Neighborhood and School Factors in the School Performance of Immigrants' Children

Suet-ling Pong
Penn State University
Pong@pop.psu.edu

and

Lingxin Hao
Johns Hopkins University
Hao@jhu.edu

The authors are grateful for support from the Spencer Foundation. Partial support was provided by the Population Research Institute, the Pennsylvania State University, which has core support from the National Institute of Child Health and Human Development. This research uses restricted data from the Add Health project, a program project designed by J. Richard Udry, Peter Bearman, and Kathleen Mullan Harris, and funded by NICHD grant P01-HD31921 to the Carolina Population Center, University of North Carolina at Chapel Hill, with cooperative funding from 17 other agencies.

Educational differences between immigrant groups mirror the social contexts in which these groups are embedded, according to Portes and Zhou (1993). These social contexts include the family, school, and community. The most widely studied social context for immigrant children's assimilation has been the family. Researchers have identified a number of family factors in immigrant children's education: socioeconomic status, parental language, length of residence in the U.S., parental expectations, family structure, sibship size, parental support and involvement (Fuligni, 1997; Glick & White, 2003; Kao, 2004; Kao & Tienda, 1995; Portes & Rumbaut, 2001; Rumbaut & Cornelius, 1995; Suarez-Orzco, 1989). Other researchers have emphasized the school context as a source of inequality between immigrant groups, or between immigrant and native students (Portes & Hao, 2004; Portes & MacLeod, 1996). However, even taking into account various family and school factors, important achievement differences continue to be found between immigrant groups, particularly between Asians and Hispanic children of immigrants (Fuligni & Witkow, 2004; Hao & Bonstead-Bruns, 1998; Portes & MacLeod, 1996;Rong & Grant, 1992).

More recent research on immigrant children's schooling has turned to the influence of the social context of the neighborhood (Sampson, Squires, & Zhou, 2000). One of the most puzzling findings in the immigrant literature is that some groups of immigrant youth outperform others even when these youth are from equally disadvantaged immigrant communities and attend disadvantageous schools (Zhou & Logan, 2003). The research using neighborhood and school influences to explain differences in immigrant children's schooling is still in its infancy. Previous studies of neighborhood effects on children's cognitive development have largely ignored the mediating role of the school (Leventhal & Brooks-Gunn, 2000). And qualitative

studies have used small and localized samples to understand neighborhood or community influences on immigrant children (e.g., Samplson, Squires, & Zhou, 2000; Bankston & Zhou, 19XX, Waters, 1996). These qualitative studies are very useful in advancing theories, although it has yet to be determined whether the research results can be generalized to the larger population. Our study, using a nationally representative sample of adolescents, aims to complement existing knowledge on the neighborhood effects for immigrant children.

We investigate the effects of neighborhoods on the school performance of adolescent children of immigrants ("immigrants' children" hereafter) in the United States. The influence of the school as a neighborhood institution is also examined. Neighborhood and school effects are likely to be the most prominent during adolescence because it is the life course stage in which children are most susceptible to influences outside the home. Focusing on 7 ethnic groups of immigrants, including 3 Latino groups, 2 Asian groups, non-Hispanic whites, and non-Hispanic blacks, we describe the kinds of neighborhoods and schools in which children from these groups reside and show how these neighborhood and school characteristics affect their school performance.

Theoretical Considerations

Since W.J. Wilson's (1987) seminal work on the social disorganization of the inner city and its consequences for creating a "truly disadvantaged" population, studies of the neighborhood have proliferated, and resulted in a number of theoretical and methodological advances (see reviews by Leventhal & Brooks-Gunn, 2000; Harding, 2003). Discussions of these disadvantages are often rooted in social disorganization theory (Wilson, 1987) or epidemic theory (Crane, 1991). On the other hand, explanations for the advantages of living in higher-status neighborhoods usually follow social capital theory (Coleman, 1988, Sampson, Morenoff,

& Earls, 1999) and the idea of concentrated wealth (Massey & Denton, 1993). When it comes to the mechanisms through which the neighborhood exerts an effect on individuals, researchers can resort to the comprehensive theoretical framework advanced by Jencks and Mayer (1990), which identified five models linking neighborhood characteristics to individual residents' behaviors. This framework guides our selection of variables for this study.

Jencks and Mayer proposed the following five models: epidemic, collective socialization, institution, competition, and relative deprivation. The epidemic model predicts that negative peer influence will spread problem behavior. The collective socialization model posits that neighborhood role models and monitoring will promote student engagement and achievement. The institution model links the quality of neighborhood schools to student outcomes. The competition model postulates that classmates compete for scarce neighborhood resources. Finally, the relative deprivation model suggests that students from vulnerable families with relatively low standing in the neighborhood are likely to develop a feeling of deprivation. Let us consider how each of these models applies to our study of the school performance of immigrants' children.

Epidemic Model

The epidemic model emphasizes the normative system held by peers in the neighborhood. This model has a negative connotation because research on adolescents has long portrayed peer influences as being predominantly negative, in opposition to the values of parents and society at large (Coleman, 1961). For example, studies on adolescents' delinquent behaviors have revealed powerful peer influence (e.g. Fridrich & Flannery, 1995). In school, peer pressure is much stronger among members of the anti-social groups (the "druggies" and the "toughs") than is among members of the pro-social groups (the "populars" and the "jocks") (Clasen & Brown,

1985). Even though peer pressure could have a positive influence on adolescents' behaviors, when parental norms (presumably positive) differ from peer norms, adolescents are most likely won over by their peers (Dornbusch, 1987).

A type of peer influence most relevant to the schooling of immigrants' adolescents involves neighborhood peers who are foreign-born and have limited English proficiency (LEP). These factors, not addressed in the neighborhood literature, can be examined using our data. Children develop their language skills through communicating with peers. Immigrants' children who live in neighborhoods with many foreign-born and LEP peer would be encouraged or pressured to use a foreign language learned at home and shared by their peer while lacking the opportunity to become proficient in the English language. Although not a problem behavior, and certainly not an "epidemic", the prevalence of limited English proficiency is likely to have negative consequences for a child's school performance.

Collective Socialization Model

Whereas an epidemic model emphasizes the influence of other young people in the neighborhood, the collective socialization model underscores the influence of neighborhood adults. These adults may serve as role models for youngsters and monitor neighborhood children in order to promote socially approved behaviors. Such socialization depends on three factors, as suggested Billy et al. (2001): role-model, monitoring and cohesion. For successful socialization to take place collectively in a neighborhood, there should first be a sufficient proportion of adult residents who serve as positive role models – those who are successful in the real world, such as adults having a high education and high status occupation. Their presence sends a message to young people that hard work and a good education pays off. According to a recent review of the literature, the most important neighborhood factor to consistently affect children's academic

achievement and school readiness is the high socioeconomic status of neighborhood adults, which is often referred to as neighborhood SES (Leventhal & Brooks-Gunn, 2000).

Second, adults should be available to monitor adolescents in the neighborhood, keeping an eye on them or taking the time to talk to them and give them guidance. It is only when neighborhood adults enter a social relationship involving monitoring and information exchanges about their children that the "intergenerational closure" suggested by Coleman (1988) occurs, serving as a form of social control over neighborhood children. The number of parents at home can serve as a proxy for the availability of adults for neighborhood monitoring. Two-parent families are more likely than single parents to forge neighborhood collective socialization.

Of course, the adult role models and their monitoring have to be long-lasting in order to have an effect. Thus, Billy et al. (2001) suggested that social cohesion is the third factor in collective socialization. A measure of social cohesion is residential stability. Neighbors have strong ties when they know each other in a neighborhood for a long period of time. In contrast, when neighbors move frequently, interpersonal relationships in the neighborhood tend to be transitory and the level of social cohesion tends to be low.

Conceptually, both monitoring and social cohesion belong to the same theoretical concept of "social capital" - a form of productive resource that exists between people and enhances the production of human capital in children (Coleman, 1988). Intangible, social capital is manifested in obligations and expectations; information channels; and social norms (Kao, 2004). Bankston, Caldas, and Zhou (1997) proposed that *ethnicity* itself can be regarded as a form of social capital. According to these authors, co-ethnic community may serve as a powerful form of social control to promote children's education. To illustrate, Min Zhou quoted a Chinatown teen's words,

"You can talk back in front of your parents at home, but you cannot do it in public [in Chinatown] because that would make you look stupid" (Sampson, Squires, & Zhou, 2001, p.).

Because immigrants of the same racial/ethnic group share the same culture and thus tend to have stronger ties among themselves than with other racial and ethnic groups, we need to address co-race and co-ethnicity as we study immigrants' neighborhoods. Adolescents may feel more comfortable becoming friends with those who share their culture and thus seek co-racial/ethnic peers in the neighborhood. They are also more likely to follow good examples set by co-racial/ethnic adult role models than by role models of other racial/ethnic groups. Co-racial/ethnic monitoring may be more effective than cross-racial/ethnic monitoring because adult-child relationship may be culturally prescribed.

