concentration effects are related to neighborhood poverty level. In neither case is neighborhood poverty level significantly related to either substance use or delinquency. For substance use, non-Latino black concentration remains a significant predictor of substance use, even after controlling for neighborhood poverty level. The same is not true for neighborhood Latino concentration and risk of delinquent behavior. Once neighborhood poverty level is added to the equation, neighborhood Latino concentration is rendered insignificant. The loss of the significant neighborhood Latino concentration effect suggests that poverty may mediate the influence of Latino neighborhood concentration on the propensity to engage in delinquent behavior. In Los Angeles, the most highly concentrated poor neighborhoods tend to be those with the highest levels of Latinos, particularly immigrant Latinos. Unfortunately, because of a high correlation between neighborhood poverty level and neighborhood Latino concentration in this sample, it is not possible to fully disentangle their effects.

Model 4 evaluates whether neighborhood collective efficacy is related to adolescent risk-taking behavior. We find no evidence for any such relationship in the case of substance use, but neighborhood collective efficacy appears to be consequential in deterring delinquent behavior among adolescents. Residence in neighborhoods characterized by above-mean levels of collective efficacy reduces the odds of engaging in delinquent behavior by forty percent (coefficient = -.54, OR = .58).

Neighborhood and individual racial/ethnic/nativity interaction effects. Of particular interest to the present analysis is the possibility that adolescents, and Latino adolescents in particular, are differentially influenced by their social context, net of individual-level processes. Previous research on children of immigrants suggests that their outcomes are highly dependent on the nature of their surrounding community (Portes and Rumbaut 2001). Table 3 addresses this possibility by testing for cross-level interactions between the racial/ethnic/nativity status of the respondent and characteristics of his or her neighborhood. If an interaction term is significant in predicting the odds of either substance use or delinquency, its effect on risky behavior is included in the table, with es-

TABLE 3. Odds Ratios for Cross-Level Interactions between Individual Race/Ethnic/Nativity Affiliation and Neighborhood Characteristics

Neighborhood Type	Substance Use	Delinquency
Odds of risky behavior for <i>second-generation Latinos</i> who live in neighborhoods with above-county-average Latino concentration	1.70**	3.32*
Odds of risky behavior for <i>third-generation Latinos</i> who live in neighborhoods with above-county-average Latino concentration	2.13**	1.25
Odds of risky behavior for <i>foreign-born Latinos</i> who live in neighborhoods with above-county-average poverty concentration	.49	1.78*
Odds of risky behavior for <i>second-generation Latinos</i> who live in neighborhoods with above-county-average poverty concentration	1.46	2.05**
Odds of risky behavior for <i>third-generation Latinos</i> who live in neighborhoods with above-county-average poverty concentration	.75	.98*
Odds of risky behavior for <i>non-Latino blacks</i> who live in neighborhoods with above-county-average poverty concentration	1.20	2.00*
Odds of risky behavior for <i>second-generation Latinos</i> who live in neighborhoods with above-county-average white concentration	.60*	.41
Odds of risky behavior for <i>third-generation Latinos</i> who live in neighborhoods with above-county-average white concentration	.89	.29*
Odds of risky behavior for <i>Asians</i> who live in neighborhoods with above-county-average white concentration	.50**	.89
Odds of risky behavior for <i>Asians</i> who live in neighborhoods with above-county-average immigrant concentration	4.46**	1.76
Odds of risky behavior for <i>third-generation Latinos</i> who live in neighborhoods with above-average levels of collective efficacy	.46	.39*

* $p < .05$; ** $p < .01$; *** $p < .001$

Notes: The reference category for each cross-level interaction is made up of members of the same racial/ethnic group who live in a neighborhood characterized by below-county-average levels of the particular neighborhood characteristic. Each cross-level interaction model includes controls for individual racial/ethnic affiliation, measures of neighborhood structural characteristics (location quotient [LQ] black, LQ white, LQ foreign-born, LQ latino, LQ poverty), and the propensity to live in that particular neighborhood.

timates provided for both outcomes (even if only one is significant, as indicated by asterisks for significance level). Interaction terms that are not significant in predicting either outcome are not included in the table. Each model that tests for significant cross-level effects includes controls for individual racial/ethnic affiliation, the propensity to live in that type of neighborhood, and neighborhood structural characteristics.

