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Rethinking the Cultural Context of Schooling Decisions in Disadvantaged Neighborhoods: From Deviant Subculture to Cultural Heterogeneity

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Abstract

The literature on neighborhood effects on schooling theorizes that neighborhood cultural context is an important mechanism generating such effects. However, explanations that rely on subcultural theories, such as oppositional culture, have met with considerable criticism on empirical grounds, and no alternative account of the cultural context of disadvantaged neighborhoods has been developed in the education literature. This study develops a new account of the cultural context of schooling decisions in disadvantaged neighborhoods based on the concept of cultural heterogeneity, defined as the presence of a wide array of competing and conflicting cultural models. It applies this concept to neighborhood effects on college enrollment. Using survey data from the National Longitudinal Study of Adolescent Health, this study shows that disadvantaged neighborhoods exhibit greater heterogeneity in college goals and that adolescents in more heterogeneous neighborhoods are less likely to act in concert with the college goals that they articulate.

Although individual, family, and school characteristics are prime determinants of schooling outcomes, research has also demonstrated a consistent relationship between growing up in a disadvantaged neighborhood and educational attainment (Aaronson 1998, Entwisle, Alexander, and Olson 1994, Garner and Raudenbush 1991, Harding 2003). Yet we have made less progress in identifying the mechanisms by which such neighborhood effects come about (Ainsworth 2002). The social and cultural processes that connect structural characteristics of neighborhoods – such as high rates of poverty, joblessness, and single parenthood – to lower levels of schooling are not well understood. The notion that poor African-American adolescents experience an "oppositional culture" that leads them to reject school effort (Fordham and Ogbu 1986) was once a popular explanation for lower educational attainment, but recently its core arguments have been challenged on empirical grounds (Downey 2008). More generally, neighborhood effects theories in which concentrated disadvantage leads to an alternative or deviant subculture that is distinct from "mainstream" or middle class culture (Massey and Denton 1993, Anderson 1999) have increasingly been brought into question by research in other domains, including work, parenthood, and romantic relationships (e.g. Newman 1999, Edin and Kefalas 2005, Young 2004, Waller 2002, Duneier 1992). What then is the cultural context of poor neighborhoods with regard to education, and can cultural context help us to understand neighborhood effects on schooling outcomes?

An alternative perspective on the cultural context of disadvantaged neighborhoods argues that such neighborhoods are characterized by *cultural heterogeneity*, the presence of a wide

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array of competing and conflicting cultural models, most of which are "mainstream" or "middle class" models but some of which are "oppositional" or "ghetto specific" (Harding 2007). Adolescents growing up in culturally heterogeneous neighborhoods face a dizzying array of cultural models from which to draw in interpreting social life, in making decisions, and in constructing strategies of action. The result is that they have difficultly constructing and following effective pathways to achieve their goals. These propositions have only been tested with regard to adolescent sexual behavior and romantic relationships. Harding (2007) finds that disadvantaged neighborhoods exhibit greater heterogeneity of teenage pregnancy frames and romantic relationship scripts and that adolescents growing up in culturally heterogeneous neighborhoods are less likely to act in accordance with the frames and scripts that they articulate.

This study employs the concept of cultural heterogeneity to develop a new account of the cultural context of disadvantaged neighborhoods with regard to schooling. It draws upon findings from the sociology of education on the transition to college, particularly the difficulties encountered by disadvantaged adolescents in navigating complex educational institutions. This study investigates the consequences of cultural heterogeneity of educational goals in disadvantaged neighborhoods for college enrollment. Using survey data from the National Longitudinal Study of Adolescent Health (Addhealth), it shows that disadvantaged neighborhoods exhibit greater heterogeneity in college goals, net of the greater ethnic and racial diversity and greater residential turnover that prevail in many of these neighborhoods. Analyses also show that in more heterogeneous neighborhoods adolescents are less likely to act in concert with the college goals that they articulate, net of their family social and economic resources and net of the characteristics of the schools they attend.