Another characteristic of neighborhood adults that deserve attention is their foreign-born status. Although an immigrant community could mobilize resources and provide children with strong social capital, such social capital could promote goals that compete with children's schooling (Portes, 1993). Furthermore, a neighborhood with many foreign-born adults is likely to encourage children to speak a foreign language. This effect of an immigrant community on the education of immigrants' children is equivalent to having LEP neighborhood peers.

Relative Deprivation and Competition Models

Most previous literature emphasizes the disadvantage of living in a poor neighborhood. However, Jencks and Mayer (1990) also suggested that there may be negative consequences of living in an affluent neighborhood, with two distinct propositions. One is classified as the "relative deprivation" model that assumes people judge themselves by comparing themselves to the people living around them. Poor children who attend school alongside affluent children from the neighborhood may feel inferior and develop low self-esteem or form deviant subcultures that

downgrade school performance. Poor children studying with other poor neighborhood children are less likely to develop such negative feelings from relative deprivation.

Even for a child from a middle-class background, living in an affluent neighborhood may be undesirable because competition for scarce resources is keen. The "competition model" depicted by Jencks and Mayer can be expressed in their words: "a big frog in a small pond is probably better off than a small frog in a big pond" (p. 117). Although this metaphor is confounding because it does not compare the same frog in two ponds of different sizes, what the authors suggest is a likely scenario—that there are differential outcomes for the same person in two different situations. Clearly, no school gives all of its students' A's. In a high SES neighborhood where every child competes for high grades, some children will get lower grades even though they are better students compared to similar children living in a poor neighborhood.

While this competition and relative deprivation may have negative aspects, there is another possibility: poor children going to school with high SES neighbors, particularly co-ethnic neigbhors, may not feel deprived but instead may feel competitive and want to perform better. This may be especially relevant for immigrant adults and their children because many of them believe in the "American Dream" of meritocracy. They may work harder in order to keep up with their neighbors.

Institutional Model

Jencks and Mayer (1990) suggested a number of institutions for the investigation of neighborhood effects, such as the police force, neighborhood organizations and community services. In addition, they suggested a role for neighborhood schools which are obviously the most important resource for young people's education. School effects can be studied in a similar fashion to how we study neighborhood effects. For example, the epidemic model predicts that

adolescents who associate with low-performing or trouble-making schoolmates are likely to be negatively influenced. Lower SES students studying with higher SES schoolmates are likely to feel relatively deprived, as predicted by the relative deprivation model. Higher SES students, who usually do well in school, would probably get lower grades in a high SES school because of cut-throat competition. Finally, high SES adults in schools provide positive role models for students. They supervise and monitor students' behaviors in ways similar to collective socialization by high SES neighborhood adults. Certain aspects of the school may promote greater adult attention to students, such as school counseling service or smaller class size. By and large, the school's influence on adolescents mirrors neighborhood influence on adolescents.

Assimilation, Neighborhood Conditions and Neighborhood Effects

School achievement and persistence have been used as a marker of immigrant assimilation and adaptation in the immigration literature. A prominent paradigm that concerns immigrant assimilation is the "segmented immigration theory" (Portes & Zhou, 1993). According to this theory, different immigrant groups bring with them different levels of human, financial, and political capital that ultimately determine their assimilation into different segments of the U.S. society. Immigrant groups' location of settlement has strong implications for their eventual socioeconomic success. Immigrants with more education, wealth, or government support tend to settle in resource-rich neighborhoods with good schools. Such favorable conditions enable their upward mobility and successful incorporation into the host society. By contrast, less educated and poor immigrants who receive no special government support can only afford housing in disadvantaged neighborhoods with poor schools and consequently these groups are susceptible to long-term poverty and discrimination.

Historically, Asian and Hispanic immigrants largely settled in metropolitan areas in the northeast and western states of the U.S. Immigrants are more likely than their native counterparts to live in central-cities – an undesirable socioeconomic environment. This spatial distribution tends to favor Hispanic immigrants more than Asian immigrants. For example, in the 1990s, 44% of Filipino and 36% of Chinese foreign-born individuals lived in central-cities. The figures were 48 and 38% for the Mexican and Cuban foreign-born, respectively (Jensen, 2001). Of course, more detailed information is needed to definitely determine if neighborhood conditions for Asian immigrants are better than those for Hispanic immigrants. Nevertheless, given what we know, poor neighborhood conditions maybe one reason why Hispanic students perform less well in school than do immigrant Asian or native White students (Fuligni & Witkow, 2004; Hao & Bonstead-Bruns, 1998; Portes & MacLeod, 1996; Rong & Grant, 1992). One expects neighborhood conditions to account for some of these school performance gaps between immigrant and nativity groups.

The relationship between neighborhood conditions and the school-performance gap may be more complex. There are two situations in which neighborhood conditions could affect the performance gap: 1) neighborhood conditions differ but their effects on performance are constant for all groups, and 2) neighborhood conditions differ and their effects on performance also differ for different groups. In the first situation, we would expect to find the school-performance gap to narrow after we take into account differential neighborhood conditions. In the second situation, differential neighborhood conditions do not necessarily account for differential school performance. Thus our three main questions for this research are: (1) do neighborhood conditions differ for different ethnic and nativity groups; (2) do differential neighborhood conditions account for these groups' school performance gaps; and (3) do neighborhood effects

on school performance differ for different immigrant and native groups? If so, we will examine how such differential effects impact the performance gaps.

Data Sources

Our data come from the base year survey of the National Longitudinal Study of Adolescent Health (Add Health, see Harris, Florey, Tabor, & Udry, 2003 for a detailed description of the study). Add Health is a study of nationally representative youth in grades 7–12. The first wave was completed in 1995 with a sample of over 20,700 adolescent students from 132 schools. Of these schools, 80 high schools were selected systematically with probability proportional to enrollment size, and 52 feeder (junior high & middle) schools contributing students to the high schools without 7th or 8th grades were selected randomly with a probability proportional to the percentage of the high school's entering class coming from that feeder. After excluding adolescents with missing information on sample weights (1,821), tract identification (170), grade-point-average (1,319), and nativity (173),[1] we have a study sample of 17,262 adolescents from 127 schools. About one-quarter (4,271) of the sample are children of immigrants.

The analyses reported below make use of data primarily from the first wave (1994-95) in-home survey, which provided data on adolescent students' school grades, and individual and family characteristics. As part of Add Health's data collection, over 2,000 neighborhood variables were extracted from the 1990 Census of Population and Housing and were linked to individual students. The neighborhood units in Add Health included the census block group, census tract, and county. In this paper, we define neighborhood as a census tract. Our school

[1] Missing values in all other independent variables were imputed. Missing household income (27%) was imputed as the predicted value from regressing observed household income on parents' race/ethnicity, education, work status, number of siblings of the respondent, family structure, urbanicity, and region. For missing data for other variables,

information comes from three sources: the school administrative survey, in-school survey, and school information codebook. Both the school administrative survey and school information codebook contain data at the school-level, whereas the in-school survey collects data at the individual level. The in-school survey was administered to more than 90,000 students in grades 7–12 in the participating schools during the 1994-95 school year. We construct aggregate school variables by averaging individual responses.

Our study sample contains substantial cross-classification between schools and neighborhoods. This is to a large extent due to the fact that the Add Health survey includes different types of schools – middle, junior high, and high schools. Whereas a school often receives students from a variety of tracts, students from the same tract may attend different schools. In our full study sample, the 17,262 adolescents live in 2,184 census tracts. Only in 1,715 tracts do resident adolescents attend the same school. Adolescents living in the other 469 tracts are split between two or three schools. There are a total of 2,623 unique school-tract units.[2]

Methodological Issues and Analytical Strategy

Well-known methodological challenges are involved in the estimation of neighborhood effects. Selection bias, or unobserved heterogeneity, is one such problem. We are unclear about the extent to which differences in children's education are attributable to their neighborhood characteristics, as opposed to the underlying reasons why their parents make choices about where they live. More highly educated parents may choose to live in neighborhoods with good schools. In this case, their children's school performance may reflect parental aspirations and involvement

---

we used mean imputation. Dummy variables were included in regression analysis to indicate imputed values (the coefficients of which are not reported in the tables).

[2] The 4,271 children of immigrants (1st and 2nd generations) in the sample reside in 1,122 school-tracts, whereas the 12,991 children of natives (3rd generation) reside in 2,143 school-tracts.

rather than the neighborhood characteristics. Thus, without controlling for family characteristics, neighborhood effects may be biased upward. However, controlling for family characteristics could lead to downward bias of neighborhood estimates, if neighborhood effects are mediated through the family (Harding, 2003; Jencks & Mayer, 1990). Suppose that neighborhood poverty is the cause of low family income. In this case, a study that controls for the effect of family income reduces the true, larger effect of neighborhood. Perhaps because of these counterbalancing forces, attempts to correct for selection bias through the application of sibling models (Aaronson, 1997) or instrumental variable methods (Duncan, Connell, & Klebanov, 1997; Foster & McLanahan, 1996) did not improve the estimation of neighborhood effects substantially (Leventhal & Brooks-Gunn, 2000).