We present the interaction effects by calculating an estimate for the differential influence of particular residential contexts for specific racial/ethnic groups. For example, the first row of Table 3 illustrates the odds of risky behavior for second-generation Latino children who live in neighborhoods with above-county-average concentration of Latinos as compared to second-generation Latino children who live in neighborhoods with below-county-average concentration of Latinos (i.e., [exponentiated main effect of neighborhood Latino concentration \times exponentiated main effect of second-generation Latino status \times exponentiated interaction term between individual second-generation Latino status and neighborhood Latino concentration] / exponentiated main effect of sec-

ond-generation Latino status) (Jaccard 2001; Wildsmith and Raley 2006).

Among U.S.-born Latinos (i.e., second- and third-generation Latinos), the effect of above-county-average Latino concentration is uniformly disadvantageous for both substance use and delinquency. Second-generation Latinos living in high-Latino-concentration neighborhoods have more than 70 percent higher odds of substance use and more than three times higher odds of engaging in delinquent behavior than second-generation Latino adolescents living in neighborhoods with below-county-average Latino concentration (OR = 1.70 for substance use, OR = 3.32 for delinquency). The same pattern is evident in the case of substance use for third-generation Latinos living in above-county-average Latino neighborhoods, whose odds of substance use are more than two times higher than their counterparts living in below-county-average Latino neighborhoods (OR = 2.13). Far from a positive co-ethnic effect, the pattern in Los Angeles County is for co-ethnic concentration to increase the risk of negative health behaviors in the case of U.S.-born children of Latino immigrants.

A similar pattern is evident for neighborhood poverty level. In the general sample, poverty level is not significantly associated with either substance use or delinquency. Testing for nonuniformity of effects demonstrates that, for Latino adolescents with foreign-born parents (i.e., foreign-born and second-generation Latinos), as well as African Americans, residence in neighborhoods with above-county-average poverty is associated with a nearly twofold-increased risk of delinquency as compared to each group's ethnic counterparts living in neighborhoods with below-county-average poverty. The exception is for third-generation Latinos, whose risk of delinquent behavior is nearly the same across neighborhoods with different poverty levels. For the other U.S. minority groups, neighborhood poverty appears to play a consequential role in influencing adolescents' odds of risk-taking behavior in a way that it does not for the general sample of Los Angeles adolescents.

A differential effect of non-Latino white neighborhood concentration is evident in the case of U.S.-born Latino and Asian adolescents. Residence in neighborhoods with above-county-average levels of non-Latino whites reduces the difference in the odds of substance use for second-generation Latinos (OR = .60) and reduces the odds of delinquent behavior for third-generation Latinos (OR = .29). Likewise, Asian adolescents experience a decreased risk of substance use in above-county-average white neighborhoods as compared to their counterparts who reside in below-county-average white neighborhoods (OR = .50).

In the case of Asian adolescents, we find the only significant cross-level interaction with neighborhood immigrant concentration level, albeit not in the direction predicted by past research, i.e., a protective immigrant concentration effect. For Asian adolescents, residence in a Census tract with above-county-average immigrant concentration increases the risk of substance use fourfold, as compared to Asian adolescents who live in Census tracts characterized by below-county-average levels of immigrants (OR = 4.46). There are no significant cross-level interactions between neighborhood immigrant concentration and any of the Latino generational groups.

Only one significant cross-level interaction is evident in the case of individual racial/ethnic/nativity affiliation and neighborhood-level collective efficacy. In the case of delinquency,

neighborhood collective efficacy level appears to be particularly consequential for third-generation Latino adolescents. In neighborhoods with high levels of neighborhood collective action, third-generation Latinos demonstrate significantly lower odds of delinquent behavior than their third-generation counterparts who reside in communities with lower levels of neighborhood social organization (OR = .39).

DISCUSSION

As was the case nearly a century ago, the prospects of immigrants today are proving to be increasingly contingent on geography. Likely consequential for the country's future well-being is the possibility that the influence of residential context extends to the health of children of immigrants. The present study conducted one of the first empirical evaluations of this possibility in the case of health-risk behavior among adolescents growing up in Los Angeles County.