The Gap between Aspirations and Attainment

Rising college aspirations in recent cohorts – what Rosenbaum (2001) terms the "college for all ethos" – have shifted attention to the gap between aspirations and the financial, social, and cultural resources needed to achieve them (Schneider and Stevenson 1999). This gap is particularly strong for students from disadvantaged family backgrounds and under-resourced schools (Rosenbaum 2001). The gap between aspirations and educational attainment has focused attention on the processes that prevent students with college ambitions from realizing their goals. Schneider and Stevenson (1999) argue that parents and school staff should do more to help adolescents construct coherent pathways and to secure information about potential colleges. As interest in college has grown and community colleges have multiplied, the landscape of postsecondary educational institutions has become ever more diverse and difficult to navigate (Roksa, Grodsky, Arum, and Gamoran 2007). Low-income and minority students and those whose parents have not attended college may be particularly challenged in constructing effective pathways to enrollment and completion at these complex institutions, particularly with regard to admissions and financial aid (Goldrick-Rab 2006). This study incorporates this research on navigating educational institutions and constructing effective educational pathways into the literature on neighborhood effects on schooling.

Neighborhood Mechanisms, Culture, and Schooling

The literature on neighborhood effects on schooling consistently finds associations between the compositional characteristics of neighborhoods (e.g. poverty rate) and educational outcomes like years of school completed, high school graduation, achievement, and test scores (e.g. Aaronson 1998, Entwisle et al 1994, Garner and Raudenbush 1991, Harding 2003). Ainsworth (2002) reports that neighborhood characteristics rival family and school

characteristics as predictors of educational outcomes. However, limited data on anything other than census measures of neighborhood characteristics has made it difficult to research the *processes* through which these neighborhood effects come about, since census measures only roughly proxy social and cultural neighborhood characteristics and are generally highly correlated with one another. Using compositional neighborhood characteristics from the census presumes the very links between neighborhood composition and social and cultural characteristics that need to be empirically investigated (Harding et al. 2010). For example, equating the proportion of adults with a college degree with neighborhood norms and values regarding the importance of education implies a number of untested assumptions about how compositional and cultural characteristics of neighborhoods are interrelated.

Theories of neighborhood effects on individual outcomes based on neighborhood social processes usually fall into two general perspectives: social isolation theory (Wilson, 1987, 1996), which focuses on social connections between neighborhood residents and the larger society, and social organization theories (Park and Burgess 1925, Shaw and McKay 1969), which focus on processes internal to the neighborhood (Small 2004, Ainsworth 2002).

Social Isolation, Cultural Isolation, and Collective Socialization

According to social isolation theory, the social networks of residents of disadvantaged neighborhoods contain few members of middle class or mainstream social groups, and the ghetto poor have low levels of participation in mainstream (non-local) organizations and institutions (Wilson 1987). Joblessness separates residents of poor neighborhoods from the mainstream labor market, an important tie to middle class culture (Wilson 1996). As a result, residents of isolated neighborhoods develop cultural repertoires that differ from those of mainstream society. Through "collective socialization," youth are socialized in a cultural environment in which behaviors that would be considered deviant in the outside world, such as early sexual behavior and high school dropout, are normalized and rationalized. Most research that is explicitly framed in terms of social isolation theory investigates the social networks of neighborhood residents, finding that neighborhood poverty is related to organizational participation and to ties to employed or college-educated individuals, net of individual characteristics (Tigges, Browne and Green 1998, Rankin and Quane 2000).

Meanwhile, the predicted relationship between social isolation and cultural isolation is supported by less empirical evidence. A core idea in social isolation theory is that social isolation leads to cultural isolation, which – when coupled with a blocked opportunity structure – contributes to the development of norms and values that eschew education as a viable path for upward mobility. A "ghetto" subculture is thought to dominate, and educational decisions are made in a cultural context in which schooling is devalued. According to Fordham and Ogbu (1986; see also Ogbu 2004), in poor black communities behaviors that promote academic achievement, such as speaking standard English, doing homework, and engaging in class discussion, become defined as "acting white," a response to discrimination, inferior schools, and blocked labor market opportunities. More generally, oppositional culture theory has been employed to explain an expanded range of behaviors in poor neighborhoods (Massey and Denton 1993; Anderson 1990, 1999).