Another methodological challenge facing neighborhood effects on education outcomes is the incorporation of school characteristics in the study. Neighborhood researchers have long recognized the importance of the school as a neighborhood institution that has a powerful impact on child development, and some researchers have considered school effects alongside neighborhood effects (Ainsworth, 2002; Catsambis & Beveridge, 2001; Entwisle, Alexander, & Olson, 1994; Garner & Raudenbush, 1991). However, in a review of neighborhood research from 1990 to 1998, Leventhal and Brooks-Gunn (2000, p. 323) found no studies that examined school and neighborhood characteristics and simultaneously tested for the existence of school-mediated neighborhood effects.

To study the effects of schools and neighborhoods simultaneously poses a non-trivial methodological problem. Geographically speaking, a neighborhood measured as a census tract is usually a smaller unit than a school's catchment area. A number of neighborhoods could feed into the same school. In large cities this number could be quite large for magnet schools or other

schools of choice (e.g., charter schools) having an open enrollment policy. On the other hand, it is possible that children living in the same neighborhood attend different schools. This is particularly relevant to the Add Health sample because the sampled adolescents distribute in middle schools, junior high schools, and high schools. For these reasons, neighborhoods are not completely "nested" within schools, statistically speaking, although students or residents are nested within both units. This type of data structure does not readily lend itself to common statistical procedures such as two- or three-level hierarchical models because the cross-classified data structure violates the nested requirement of these conventional models. In our case, forcing the data into a nested structure would mean eliminating 942 tract-school units involving many more students. To avoid introducing this type of selection bias, we apply a *cross-classified random effects model* (Goldstein, 1994; Raudenbush & Bryk 2002) to account for the potential heterogeneity across schools or neighborhoods. To our knowledge, no previous study in the U.S. has taken this approach to research into neighborhood and school effects simultaneously.

We build an "unstructured" level-2 cross-classified random effects model that specifies a unique school-tract location (Goldstein, 1994):

$$y_{i(jk)} = \beta_0 + \beta_1 X_{i(jk)} + u_{(jk)} + e_{i(jk).}$$

In this two-level model the ith student is classified by the jth school and the kth neighborhood. Y is the response variable for school performance. This model assumes that the covariance between two students is zero if they attend the same school but live in different neighborhoods, or if they live in the same neighborhood but attend different schools. Their covariance is nonzero only if they belong to the same school and neighborhood. This cross-classified model makes more restrictive assumptions about the cross-classified cases than the "marginal structured" model discussed in Goldstein (1994), or the cross-classified random effects model

discussed in Raudenbush and Bryk (2002), which distinguish between the random effects for schools and the random effects for census tracts. However, Goldstein (1994) found little difference in the fixed effect estimates between the unstructured and structured models. Since our concern is the fixed effects of schools and neighborhoods, the indistinguishable random effects do not affect the purpose and conclusions of this study.

The longitudinal nature of the Add Health survey opens up an opportunity to apply a change model on the waves 1 and 2 data that take into account previous school performance. This would have been a more appropriate model than our current cross-sectional specification. We did not pursue this strategy because, first, we will lose over 6,000 students in the follow-up sample and an additional 102 who reported moving to an unknown location. Such attribution leads to a smaller sample size and potential sample selection bias. Second, neighborhood information of both waves 1 and 2 are based on the 1990 Census. It does not change if the student stays in the same census tract, meaning that there will be no variation in neighborhood variables in the change model and the very small number of students who did move (only 4.1% of the longitudinal sample) does not provide enough variations for estimation. Third, our theoretical framework has strong implications for causal relationships, which is the foundation for making causal inference. Our model is a reduced-form model in which individual and family backgrounds determine both the past and current school performance, whereas current neighborhood conditions determine current performance. Because individual school grades cannot logically cause neighborhood conditions, the causal relationship between neighborhood and school grade can be established.

Our analyses proceed in several steps. First, we examine the neighborhood and school characteristics for each ethnic and immigrant group. Then we analyze the relationship between

neighborhood characteristics and school grades for both immigrants' and natives' children. We compare neighborhood effects with school effects and examine whether neighborhood and school factors account for their differences in school grades.

Variables and Measures

Dependent Variable

We measure school performance by averaging self-reported grades for four subjects: English, math, science, and history/social studies. Each grade is measured on a four-point scale with A=4, B=3, C=2, and D/F=1. Grade-point-average (GPA) is a useful measure of school performance because it is readily understood by parents, teachers and students as a measure of educational progress. It is also a strong predictor of individuals' test scores and educational attainment (Rosenbaum, 2001) and job opportunities (Albrecht, Carpenter, & Sivo, 1994). Our measure of GPA is self-reported and inevitably subject to reporting bias. A recent study found that the correlations between actual and self-reported GPAs range from a low of .45 to a high of .98, and over-reporting is more frequently found among students with lower actual GPA than those with higher actual GPA (Kuncel, Crede, & Thomas, 2005); thus, our results likely produce upward bias estimates for the low-performing groups.[3]

Neighborhood and School Variables

Guided by Jencks and Mayer's theoretical framework, we extract contextual data to create more than 50 neighborhood variables that measure epidemic influence, collective socialization, and relative deprivation. Wherever possible, we construct variables measuring co-racial and co-ethnic neighbors' characteristics. A co-racial variable is created using information

3 According to the first author's communication with Chandra Muller, the principal investigator of the NIH project that collected transcript data for Add Health, actual GPA in math and science in 9th and 10th grades is, on average, lower than self-reported GPA for the same subject and grade levels in the In-school file. Their correlation is

from both the in-home file that contains data on the characteristics of an adolescent or his/her parent, and the contextual file that contains data on the characteristics of different racial groups (White, Black, Asian, other) in a census tract. For example, we construct the co-racial idle peer variable by matching the adolescent respondent's race to the census-tract information on idle peer of his/her race. The same strategy is adopted to create co-ethnic variables. The census provides only one ethnicity measure: Hispanics or non-Hispanics.

The factor analysis helped us to identify groupings of variables in order to create composites that are consistent with the theoretical models. Variables belonging to a composite are standardized individually and then combined with other variables by taking the average. A variable that does not hang together with other variables but carries a specific theoretical meaning is used by itself. Appendix Table A1 contains the definitions of all neighborhood variables and composites, grouped by Jencks and Mayer's (1990) theoretical models. The Cronbach alpha reliability statistics for these composites range from .88 to .97. The *number of idle peers*, a composite indicating co-racial peers who were neither enrolled in school nor working, measures neighborhood epidemic influence. Collective socialization is indicated by *neighborhood SES*, *proportion of two-parent households*, and the *proportion of housing units moved into* the neighborhood between 1985 and 1990. These variables correspond to the role-modeling, monitoring, and cohesion factors in collective socialization. Relative deprivation (or competition) is represented by the *relative educational status,* which is measured as the deviation of one's own parents' education from the average adults' education in the neighborhood.

We originally designed to use as another indicator of peer influence "the proportion of 5+ year-olds with Limited English Proficiency (LEP) - those who speak English 'not well' or 'not at

---

about .6. However, the two GPA's are not entirely comparable. The Addhealth GPA is reported for 6 weeks whereas the actual GPA from the transcript is for the whole year.

all' ", and use "the proportion of foreign-born individuals aged 18 years or below" as an indicator of collective socialization by adults. However, the factor analysis consistently groups these two variables together.[4] Thus we create a composite, the *proportion of foreign-born LEP*, by combing these two variables.

Some of our school variables mirror neighborhood variables (see Appendix Table A2). The epidemic influence in school would be the schoolmates' bad influence. Two composites, *negative school climate* and *problem behaviors,* measure epidemic influence. In the in-school survey, each student was asked to indicate on a scale from 1 (strongly agree) to 5 (strongly disagree) whether they feel "close to people at school," and whether they feel like they are "part of the school." Each of these two individual-level variables is aggregated and averaged to form school-level variables that are combined by further averaging to form the composite of negative school climate. Similarly, the composite of problem behavior is formed by aggregating and averaging three individual-level variables, each indicating the adolescent's response, on a scale of 0 (never) to 4 (everyday), to the question, "Since school started this year, how often do you have trouble ... (a) getting along with your teachers? (b) getting homework done? (c) getting along with other students?" The Cronbach alpha reliability score is .71 for the former and .77 for the latter.

Other school variables included in our analyses are school location and type. The school's location is measured by the dummy variables of *urban* and *rural schools*, with suburban school as the reference category. School type is measured by the dummy variables of *magnet school*, *public school of choice*, and *private school*, with the other public school as the reference category.

Individual and Family Variables

[4] An exploratory analysis shows no effects of these variables on GPA when they are used separately.