In the case of Angeleno adolescents, we find no evidence of the existence of a uniformly positive spatial immigrant/co-ethnic effect, as has been documented in several recent studies. In the general sample of Los Angeles adolescents, neighborhood immigrant concentration was not a significant predictor of either substance use or delinquent behavior. Latino neighborhood concentration, on the other hand, was found to be associated with engaging in delinquency, but not as a protective influence. Instead, residence in neighborhoods with above-county-average levels of Latino residents was associated with higher odds of engaging in delinquency for all Los Angeles adolescents, an effect that was found to be closely related to neighborhood poverty level.

The negative effect of residing in neighborhoods with above-county-average levels of Latinos was particularly pronounced in the case of U.S.-born Latinos. The results demonstrated significantly increased odds of health-risk behaviors for second- and third-generation Latinos living in areas with high levels of other Latino co-ethnics as compared to their counterparts living in neighborhoods with below-county-average levels of other Latino co-ethnics. These effects hold even after controlling for neighborhood poverty rate. In this respect, our findings provide support for the possibility articulated by Portes and Zhou (1993), namely that children of Latino immigrants in Los Angeles are disadvantaged by close prox-

imity to their own co-ethnic counterparts. However, we were unable to determine whether the generational status of the Latino co-ethnics matters, as suggested by the segmented assimilation hypothesis. The finding that foreign-born and second-generation Latinos were significantly less likely to use substances than non-Latino whites suggests that the negative effect of residence in high-Latino-concentration neighborhoods for Latino children is not solely the result of increased interpersonal contact between Latino co-ethnics. More likely, other neighborhood features that co-occur with high neighborhood concentration of Latinos also foster conditions that increase the risk of health-risk behaviors for Latinos. Along these lines, neighborhood poverty level was found to exert its own independent effect on the odds of delinquent behavior for Latinos. The poverty effect was found to be robust to the inclusion of controls for neighborhood racial/ethnic composition.

The negative impact of both Latino concentration and neighborhood poverty level on U.S.-born Latino youth outcomes illustrates the limits of the beneficial effects associated with the spatial concentration of co-ethnics in the case of U.S.-born Latino adolescents in Los Angeles, one of the two U.S. metropolitan areas characterized by hypersegregation of Latino residents in 2000 (Wilkes and Iceland 2004).³ In lieu of a protective effect emanating from salubrious cultural practices and strong social networks, the spatial concentration of Latinos and poverty in Los Angeles illustrates the harsh realities associated with U.S. racial/ethnic segregation for Latino adolescents. In contrast to the idea that resource-rich ethnic enclaves buffer youth from the negative effects of segregation, it appears that many of the neighborhoods in Los Angeles are best described as disadvantaged barrios that put their resident Latino youth at higher risk of poor outcomes.

The negative effect of neighborhood Latino concentration that is so detrimental for U.S.-born Latinos does not appear to confer an excess risk for foreign-born Latino adolescents. While we find no evidence in support of a beneficial effect of living in ethnically segregated communities for foreign-born Latino adolescents, the fact that they are not disproportionately predisposed to increased risk of negative health behaviors (as are their U.S.-born counterparts) suggests that some level of protection

may be operating to buffer foreign-born adolescents from the negative effects of racial/ethnic segregation. This finding lends support to the contention, put forth in the segmented-assimilation literature, that it is the U.S.-born children of immigrants (second and third generation) who are at highest risk of downward assimilation.

In light of the negative effects associated with the spatial concentration of poverty and segregation for U.S.-born Latinos, our findings on the relationship between neighborhood collective efficacy level and delinquency are more hopeful. While the extent of neighborhood social organization does not appear to influence substance-use behavior, collective efficacy was found to be significantly and negatively associated with the odds of engaging in delinquent behavior, for all racial/ethnic/nativity groups. This finding supports other studies that have repeatedly found that neighborhood social organization decreases the likelihood of crime and violence (Sampson, Raudenbush, and Earls 1997).

The ethnic-enclave hypothesis suggests that neighborhood social organization as a deterrent against risky behavior is particularly salient for immigrants. We do not find any evidence to support this hypothesis. Instead, the possibility that youth at risk of delinquent behavior have the potential to benefit from improvements in levels of neighborhood collective action appears to be particularly true for third-generation Latinos, who have substantially lower odds of delinquent behavior when they reside in neighborhoods with higher levels of collective efficacy. One possible reason that we do not observe a significant cross-level interaction between foreign-born parentage and neighborhood collective efficacy may be that the present analysis is not capable of making a clear distinction between neighborhoods (as physically defined by Census tract boundaries) and communities. Ethnic enclaves, in particular, may not be spatially defined in a way that corresponds to Census tracts. The implication of a lack of overlap between these two concepts likely depends on the process being studied (Diez Roux 2004). Past qualitative work on the role of community social control in influencing the outcomes of children of Vietnamese immigrants focuses on ethnic enclaves that are located in predominantly poor African American neighborhoods in New Orleans (Zhou and Bankston 1998). If we expect certain ethnic