Yet the empirical basis for deviant subculture explanations of schooling outcomes has recently come into question. Survey researchers find no evidence that black students are disproportionately sanctioned by their peers for academic effort (Ainsworth-Darnell and Downey 1998, Harris 2006), and poor and minority students and parents profess strong educational aspirations (Tyson et al. 2005). Harris and Robinson (2007) argue that earlier deficits in academic skills explain the associations between race, schooling behaviors, and academic achievement. Carter (2005) shows that notions of "acting white" among poor

black and Latino youth have more to do with musical tastes, fashion, and speech patterns than with academic performance or effort.

More generally, cultural isolation and the dominance of a "ghetto-specific" or "oppositional culture" in poor neighborhoods are challenged by ethnographic research that finds very strong support for conventional or traditional views about not just education, but also work, welfare, and marriage (Young 2004, Newman 1999, Edin and Kefalas 2005, Waller 2002, Duneier 1992). Moreover, as Gould (1999) argues, some poor African-American men exhibit "oppositional" behavior because of expectations of blocked opportunities and discrimination, not because of different values. In short, there is little evidence that cultural isolation or a deviant subculture is an accurate description of the cultural context of poor neighborhoods, in education or in other domains. A new account of the cultural context of poor neighborhoods is needed.

Social Organization, Neighborhood Disorder, and Social Control

An alternative family of theoretical perspectives on the mechanisms of neighborhood effects is provided by social organization theories, which focus on the capacity of communities to regulate the behavior of their members (Park and Burgess 1925, Sampson et al. 1997). According to this framework, poverty, racial/ethnic diversity, and residential mobility lead to fewer social ties and weaker social cohesion and therefore to diminished capacity for informal social control. Moreover, local formal and informal institutions affect the capacity of neighbors to maintain social control by providing contexts within which social ties are created and strengthened. In contrast, middle-class neighborhoods with stronger institutions and denser social networks are thought to have greater social cohesion and to be better able to enforce common norms and values. Although the cultural aspects of social organization theories are less developed, social organization theories implicitly incorporate cultural concepts. Socially organized neighborhoods are thought to be better at regulating youth behavior because they are better able to discourage behavior that conflicts with common cultural values. To the degree that it captures a community's collective beliefs about its residents, collective efficacy (Sampson et al. 1997) is itself a cultural concept.

Applied to education, community social organization is expected to increase the capacity of parents to instill positive schooling norms and to monitor and control their children's education-related behaviors, such as attendance and effort. Intergenerational closure (Coleman 1988) is the degree to which parents know and interact with one another. A community in which parents are connected to one another should be better able to present adolescents with a consistent set of norms and values regarding education and be better able to monitor adolescent behavior. However, when applied to schools, intergenerational closure has not always met with consistent empirical support, raising the question of whether socially connected parents can indeed enforce common educational values (Morgan and Sorenson 1999).

In sum, although there is considerable support for social organization theories of neighborhood effects, much remains to be learned about social organization and schooling. Moreover, the relationship between social organization and neighborhood cultural context remains largely unelaborated. This study builds upon ideas derived from social organization models to develop an alternative account of the cultural context of poor neighborhoods, one that does not rely on the subculture assumptions typical of social isolation or oppositional culture theories.

From Deviant Subculture to Cultural Heterogeneity

Urban ethnographies question the stark contrast drawn between "ghetto culture" and "mainstream culture" in contemporary theorizing. They describe culture in ghetto neighborhoods as derived from mainstream culture but modified or reinterpreted in response to blocked opportunities (e.g. Liebow 1967, Duneier 1992, Rodman 1963). Hannerz (1969), for example, documents cultural variation not just between groups residing together in a single neighborhood but also in the use of culture by individuals, introducing the concept of cultural repertoire. Local cultures can add to or substitute for elements in the mainstream cultural repertoire and thereby allow individuals to adapt to their structural situations. For Hannerz, "ghetto culture" is not a monolithic entity but rather a heterogeneous and fluid mix of ideal-type "lifestyle groups" that individuals often move between.