The adolescent respondents were asked whether they were born in the U.S., whether their fathers were born in the U.S., and whether their mothers were born in the U.S. Using this nativity information, we constructed four generational-status variables. The *1st generation* adolescents are those who were born outside the U.S., arrived in the U.S. after age 6 (the age when a child enters 1st grade) and who have at least one foreign-born parent. The *1.5 generation* is similar to the 1st generation except that they arrived in the U.S. before age 6. Adolescents are defined as belonging to the *2nd generation* if they were native-born and at least one of their parents was born outside of the U.S. Adolescents in these 3 groups – 1st, 1.5, and 2nd generations - are immigrants' children. We assign them *immigrant status* and treat them as a separate group in the multivariate analysis. The reference group, adolescents who are not immigrants' children, are those native-born with native parents. This nativity group is often referred to in the immigration literature as the 3rd+ generation.[5]

Information about the adolescent's race/ethnicity comes from the in-home survey. We select 7 ethnic groups which have a large enough immigrant sample for us to analyze. These 7 groups include non-Hispanic Whites, Non-Hispanic Blacks, 3 Hispanic groups of Mexicans, Puerto Ricans,[6] and Cubans; and 2 Asian groups of Chinese and Filipinos. Non-Hispanic Whites are the reference group. The remaining ethnic groups are combined into one category named as "other". We include this diverse group to maintain a full sample and to better estimate coefficients that do not vary by groups. However, we will not interpret statistics for this group.

5 If the adolescent's nativity is unknown but both parents were born in the U.S., we assume that this adolescent is the 3rd+ generation.

6 Although Puerto Ricans are U.S. citizens, their migration and adaptation experience place them closer to immigrant groups than to natives. One potential problem is that, like all other adolescents, Puerto Ricans were asked the same questions about nativity: "Were you born in the U.S.?" Some island-born Puerto Rican youth may have considered themselves U.S.-born. The "foreign-born" Puerto Ricans in this study are likely to be individuals who feel less assimilated to the American continent.

Sample sizes for the 3rd+ generation Cuban, Chinese, and Filipinos are very small, so statistics for these groups should be interpreted with caution.

Adolescent's family background is represented by *parental education* and the log of *household income*. Parent's highest education level is measured by four dummy variables: less than high school graduate, some college, and college or more. The reference category is high school graduate. Family structure is indicated by three variables: *stepfamily* with biological and non-biological parents; *single-parent family* with only one biological parent; and *guardian family* with no biological parents. The reference group is the *two-parent family* where both biological parents are present in the household. Other control measures include the adolescent's *grade level* and gender (being *male*). Finally, two dummy variables indicate the language the child speaks at home: *Spanish* and *other non-English* language. The reference category is English. Appendix A3 shows the weighted means and standard deviation for all individual and family variables by nativity status.

Results

Family Situations

One of the most important sources of nativity variation is parents' human capital. Appendix A3 shows that native parents tend to have more education than do immigrant parents in general. Just over 33% of immigrant parents had no more than a high school degree, whereas 87% of native parents had an education beyond high school, and over 33% had some college education. However, immigrant and native parents are on a par at the highest education level. For both groups, about 20% had a college or higher degree. Immigrants, who have less education on average, also have lower average household income. In addition to these disadvantages in human and financial capital, over 40% of immigrants' children grow up with a

home language other than English. Although some turn out to be fluent bilingual, many become limited English-proficient, a burden for their schooling.

Neighborhood Conditions

Immigrants with less human capital are likely to find employment in the lower occupational echelons, and thus are trapped in undesirable neighborhoods. In Table 1 we can see the correspondence between parental education and neighborhood conditions.

Among Latino immigrants, children of Mexicans, Cubans, and Puerto Ricans, lacking parental educational resources, concentrate in very low SES neighborhoods with many idle peers. Such neighborhoods are worse than those resided in by non-Hispanic native Blacks. Cubans' neighborhood conditions appear to be the most undesirable among all immigrant groups. They are most likely to live in neighborhoods with very low proportions of two-parent households, similar to native-born non-Hispanic Blacks. They also tend to live in neighborhoods with high proportions of foreign-born LEP individuals. Immigrant Mexicans, while disadvantaged in terms of neighborhood SES and neighborhood stability, are nevertheless most likely to benefit from the monitoring by their neighborhoods' married couples. Relative deprivation in terms of parental educational status is most pronounced among immigrant Mexican and Cuban adolescents because their parents' educational level falls below the neighborhood average. In some ways, their neighborhood conditions are as undesirable as, if not more undesirable than, the neighborhood conditions of native-born non-Hispanic Blacks.

(Insert Table 1 about here)

Asian immigrants' neighborhood conditions are quite different from those for Latino immigrants. Chinese and Filipino immigrants tend to live in high SES neighborhoods where idle adolescents are scarce and two-parent families are plenty. Such advantageous neighborhood

conditions slightly surpass immigrant or non-Hispanic native Whites'. Nevertheless, immigrant Chinese and especially Filipino adolescents are more than non-Hispanic Whites to live in mobile communities with a high proportion of housing units occupied by newcomers, and to have neighbors who speak a limited amount of English. These immigrant Asian-White differences are less than immigrant Latino-White differences, however. Interestingly, Chinese immigrant parents' educational status is low compared to that of their neighbors. It is possible that less-educated Chinese parents tend to concentrate in ethnic enclaves. A few highly educated co-ethnic adults in the enclaves would push the neighborhood educational level above the education of most of its residents.

Non-Hispanic White immigrants' children have more high SES adult neighbors than do non-Hispanic native White children; otherwise, these two groups are similar on most neighborhood measures. By contrast, non-Hispanic immigrant Black adolescents enjoy much more desirable neighborhood conditions than their non-Hispanic native counterparts.

School Conditions, Location and Type

Table 2 reveals school conditions, school location, and school types by ethnicity and nativity. Latino immigrant adolescents of Mexican, Cuban, and Puerto Rican descent tend to attend low SES schools, and schools attended by these Latino children of immigrants have more problem behaviors and larger class sizes than schools attended by all other ethnic groups, including non-Hispanic native Blacks. Chinese immigrants' children, on the other hand, attend schools with higher SES level and fewer problem behaviors than schools attended by other immigrants' children. It is interesting that the average class size is very large, 30, for Filipino immigrants' children, although their schools tend to be higher SES and are reported to have fewer behavioral problems.

(Insert Table 2 about here)

The schools in which the children of immigrant Mexicans, Puerto Ricans, and especially immigrant Cubans are enrolled are mostly in urban areas. Few are in suburban areas and none are in rural areas. Latino immigrants' children are most likely to attend magnet schools than are other groups of immigrants' children. Magnet schools can only be found in big cities and have a policy of maintaining racial diversity in the student body. In inner cities predominated by Blacks, magnet schools are likely to use Latinos as buffers and to count light-skinned Latinos as Whites. Since Latino immigrants concentrate in urban areas, their chance of being admitted to magnet schools is quite high. On the other hand, given their low SES backgrounds, Latino immigrants' children are the least likely to attend private schools. In contrast, Chinese immigrants' youth are most likely to patronize private schools and suburban schools. Although only 38% of them attend urban schools, their enrollment in magnet schools is almost 25%, suggesting that the majority of Chinese immigrants' children who live in urban centers are placed in magnet schools.

Accounting for Ethnic and Nativity Differences in GPA

Given the large differences in the neighborhood and school characteristics of these 14 ethnic-nativity groups, we expect neighborhood and school conditions to account for some of the ethnic-nativity differences in adolescents' school performance, measured by GPA. The results shown in Table 3 from our hierarchical analysis of the full sample corroborate this expectation somewhat. Two cross-classified random effects models are presented, both of which include the adolescent's ethnicity, nativity, gender, grade level, parental education, family structure, family income and home language. Model 2 adds to Model 1 the neighborhood and school variables.

(Insert Table 3 about here)

Let us first examine neighborhood and school effects. Except for negative school climate, these effects are generally small. High neighborhood SES, urban school, magnet school, school of choice, and private schools are all positively related to higher GPA, but foreign-born and LEP neighbors, poor school climate and large class size are negatively associated with GPA.

Next, we can see significant GPA differences by ethnicity and nativity groups. Model 1 shows that Latino immigrants' children—Mexicans, Cubans, and Puerto Ricans—have significantly lower GPA than do non-Hispanic native Whites' children, whereas Asian immigrants' children—Chinese and Filipinos—have significantly higher GPA. Children of non-Hispanic immigrant Blacks, and non-Hispanic immigrant Whites are not different from non-Hispanic native White children.

After taking into account neighborhood and school characteristics, in Model 2, the coefficient for Mexican immigrants' children drops by almost half such that Mexican immigrants' youth no longer lag behind non-Hispanic native White youth. This result suggests that neighborhood and school conditions account completely for the low performance of Mexican youth from immigrant families. Put differently, some of the reasons for the low performance of these Mexican youth are related to their neighborhood and school conditions, such as low SES neighborhoods, high proportion of foreign-born and LEP neighbors, and large class size. Controlling for neighborhood and school conditions produces an opposite effect for immigrant Filipinos, however. For immigrant Mexicans, it reduces their performance distance from non-Hispanic native Whites; but for immigrant Filipinos, it increases that distance. The result suggests that Filipinos would have performed at a higher level if it were not for their less favorable neighborhood (e.g., high proportion of foreign-born LEP neighbors) and school conditions (e.g., large class size).