groups to participate in collective action and exclusively reap the benefits of such action, then a neighborhoodwide measure of social organization is unlikely to register this ethnic-community-specific effect. The difficulty in distinguishing between ethnic-enclave communities and neighborhoods underscores the importance of continuing qualitative work on immigrant communities even as the quantitative analysis of spatial effects continues to improve.

The power of neighborhood collective action, however, is limited in that it can only attenuate certain risk behaviors. Our finding that this concept did not significantly influence substance use may have to do with the nature of substance use compared to delinquency, with the former being less visible or more private and not directly infringing on the public, whereas delinquency may be easier to single out as a public concern.

There are limitations to the present analysis. The first limitation is our inability to account for peer-level influences and intergroup contact, both of which are well-established contributors to adolescent risk-behavior and likely interact with familial and neighborhood context. While the LAFANS data set does not provide information on peers or school characteristics, other recent surveys have begun to collect data from multiple contexts (e.g., Add Health), and this will help us to untangle the interactive influences of families, peers, neighborhoods, and schools in the lives of today's youth.

Los Angeles is a unique case. Whether the findings presented here are applicable to areas not characterized by Los Angeles's long history of Mexican immigration is not yet known. One way to determine the degree to which our findings are specific to Los Angeles is to begin to conduct comparative analyses with other metropolitan areas. As immigrants and their children begin to spread out across the country (e.g., the Southeast), many new communities have begun to experience an influx of immigrants and their children. How the processes of social adaptation for Latino adolescents differ by geographic region will be an important part of future research on children of immigrants.

Our analysis is subject to many of the limitations that continue to plague multilevel modeling. A multilevel methodology is appealing because it allows researchers to account for the most basic of sociological theorems: that indi-

viduals are connected to one another (Boardman 2004; Fitzpatrick and LaGory 2003). It gives researchers the opportunity to describe complex social relationships by modeling individual outcomes as a function of individual *and* group-level characteristics. However, the analytical insight provided by hierarchical linear modeling must be balanced with the substantial challenges to proper estimation. One of the most threatening is the issue of selection. Residential choice poses a threat to unbiased neighborhood-level effects if respondents make choices based on characteristics that may also influence their outcomes (Duncan and Raudenbush 2001). These selection processes may lead to either an underestimation or an overestimation of neighborhood-level effects, although the latter is more common. The problem is somewhat minimized in the present analysis because we analyze the outcomes and behavior of adolescents, who (in contrast to adults) rarely decide where they will live. Additionally, our inclusion of controls for the propensity to live in a neighborhood with particular characteristics provides us with more robust estimates. Another way to minimize selection issues is to utilize longitudinal data (Wheaton and Clarke 2003). As more waves of the LAFANS become available, the ways in which these processes unfold over time will be an important aspect of future work.

As the number of children in immigrant families in the United States reaches unprecedented levels, increasing attention will undoubtedly be given to the considerable differences in the health, educational, and developmental outcomes of children of immigrants. It will be important to remember that individual racial/ethnic/nativity status on its own provides very little predictive power for adolescent outcomes at the individual level. The substantial heterogeneity that exists within groups means that to truly understand the unique challenges facing children of immigrants, continued attention must be given to contributing factors, such as neighborhoods, family, and peers, and to how these variables interact within groups. To focus solely on identifying racial/ethnic/nativity differences, while ignoring the sources of difference, is to risk essentializing racial/ethnic categories and developing interventions for at-risk behaviors based on variables that are not amenable to change (Blum et al. 2000).

NOTES

1. Our findings are robust to the definition of the Latino category. We ran the models using the broader definition of Latino and then again limiting it to only Mexican-origin respondents (where possible, given limited sample size). The substantive findings remained the same.
2. To address continued concern that sexual activity does not constitute delinquent behavior, we reestimated the delinquency models excluding sexual activity in the outcome variable and found virtually no differences in either the main effects or in the higher-order cross-level interactions.
3. The other is New York City.

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