Contemporary ethnographic research also shows that there are diverse sets of cultural models in high poverty neighborhoods. For example, Young (2004) documents multiple meanings attached to work, opportunity, and discrimination among unemployed young men in a West Side Chicago housing project. Anderson (1999) describes the influence of both "street" and "decent" orientations among those living in a disadvantaged section of Philadelphia. MacLeod (1995) documents the contrasting educational aspirations of two groups of adolescent boys, the "hallway hangers" and the "brothers," in a single public housing project.

In sum, most scholars of culture and poverty recognize the presence of multiple competing "lifestyle groups" (Hannerz's terminology) or "orientations" (Anderson's terminology) within inner city neighborhoods. The cultural environment of a poor neighborhood is not a single coherent entity but rather a heterogeneous mix of lifestyles or orientations that individuals move between or draw upon as necessary. Some of these orientations are closely linked to mainstream American culture, while others represent more "oppositional" cultural orientations (MacLeod 1995). Yet these descriptions of a mixed cultural environment stand in stark contrast to the subcultural explanations for adolescent behavior offered in the "deviant subculture" theories discussed above. Such analyses tend to explain a particular behavior by identifying a subculture, such as an oppositional culture, that promotes or justifies the behavior. Group memberships, whether they be peer groups or residential neighborhoods, are presumed to map onto coherent and distinct subcultures with particular cultural values or orientations. Membership in a particular group or residence in a particular neighborhood leads to adoption of a particular subculture, which then structures decision-making and behavior through its impact on values and orientations. When applied to neighborhoods in social isolation theories, this is typically accompanied by an assumption that an oppositional cultural logic dominates in poor neighborhoods (e.g. Fordham and Ogbu 1986, Massey and Denton 1993).

We are thus left with two largely incompatible theoretical models, one that describes poor neighborhoods as containing a mix of non-discrete, overlapping cultural orientations and another that relies on cultural subgroup explanations of behavior. The contradiction arises because membership in a subcultural group cannot strongly determine individual action if individuals draw from diverse cultural models in formulating their behavior. This dilemma can be resolved by adopting a different conception of what is culturally distinct about disadvantaged neighborhoods, one that moves us away from subcultures and toward *cultural heterogeneity*. It does so by breaking the assumed link between social groupings and cultural logics, thereby challenging the capacity of subcultural groups to narrowly structure the behavior of their members.

Neighborhood cultural heterogeneity is defined as the presence of a wide array of competing and conflicting cultural models, including both "mainstream" or "middle class" models and "oppositional" or "ghetto specific" models (Harding 2007).[1] In order to better understanding the relationship between culture and behavior among adolescents in disadvantaged neighborhoods, the cultural heterogeneity concept draws upon theoretical developments in cultural sociology over the last two decades. During this time, cultural sociology has moved away from a view of culture as an internally coherent set of values and toward a view of culture as fragmented and composed of "disparate bits of information and … schematic structures that organize that information" (DiMaggio 1997: 293). A key distinction between the "cognitive view" of culture and the "values view" of culture is how cultural variation is understood. If cultural analysis is limited to values, if values directly affect decision-making and behavior, and if culture is viewed as internally coherent, then differences in behavior across neighborhoods imply distinct subcultures with their own systems of values. In contrast, the cognitive view of culture allows for internal cultural variation, since any social context offers the individual multiple contradictory or overlapping cultural models from which to choose (Swidler 1986, Quinn and Holland 1987).

This perspective implies a loose coupling between interaction patterns and cultural logics. For example, Swidler (1986) and Tilly (1978) see culture as a repertoire (or "tool kit") of symbols, stories, and worldviews upon which individuals draw to construct strategies of action. According to this view, a culture is not a monolithic or coherent system in which an individual is completely embedded but rather a repertoire from which to draw. Moreover, the elements in one's toolkit come not just from direct experience or local social interaction but also from the wider culture via institutions such as the media, schooling, and religion. This theoretical perspective draws into question the tight link between social isolation (i.e. local social interactions) and cultural isolation (i.e. local cultural logics) often assumed in social isolation theories of neighborhood effects.