Differential Neighborhood Effects

Although neighborhood and school conditions account in part for the school performance of immigrant Mexicans' and immigrant Filipinos' children, for the most part they do not affect the performance gaps between non-Hispanic native White and other immigrant groups, even though neighborhood conditions are clearly different. Our further analyses separate the two nativity groups to reveal whether neighborhood and school effects differ for immigrant and native groups. Four cross-classified hierarchical random effects models (Models 3, 4, 5, and 6) are estimated separately for immigrants' children and natives' children and the results are presented in Tables 4-6. Model 3 includes only individual adolescent characteristics of gender, school grade, and ethnicity. Model 4 adds family background variables and Model 5 adds neighborhood characteristics. The final model, Model 6, has all independent variables, including school characteristics. The reference category for each nativity sample is non-Hispanic Whites. Because there is no significant difference in GPA (see Table 3) and most other measures between native and immigrant non-Hispanic Whites' children, we consider the two reference groups to be largely comparable. Immigrant generation is included in the models for the sample of immigrants' children only.

(Insert Tables 4–6 here)

From Model 3 in Table 4 we can see that foreign-born students of the 1st and 1.5 generations have a higher GPA than does the 2nd generation. Family background differences do not explain this foreign-born advantage (Model 4), and neither do neighborhood and school conditions. Although the coefficient for the 1.5 generation is not significant in Model 6, the magnitude of the coefficient remains largely the same as that in Models 3–5.

Turning to the ethnicity variables in Model 3 in Table 4, we see that the children of Mexicans, Cubans, and Puerto Ricans, and non-Hispanic Blacks have lower GPAs than do the children of non-Hispanic immigrant Whites. The two groups of Asian immigrants' children differ in their school performance, too. Whereas Chinese immigrants' children have higher GPAs than immigrant non-Hispanic Whites' children, Filipino immigrants' children do not differ from their non-Hispanic White counterparts. This ethnic hierarchy in school performance among immigrants' children remains largely the same in Model 4 when family background factors are included. However, the GPA differences by ethnicity among immigrant groups drop consistently (42% for Mexicans, 33% for Cubans, 28% for Puerto Ricans, 26% for Chinese and 25% for non-Hispanic Blacks). For Mexicans, the GPA gap narrows significantly from -.31 to -.18, suggesting that family background factors are important in accounting for their low performance compared to non-Hispanic White immigrants' children.

When neighborhood conditions are taken into account in Model 5, most GPA gaps between non-Hispanic immigrant Whites' children and other immigrant groups remain stable except for that for immigrant Cubans. Recall from Table 1 that immigrant Cubans live in very low SES neighborhoods and with very high proportions of foreign-born and LEP neighbors. These disadvantages account for about 58% of the immigrant Cuban-White gap (.14/.24), on top of their disadvantageous family factors.

Finally, we further control for school characteristics in Model 6. Non-Hispanic Black immigrants' children are no longer disadvantaged compared to their White counterparts. Thus, the low performance of non-Hispanic Black immigrants' children is accounted for by family, neighborhood and school factors. The GPA gaps between non-Hispanic Whites and Latino immigrants' children drop consistently from Model 4 to Model 6 (38% drop for Mexicans, 42%

drop for Cubans, and 23% drop for Puerto Ricans). These results suggest that neighborhood and school conditions together account for some of the educational disadvantage of Latino immigrants' children. However, the GPA gap between immigrant whites' children and immigrant Chinese' children does not appear to be explained by neighborhood and school conditions.

Family Effects

Table 5 shows the differential effects of family factors for immigrants' and natives' children. Comparing results from Model 4 for immigrants' and natives' children, we observe two differences. First, very low parental education (less than high school) has no adverse effects on GPA among children of immigrants but it does among children of natives. The income effect is also weaker for immigrants' children than natives' children. These results are consistent with the immigrant optimism hypothesis (Kao & Tienda, 1995) that posits that high parental aspiration and support for their children's future socioeconomic success through education serves as a source of resilience for low SES children.

Second, before school and neighborhood variables are introduced, speaking Spanish at home is associated with lower GPA among children of immigrants, but not among children of natives. After neighborhood conditions are controlled, the GPA disadvantage associated with speaking Spanish at home among immigrants' children disappears. This is not surprising because children of immigrants who speak Spanish at home are mostly Latino immigrants. Results presented in Table 1 suggest that Mexican, Cuban, and Puerto Rican immigrants' children tend to live in neighborhoods with greater proportion of foreign-born and LEP neighbors, and these neighborhoods are negatively associated with school performance. Natives' children who speak Spanish at home are likely to be fluent bilingual; their English skills are not

compromised. We also find that immigrants' children who speak a non-English and non-Spanish language at home have superior performance compared to their English-speaker counterparts. Immigrant children who speak a language other than English or Spanish at home tend to be also fluent in English because the community in the U.S. is too small to support a foreign non-Spanish language so these children need English to get by. Thus, the non-English language variable may reflect fluent bilingualism, which has a positive effect on achievement (Portes & Hao, 1998).

Table 5 reveals two protective family factors for the schooling of immigrants' children: parents' college degree and two-parent family. When immigrants' children have college-educated parents, their GPA is about one-third of a standard deviation (.25/.77=.32) above their counterparts whose parents have only a high school degree. The effect size of a parent's college education remains substantial after neighborhood and school conditions are controlled.

Neighborhood Effects

Model 5 in Table 6 shows neighborhood influences on school performance of immigrants' and natives' children. Among immigrants' youth, high SES neighborhoods are positively associated with their GPA, but neighborhoods with high proportions of foreign-born/LEP neighbors and relative deprivation are negatively associated with GPA. When school characteristics are controlled in Model 6, the effects of neighborhood SES and foreign-born/LEP neighbors remain. In an exploratory analysis (not shown), we find that relative deprivation among immigrants is moderately correlated with magnet school and urban school attendance. Controlling for these school characteristics reduces the coefficient of relative deprivation to insignificance.

Among natives' children, neighborhood monitoring, represented by the prevalence of two-parent households, the proportion of foreign-born/LEP neighbors, and relative deprivation, affect GPA. However, after taking into account school characteristics, none of these significant neighborhood effects remains. A correlation analysis (not presented) suggests substantial negative correlations between co-racial two-parent households on the one hand, and negative school climate (-.23) and magnet school attendance (-.30) on the other. The correlation between the proportion of foreign-born/LEP neighbors and average class size is also substantial (.26), whereas the correlations between relative deprivation and magnet school or urban school attendance are moderate (both about .11). Therefore, some neighborhood effects on the GPA of natives' children are mediated by school characteristics: school climate, class size, school location and school type.

School Effects

A number of differences between the school effects for immigrants' children and natives' children are shown in Model 6, Table 6. Negative school climate depresses GPA for both immigrants' and natives' children. Although poor school climate negatively affects both immigrants' and natives' children, the size of this negative effect is significantly smaller (at .05 level) for immigrants' children, suggesting that immigrants' children are less vulnerable to poor school climate. Another measure of school condition, class size, is significantly associated with the GPA for natives' children but not for immigrants' children. Immigrants' children are less vulnerable to large class size as well. Large class size hurts natives' children but not immigrants' children, perhaps because many immigrant children are used to large classes in their home countries, that do not compromise their learning.

The school SES effect mirrors neighborhood SES effects for both nativity groups. The effect of school SES, indicated by parents' education within the school community, is substantially significant for immigrants' children but not for natives' children, suggesting that immigrants' children are more affected by role-models, within schools or neighborhoods, than are natives' children.

We do not have an a priori prediction for the influence of school location on GPA because it is difficult to generalize the quality of schools in urban, suburban and rural areas. Our results show that both urban and rural schools are associated with higher GPA than are suburban schools. Immigrants' children in urban or rural schools tend to outperform their counterparts in suburban schools. In contrast, the GPA gaps by school type are significant among natives' children but not among immigrants' children. It is common wisdom that students in magnet schools or private schools perform significantly better than do students in the typical public schools because of magnet or private schools' student composition, curriculum, and academic climate. Such school type advantage only applies to natives' children but not immigrants' children. Immigrants' children in typical public schools do just as well as their counterparts in magnet schools or public schools of choice. Put differently, natives' children do relatively poorly in typical public schools than their counterparts in magnet schools or public school of choice, but immigrants' children perform uniformly in all types of schools.