Why Disadvantaged Neighborhoods are More Culturally Heterogeneous

Three factors suggest that adolescents in disadvantaged neighborhoods are exposed to a more heterogeneous array of cultural ideas regarding schooling than those in more advantaged neighborhoods. First, disadvantaged neighborhoods contain a diversity of individuals with different occupational statuses, incomes, education levels reliance on public assistance, involvement in crime, and the like. For instance, though many middle class blacks left inner city neighborhoods in the 1970's, many also remained (Patillo-McCoy 1999), and working class blacks also continue to reside in central city neighborhoods. In contrast, more advantaged neighborhoods are thought to have the capacity to exclude poor residents through higher rents and real estate prices, leading to a more homogenous cultural environment.

Second, in addition to local observations, networks, and interactions, adolescents are exposed to cultural models through larger social institutions such as the media, religion, and politics. Carter (2005) notes, for example, that youth draw role models from television and radio. Also, one should not assume that adolescents imitate uncritically the behaviors they observe around them. Newman (1999) shows that youth can observe the negative consequences of dropout, public assistance, or crime experienced by family members and neighbors and decide not to repeat those behaviors.

[1]I follow Quinn and Holland (1987) in my use of the term "cultural models," which they define as, "Presupposed, taken-for-granted models of the world that are widely shared (although not necessarily to the exclusion of other, alternative models) by the members of a society and that play an enormous role in their understanding of that world and their behavior in it" (Quinn and Holland 1987: 4).

Third, social organization theory suggests that cultural heterogeneity may result from the decreased capacity for informal social control that is typical in disadvantaged neighborhoods. With less capacity to control public behavior, poor communities experience greater physical signs of disorder and a wider variety of public behaviors. Parents and other adults will be less able to limit adolescents' exposure to alternative behaviors and cultural logics since those whose behavior deviates from "mainstream" lifestyle choices face fewer social sanctions, leading to weaker consensus on appropriate behavior. These "ghetto-related behaviors" (Wilson 1996) may have greater salience to adolescents than their sheer numbers would lead us to expect because those with "street orientations," such as drug dealers or violent criminals, control a neighborhood's public space and are highly salient (Anderson 1999), whereas those with "decent orientations" retreat into their homes or spend the majority of their time outside the neighborhood at work or school. In contrast, more advantaged neighborhoods have more resources to maintain social institutions and have fewer barriers to using social networks for common goals such as maintaining order. Alternative cultural orientations will have fewer opportunities for public expression and receive less public *social support*, leading to greater cultural homogeneity. While wealthier neighborhoods may be culturally heterogeneous with regard to cultural tastes, styles, and religious beliefs, when it comes to educational goals, such neighborhoods are expected to be far more homogenous than disadvantaged neighborhoods. These three arguments suggest the first hypothesis that this study will examine:

> Hypothesis 1: *Adolescents in more disadvantaged neighborhoods will exhibit greater heterogeneity of educational goals*.

Neighborhood Cultural Heterogeneity and College Enrollment

Adolescence is a developmental stage associated both with greater experimentation and risk-taking and with greater focus on social identities and peers, making teenagers particularly susceptible to cultural heterogeneity. How might growing up in a culturally heterogeneous neighborhood impact an adolescent's educational decision-making? If an individual's cultural repertoire is constructed from what he observes among those with whom he interacts and from the broader cultural ideas to which he is exposed through media and institutions, then the average adolescent in a disadvantaged neighborhood will have a wider range of educational models in her repertoire. Consider the multiple goals for education and training that are available to adolescents in poor neighborhoods and the multiple ways to achieve those goals. One can earn an academic or athletic scholarship to attend a four-year college. One can take remedial courses at a community college, earn an Associate's degree, and then decide whether to continue for a Bachelor's. If one is frustrated or bored by high school, one can drop out, get a GED, and attend community college or a technical trade school. Finally, there is the military or programs like JobCorps, a residential education program that emphasizes GED prep, literacy, and learning a trade.