In general, school characteristics are more strongly related to GPA than are neighborhood conditions (Model 6). The only protective neighborhood factor for immigrants' children is adult neighbors' SES; its effect on GPA is small. By way of contrast, school climate and school SES have large influences on GPA. The sizes of these two school effects are similar—almost half a standard deviation (.36/.77=.47). In other words, schools can protect immigrants' children if the

climate in school is positive and there are plenty of educated adult role-models in the school community. But if immigrants' children do not feel like they are a part of the school nor feel close to people at school, they perform poorly. For these children of immigrants, a standard deviation increase in such negative feelings towards school completely eliminate the academic benefits of attending a school with one standard deviation higher SES.

Summary and Conclusion

Our purpose in this paper is to illuminate the role played by neighborhoods and schools in the achievement differences between ethnic and nativity groups of adolescents. Guided by Jencks and Mayer's (1990) five mechanisms of neighborhood effects, we identified variables and constructed multiple-indicator composites to measure contextual factors that correspond to five theoretical models. We extend Jencks and Mayer's framework to specify various ways by which schools, as neighborhood institutions, operate similarly to neighborhoods in the transmission of advantages and disadvantages to children of immigrants. Applying a cross-classification random effects model that takes into account the cross-classified and hierarchical structure of the data, we examine whether neighborhood and school conditions account for school performance differences among groups of adolescents by ethnicity and nativity.

We find significant differences between students' GPA by ethnicity and nativity. Consistent with past research, Hispanic children of Mexican, Cuban, and Puerto Rican immigrants perform less well in school than do non-Hispanic White children, whereas Asian children of Chinese and Filipino immigrants perform at a higher level in school (Hao & Bonstead-Bruns, 1998; Portes & MacLeod, 1996; Rong & Grant, 1992). These ethnic differences among immigrants cannot be accounted for by differences in family background alone.

Neighborhood conditions show large differences between Hispanic and Asian immigrants. Hispanic immigrants' neighborhoods are characterized by low SES; high proportions of co-racial peer who are idle, non-intact families, and foreign-born individuals who speak limited English; and residential instability. In contrast, Asian immigrants tend to live in very high SES neighborhoods with few idle peers. However, Asian immigrants' neighborhoods are also characterized by a high percentage of foreign-born individuals who speak limited English and experience residential instability. Taking all immigrants together, their neighborhood conditions are poorer than those for natives.

School characteristics also differ between Hispanic and Asian immigrants. Hispanic immigrants are more likely to attend low SES schools and schools where students are exhibiting problem behaviors, and less likely to attend private schools than are Asian immigrants. However, all schools attended by immigrants' children have larger average class size than do schools attended by natives' children.

Family, neighborhood, and school characteristics account for all of Mexican immigrant children's schooling disadvantages as compared to those for native non-Hispanic White children. Higher performance among Filipino immigrants' children is revealed after taking into account some unfavorable neighborhood and school conditions. Nevertheless, school performance gaps between other groups of immigrants and native Whites remain largely the same after controlling for neighborhood and school characteristics.

Two significant neighborhood factors influence GPA. First, neighborhood SES, represented by co-racial or co-ethnic adult neighbors who have a college education and hold professional and managerial positions, has a positive impact on GPA. This result corroborates previous findings about neighborhood effects on children's academic achievement and school

readiness (Ainsworth, 2002; Vartania & Gleason, 1999; and see reviews by Leventhal & Brooks-Grun, 2000, and Jencks & Mayer, 1990). However, further analysis that separates the samples of children by nativity reveals that the neighborhood SES effect exists only among immigrants' children and not among natives' children. Thus the neighborhood SES effect for the full sample conceals the differential influence of neighborhood SES for different sub-populations. Our results show that the school performance of immigrants' children is more sensitive to neighborhood SES than is the performance of natives' children. At the same time, family SES, indicated by parental education and household income, is a stronger predictor of GPA among natives' children than among immigrants' children. Together, these results suggest that, compared to natives' children, the school achievement of immigrants' children depends more on successful neighborhood adults and less on immigrant parents' resources. It is possible that immigrant children, eager to assimilate into American society, look to native-born neighborhood adults for role-models.

The second significant neighborhood effect, not reported in the neighborhood literature, is the proportion of foreign-born and limited English proficient individuals (either adults or children). We find this variable to be negatively associated with the GPA of immigrants' children but not natives' children. Again, immigrants' children appear to be more susceptible to neighborhood conditions than are natives' children. That said, we must also note that the neighborhood effects of SES and LEP, though statistically significant, are small compared to most family or school effects.

School conditions also have significant effects on GPA. School SES, measured by the percentage of parents with a college degree or above, is strongly associated with the GPA of immigrants' children but not of natives' children. Again, immigrants' children depend more on

adults outside their home for role-models. Interestingly, immigrants' children are less affected by their school peers or school policies. School climate is less strongly associated with the GPA of immigrants' children than with the GPA of natives' children. Large class size negatively affects natives' children but not immigrants' children. Also, different types of schools with varied school policies and curricula affect natives' children but not immigrants' children. One of the most important findings in this study is the large effect of the school as a neighborhood institution and its mediating role in the relationship between neighborhood conditions and school performance among natives' children. Our contribution is the application of a new methodology in evaluating neighborhood and school effects simultaneously. Studies of neighborhoods that do not take into account school conditions may overestimate neighborhood effects and miss the important resource provided by schools as a neighborhood institution. Further research is needed to fully understand how neighborhood influences may be channeled through the school to affect child outcomes.

References

Aaronson, D. 1997. "Sibling estimates of neighborhood effects." In J. Brooks-Gunn, G.J. Duncan, & J.L. Aber (Eds.), Neighborhood Poverty: Vol.2. Policy Implications in Studying Neighborhoods, pp. 80-93. New York: Russell Sage Foundation.

Ainsworth, James W. 2002. "Why Does It Take a Village? The Mediation of Neighborhood Effects on Educational Achievement." Social Forces 81(1): 117-152.

Albrecht, Carpenter and Sivo 1994

Bankston, Carl L. III, S. J. Caldas, and M. Zhou. 1997. "The Academic Achievement of Vietnamese American Students: Ethnicity as Social Capital." *Sociological Focus* 30:1-16.

Billy, John O.G., Cubbins, Lisa A., Grady, William R., Kim, Hyoshin, & Klepinger, Daniel H. 2001. "Contextual Effects on Adolescent Alcohol Use." Paper presented at the 2001 Add Health Users Workshop, Bethesda, MD, August 9-10.

Catsambis, Sophia & Beveridge, Andrew A. 2001. "Does Neighborhood Matter? Family, Neighborhood, and School Influences on Eighth-Grade Mathematics Achievement." Sociological Focus 34 (4): 435-457.

Clasen, D. and B. Brown. 1985. The multidimensionality of peer pressure in adolescence. J. of Youth and Adolescence, 14, 451-67.

Coleman, J. 1961. The adolescent society. New York, NY: Free Press.

----------. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94:s95-s120.

----------. 1990. *Foundation of Social Theory*. Cambridge: Harvard University Press.

Crane, J. 1991. "The Epidemic Theory of Ghettos and Neighborhood Effects on Dropping Out and Teenage Childbearing." American Journal of Sociology 96: 1126-1159.

Dornbusch, S. 1987. Individual moral choices and social evaluations: a research odyssey. In E. Lawler and B. Markovsky (ed.) *Advances in group processes: theory and research*. Greenwich, CT: JAI Press.

Duncan, G.J., Connell, J.P. & Klebanov, P.K. 1997. "Conceptual and Methodological Issues in Estimating Causal Effects of Neighborhoods and Family Conditions on Individual Development." In J. Brooks-Gunn, G.J. Duncan, & J.L. Aber (Eds.), *Neighborhood Poverty: Vol. I. Context and Consequences for Children*, pp. 219-250. New York: Russell Sage Foundation.

Entwisle, D.R., Alexander, K.L. & Olson, L.S. 1994. "The Gender Gap in Math: Its Possible Origins in Neighborhood Effects." American Sociological Review 59: 822-838.

Foster, E.M. & McLanahan, S. 1996. "An Illustration of the Use of Instrumental Variables: Do Neighborhood Conditions Affect a Young Person's Chance of Finishing High School?" Psychological Methods, 1: 249-260.

Fridrich, A. and D. Flannery. 1995. The effects of ethnicity and acculturation on early adolescent delinquency. Journal of Child and Family Studies, 4, 69-87.

Fuligni, A.J. 1997. The academic achievement of adolescents from immigrant families: the role of family background, attitudes, and behavior. Child Development, 68, 351-363.

Fuligni, Andrew J. & Melissa Witkow. 2004. "The postsecondary educational progress of youth from immigrant families." Journal of Research on Adolescence, 14(2): ;159-183.

Gardner and Raudenbush, 1991.

Glick, J. E. and White, M.J. 2003. "The academic trajectories of immigrant Youths." Demography 40(4): 759-784.

Goldstein, Harvey. 1994. "Multilevel Cross-Classified Models." *Sociological Methods and Research* 22(3): 364-375.

Hao, L., and M. Bonstead-Bruns. 1998. "Parent-Child Differences in Educational Expectations and the Academic Achievement of Immigrant and Native Students." *Sociology of Education* 71: 175-198.

Harding, David. 2003. "Counterfactual Models of Neighborhood Effects: The Effect of Neighborhood Poverty on Dropping Out and Teenage Pregnancy." American Journal of Sociology 109 (3): 676-719.

Harris, Kathleen Mullan, Francesca Florey, Joyce Tabor, Peter S. Bearman, Jo Jones, and J. Richard Udry. 2003 The National Longitudinal Study of Adolescent Health: Research Design [WWW document]. URL: http://www.cpc.unc.edu/projects/addhealth/design.

Hernandez , D. J., and E. Charney, eds. 1998. *From Generation To Generation: The Health and Well-Being of Children in Immigrant Families*. Washington D.C.: National Academy Press.

Jencks, Christopher & Mayer, Susan E. 1990 "Residential Segregation, Job Proximity, and Black Job Opportunities." In Laurence E. Lynn, J., and Michael G.H. McGeary (Eds.), Inner-City Poverty in the United States. Washington, D.C.: National Academy Press.

Jensen, Leif. 2001. "The Demograhic Diversity of Immigrants and Their Children." In Rumbaut, Ruben G. and Portes, Alejandro (Eds.), *Ethnicities: Children of Immigrants in America*. New York: Russell Sage Foundation.

Kao, Grace. 2004. "Parental Influences on the Educational Outcomes of Immigrant Youth." *International Migration Review* 37(4): 427-449.

Kao, G., and M. Tienda. 1995 "Optimism and Achievement: The Educational Performance of Immigrant Youth." *Social science quarterly*, MAR 01 v 76 n 1, 1

Kuncel, Crede & Thomas, 2005.

Leventhal, Tama & Brooks-Gunn, Jeanne. 2000. "The Neighborhoods They Live in: The Effects of Neighborhood Residence on Child and Adolescent Outcomes." Psychological Bulletin 126 (2): 309-337.

Massey, D. S., and N. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard U. Press.

Portes, A. 1993. "Embeddedness and Immigration: Notes on the Social Determinants of Economic Action." *American Journal of Sociology* 98(6): 1320-1350.

Portes, A., and M. Zhou. 1993. "The New Second Generation: Segmented Assimilation and Its Variants." *Annals of the American Academy of Political and Social Science* 530: 74-96.

Portes, A., and MacLeod, D. 1996. "Educational Progress of Children of Immigrants: The Roles of Class, Ethnicity, and School Context." *Sociology of Education* 69: 255-275.

Portes, A., and R. Rumbaut. 1996. *Immigrant America: A Portrait*. Berkeley: University of California Press, 2nd edition.

Portes, Alejandro and Ruben G. Rumbaut. 2001. *The Legacies*. University of California Press and Russell Sage Foundation.

Portes, Alejandro and Lingxin Hao. 2004. "The Schooling of Children of Immigrants: Contextual Effects on the Educational Attainment of the Second Generation." *Proceeding of National Academy of Science* 101:11920-27.

Portes, Alejandro and Lingxin Hao. 1998. "E Pluribus Unum: Bilingualism and Language Loss in the Second Generation." *Sociology of Education* 71:269-294.

Rong, X.L. and L. Grant. 1992. "Ethnicity, Generation, and School Attainment of Asians, Hispanics, and Non-Hispanic Whites." Sociological Quarterly 33: 625-36.

Raudenbush and Bryk 2002.

Rosenbaum 2001

Rumberger, Russell W. & Thomas, Scott L. 2000. "The Distribution of Dropout and Turnover Rates Among Urban and Suburban High Schools." *Sociology of Education* 73(1): 39-67.

Rumbaut, R. G., and W. A. Cornelius. 1995. *California's Immigrant Children: Theory, Research, and Implications for Educational Policy*. CA: The Center for U.S.-Mexican Studies, University of California, San Diego.

Sampson, R. J., J. D. Morenoff, and F. Earls. 1999. "Beyond Social Capital: Spatial Dynamics of Collective Efficacy for Children." *American Sociological Review* 64: 633-660.

Sampson, R.J., Squires, G.D., and Zhou, M. 2001. *How Neighborhoods Matter: The Value of Investing at the Local Level*. Washington D.C.: American Sociological Association.

Suarez-Orzco, M.M. 1989. *Central American Refugees and U.S. High Schools: A Psychological Study of Motivation and Achievement*. Stanford, CA: Stanford U. Press.

Vartanian, Thomas P. & Gleason, Philip M. 1999. "Do neighborhood conditions affect high school dropout and college graduation rates?" The Journal of Socio-Economics 28: 21-41.

Waters, Mary. 1996. "Ethnic and Racial Identities of Second-Generation Black Immigrants in New York City." In A. Portes (ed.), *The New Second Generation*. NY: Russell Sage Foundation.

Wilson, W. J. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: U. of Chicago Press.

Zhou, M. 1997. "Growing Up American: The Challenge Confronting Immigrant Children and Children of Immigrants." *Annual Review of Sociology* 23:63-95.

Zhou, M. and J. Logan. 2003. "Increasing Diversity and Persistent Segregation: Challenges of Educating Minority and Immigrant Children in Urban America." Pp. 185-202 in *The End of Desegregation?*, edited by Stephen J. Caldas and Carl L. Bankston III. New York: Nova Science Publications.

Table 1. Neighborhood Conditions by Race/ethnicity and Nativity

Group	Co-racial idle peer	Co-ethnic SES	Two-parent households	% housing units moved into	Foreign-born LEP	Rel. Educ Status
Immigrants' Children[a]	.09	-.09	.29	.52	.09	.06
Non-Hisp White	-.32	.29	.41	.49	.02	.17
Non-Hisp Black	.09	.00	-.21	.49	.03	.03
Mexican	.58	-.56	.54	.55	.11	-.14
Cuban	.27	-.85	-.38	.53	.35	-.11
Puerto Rican	.27	-.30	-.10	.48	.09	.08
Chinese	-.27	.45	.26	.52	.06	-.11
Filipino	-.21	.15	.75	.52	.07	.15
Natives' Children[a]	-.12	-.02	.29	.47	.01	.02
Non-Hisp White	-.21	.07	.45	.46	.01	.07
Non-Hisp Black	.14	-.37	-.38	.45	.01	-.18
Mexican	.11	-.05	.35	.54	.05	.00
Cuban	.18	.33	.02	.43	.02	-.02
Puerto Rican	-.08	-.11	.08	.46	.04	.18
Chinese	-.63	.85	.86	.56	.06	.00
Filipino	-.33	.05	.51	.50	.05	.52
Total[a]	-.09	-.03	.29	.47	.03	.03

Note: [a] Includes "other" ethnic-nativity groups. Total N=17,262.

Table 2. School Conditions by Race/ethnicity and Nativity

Group	Negative climate	Problem behaviors	High SES	Average class size	Urban	Rural	Magnet school	School of choice	Private school
Immigrants'									
Children[a]	2.48	1.60	.21	27.68	.47	.06	.21	.20	.09
Non-Hisp White	2.44	1.52	.25	25.04	.26	.15	.04	.30	.08
Non-Hisp Black	2.54	1.64	.23	27.34	.38	.09	.24	.17	.05
Mexican	2.49	1.65	.16	29.50	.69	.05	.46	.16	.03
Cuban	2.39	1.71	.10	28.37	.95	.00	.49	.02	.01
Puerto Rican	2.51	1.70	.15	28.36	.77	.00	.16	.25	.15
Chinese	2.48	1.42	.37	26.40	.38	.04	.23	.15	.20
Filipino	2.48	1.58	.23	30.44	.12	.02	.04	.10	.16
Natives'									
Children[a]	2.43	1.55	.22	25.12	.21	.19	.08	.33	.06
Non-Hisp White	2.41	1.51	.22	24.69	.18	.20	.03	.35	.07
Non-Hisp Black	2.53	1.68	.19	26.48	.29	.14	.29	.23	.04
Mexican	2.44	1.61	.20	26.76	.42	.08	.17	.33	.03
Cuban	2.44	1.47	.37	25.96	.75	.09	.01	.31	.46
Puerto Rican	2.56	1.66	.17	28.01	.49	.02	.21	.30	.06
Chinese	2.32	1.62	.27	29.41	.36	.00	.23	.17	.09
Filipino	2.30	1.58	.25	25.73	.15	.00	.03	.12	.16

Note: [a] Includes other ethnic-nativity groups. Total N=17,262.

Table 3. Cross-classified Hierarchical Analysis of GPA

Group	Model 1	Model 2
Immigrants' Children		
Non-Hisp White	.03	.04
Non-Hisp Black	-.03	.03
Mexican	-.11**	-.06
Cuban	-.19**	-.13*
Puerto Rican	-.21**	-.15**
Chinese	.37**	.39**
Filipino	.07*	.14**
Natives' Children		
Non-Hisp White (reference)		
Non-Hisp Black	-.15**	-.10**
Mexican	-.16**	-.12**
Cuban	-.01	-.03
Puerto Rican	-.27**	-.21**
Chinese	.11	.13
Filipino	-.14	-.10
All other ethnic-nativity groups	-.09**	-.05*
Neighborhood Conditions		
Co-racial idle peer (per 10 peer)		.08
Co-racial, co-ethnic SES		.03*
Co-racial two-parent Households		.02
% housing units moved into 1985-1990		-.04
Foreign born or LEP		-.02*
Relative Educational Status		.00
School Characteristics		
Negative school climate		-.46**
Problem behavior		-.03
School SES		.12
Class size (per 10 students)		-.08**
Urban school (ref: suburban school)		.06**
Rural school (ref: suburban school)		.02
Magnet public school (ref: other public)		.09**
Public school of choice (ref: oth public)		.07**
Private school (ref: other public)		.08**

Note: N = 17,262. ** p<.01, * p<.05. Models 1 and 2 includes individual and family variables.

Table 4. Individual Factors in School Performance of Immigrants' and Natives' Children

Variable	Immigrants' Children (N=4,271)				Natives' Children (N=12,991)			
	Model 3	Model 4	Model 5	Model 6	Model 3	Model 4	Model 5	Model 6
Generation								
1st generation (ref: 2nd gen)	.10**	.11**	.12**	.12**	---	---	---	---
1.5 generation (ref: 2nd gen)	.06*	.06*	.06+	.05	---	---	---	---
Ethnicity								
Non-Hispanic White (ref.)								
Non-Hispanic Black	-.16**	-.12*	-.11*	-.07	-.22**	-.14**	-.12**	-.09**
Mexican	-.31**	-.18**	-.16**	-.11*	-.24**	-.15**	-.13**	-.11**
Cuban	-.36**	-.24**	-.14*	-.14*	-.01	-.01	-.01	-.03
Puerto Rican	-.36**	-.26**	-.23**	-.20**	-.35**	-.26**	-.23**	-.19**
Chinese	.47**	.35**	.36**	.35**	.12	.10	.11	.11
Filipino	.05	-.06	-.02	.06	-.21*	-.13	-.12	-.12

Note: We estimated 4 incremental cross-classified random-effects models (Models 3-6) and presented segments of them in Tables 5-7. Model 3 includes individual characteristics; Model 4 adds family characteristics; Model 5 adds neighborhood variables; and Model 6 adds school variables.
** p<.01, * p<.05, + p<.10.

Table 5. Family Influence on School Performance of Immigrants' and Natives' Children

Variable	Immigrants' Children (N=4,271)			Natives' Children (N=12,991)		
	Model 4	Model 5	Model 6	Model 4	Model 5	Model 6
Parental Education						
High school graduate (reference)						
Less than high school	-.03	-.03	-.03	-.11**	-.11**	-.10**
Some college	.09*	.08*	.07+	.06**	.06**	.05**
College +	.25**	.22**	.21**	.27**	.27**	.26**
Family Structure						
Stepfamily	-.20**	-.20**	-.20**	-.15**	-.14**	-.14**
Single-parent	-.17**	-.17**	-.17**	-.17**	-.17**	-.16**
No biological parent	-.10**	-.11*	-.10*	-.22**	-.22**	-.21**
Household Income (log)	.04*	.04*	.03*	.07**	.06**	.06**
Home Language						
Spanish	-.07*	-.04	-.05	.04	.04	.04
Other non-English language	.14**	.15**	.16**	.03	.04	.03

Note: We estimated 4 incremental cross-classified random-effects models (Models 3-6) and presented segments of them in Tables 5-7. Model 3 includes individual characteristics; Model 4 adds family characteristics; Model 5 adds neighborhood variables; and Model 6 adds school variables.
** p<.01, * p<.05, + p<.10.

Table 6. Neighborhood and School Influence on School Performance of Immigrants' and Natives' Youth

Variable	Immigrants' Children (N=4,271)		Natives' Children (N=12,991)	
	Model 5	Model 6	Model 5	Model 6
Neighborhood Conditions				
Co-racial idle peer (per 10 peer)	.06	.05	.09	.08
# housing units moved in	.03	-.08	.00	.01
Co-racial two-parent Households	-.00	.01	.02*	.02
Co-racial, co-ethnic SES	.04*	.04*	.03	.02
Foreign born or LEP	-.33*	-.33*	-.55*	-.17
Relative Educational Status	-.05**	-.03	.00	.01
School Characteristics				
Negative school climate		-.36**		-.47**
Problem behavior		.09		-.07
Proportion high SES		.36*		.01
Class size (per 10 students)		-.05		-.08**
Urban school (ref: suburban school)		.13**		.04*
Rural school (ref: suburban school)		.18**		.01
Magnet public school (ref: other public)		.02		.13**
Public school of choice (ref: other public)		.02		.08**
Private school (ref: other public)		-.08		.13**

Note: We estimated 4 incremental cross-classified random-effects models (Models 3-6) and presented segments of them in Tables 5-7. Model 3 includes individual characteristics; Model 4 adds family characteristics; Model 5 adds neighborhood variables; and Model 6 adds school variables.

** p<.01, * p<.05.

Appendix Table A1. Descriptive Statistics of Neighborhood Variables and Constructs

Variables, composites and their theoretical effects	Cronbach Alpha
Epidemic Influence	
Co-racial Idle peer (per 10 peer)	.93
Number of 16-19 not in school or arm forces/no HS/not in LF	
Number of co-racial peer aged 16-19 not in school or arm forces/no HS/not in LF	
Foreign-born LEP	.92
Proportion of <18 foreign-born	
Proportion of 5+ years old with limited English Proficiency (LEP) who speak English "not well" or "not at all"	
Collective Socialization	
Co-racial, co-ethnic SES / role models	.96
Proportion of 25+ years old without HS diploma	
Proportion of co-racial 25+ years old without HS diploma	
Proportion of co-ethnic (Hispanic) 25+ years old without HS diploma	
Proportion of 25+ years old with college degree +	
Proportion of co-racial 25+ years old with college degree +	
Proportion of co-ethnic (Hispanic) 25+ years old with college degree +	
Proportion of employed in managerial & professional occupations	
Co-racial two-parent households / monitoring	.88
Proportion of HH, married couple with children	
Proportion of co-racial HH, married couple with children	
Racial diversity / Social cohesion	
Proportion of Housing Units moved into neighborhood 1985-1990	---
Relative Deprivation / Competition	
Relative educational status	.97
(Proportion of 25+ years old with college degree+) – (Respondent has parent who has a college degree+, 1=no, 0=yes)	
(Proportion of co-ethnic 25+ years old with college degree+) – (co-ethnic respondent has parent who has a college degree+, 1=no, 0=yes)	

Appendix Table A2. Descriptive Statistics of School Variables

Variables and their theoretical effects	Cronbach Alpha
Epidemic Influence	
Negative School climate	.71
Average disagreement that student feel close to people at school	
Average disagreement that students feel part of the school	
Problem Behaviors	.77
Average times students have trouble with teachers	
Average times students have trouble with homework	
Average times students have trouble with other students	
Collective Socialization	
School SES	---
% parents having a college degree or above	
Average class size in school (per 10 students)	---
Other School Characteristics	
Urban school (ref: suburban school)	---
Rural school (ref: suburban school)	---
Magnet school (ref: other public school)	---
Public school of choice (ref: other public school)	---
Private school (ref: other public school)	---

Appendix Table A3. Descriptive Statistics of Individual and Family Variables

Variable	Immigrants' Children		Natives' Children	
	Mean	SD	Mean	SD
Individual Char.				
GPA	2.81	(.75)	2.78	(.78)
Gender (male)	.50	(.50)	.51	(.50)
Grade 7 & 8	.32	(.46)	.37	(.48)
Grade11 & 12	.34	(.47)	.30	(.46)
1st generation	.24	(.43)	--	--
1.5 generation	.14	(.35)	--	--
2nd generation	.62	(.49)	--	--
White	.25	(.43)	.74	(.44)
African/Caribbean	.06	(.23)	.17	(.38)
Mexican	.23	(.42)	.03	(.17)
Cuban	.04	(.19)	.00	(.02)
Puerto Rican	.04	(.20)	.01	(.09)
Chinese	.03	(.17)	.00	(.03)
Filipino	.07	(.25)	.00	(.04)
Other group	.29	(.45)	.05	(.21)
Family Char.				
Parent's Education (ref: high school)				
Less than high school	.35	(.48)	.13	(.34)
Some college	.23	(.42)	.31	(.46)
College +	.20	(.40)	.21	(.41)
Family Structure (ref: two-parent family)				
Stepfamily	.08	(.28)	.11	(.32)
Single-parent	.25	(.43)	.29	(.45)
No biological parent	.06	(.24)	.07	(.25)
Household Income (log)	1.27	(.92)	1.44	(.91)
Home language: Spanish	.28	(.45)	.00	(.04)
Home language: other non-English	.13	(.34)	.00	(.04)
N	4.271		12,991	