As adolescents in culturally heterogeneous neighborhoods make educational decisions, they have much more to consider than their counterparts in more homogenous neighborhoods. Not only do disadvantaged neighborhoods provide a wider array of goals and pathways, but – unlike more middle class communities – there is also social support among both peers and adults for a wide array of *both* mainstream and alternative models. One can observe friends, family members, and neighbors acting in accordance with various educational goals. Such a neighborhood social environment will provide a "weak signal" about the costs and benefits of various possible decisions. In contrast, adolescents in more culturally homogenous neighborhoods are exposed to a narrower array of socially supported career pathways and educational trajectories, as enrollment in a four-year college immediately after high school is the norm. One consequence of greater cultural heterogeneity is that there will be less information about how to follow a particular goal or strategy to completion. Where there is

diversity of cultural models, there is less information available about how to go about putting any one model or strategy into practice. For example, when fewer neighbors have successfully enrolled in college, how to go about doing so will be less clearly defined. Less information will be available about how admissions and financial aid processes work, for instance. Where there is diversity of cultural goals, there is also less social support for any single goal. For example, one's ideas about the advantages and disadvantages of various educational pathways may face frequent challenge from neighbors with different views.

A second and related consequence of a culturally heterogeneous neighborhood is that adolescents will have a harder time making and following through on educational decisions. In an environment in which advantages and disadvantages are poorly defined and social support exists for other options, adolescents are likely to display a weaker commitment to the educational decisions they make. Educational goals are likely to be more variable among students from more culturally heterogeneous neighborhoods, leading to lower educational outcomes. When structural or cultural barriers present themselves or when setbacks are encountered, it is easier for an adolescent to shift course if the social environment provides other options. For example, when high school becomes unpleasant, one can switch to an alternative path to college that involves dropping out and studying for the GED. In a culturally heterogeneous environment, there will be peers and adults who appear to be surviving or thriving while engaging in behavior consistent with other goals, while a culturally homogenous environment will present fewer other options besides the conventional educational career path directly from high school to college. In sum, these consequences of cultural heterogeneity will make navigating complex educational institutions and constructing effective pathways to achieve one's college goals even more difficult. These arguments suggest that in a neighborhood context with greater cultural heterogeneity, adolescents will be less likely to act in ways consistent with the goals that they articulate, leading to the second hypothesis that the analysis below will examine:

> Hypothesis 2: *In culturally heterogeneous neighborhoods, there will be a weaker relationship between the goals that an adolescent articulates and his or her corresponding future behavior*.

Methods

Data

Addhealth (Harris et al. 2003) initially sampled 150 middle schools, high schools, and junior high schools. High schools were sampled first and then a feeder middle or junior high school was selected for each high school, resulting in pairs of schools with students of different grades that I refer to as "school communities." The first wave of data was gathered in 1994–1995, the second wave in 1996, and the third wave in 2001–2002. Students were in grades 7 to 12 in wave one. The first wave of data includes a short questionnaire completed by school administrators about school characteristics and policies, an in-school questionnaire completed by almost every eligible student in the sample schools, and longer in-home student and parent interviews with a subsample of about 20,000 students. Wave two followed the in-home students and includes another in-home interview with the student (but not the parent) and another school administrator questionnaire. Wave three provides a second follow-up of the "in-home" student respondents. Structural neighborhood characteristics from the 1990 census are available for in-home respondents. Addhealth is the only contemporary nationally representative longitudinal dataset of adolescents with both neighborhood and school identifiers, neighborhoods defined as census tracts, and sufficient clustering by tract to create neighborhood measures by aggregation.

In this study, I focus on one aspect of adolescents' cultural ideas regarding schooling, their goals for college enrollment. While this focus reflects in part limited measures of educational beliefs or attitudes in Addhealth, college goals were selected for two reasons. First, goals for college enrollment are more consistent with the cognitive view of culture on which this analysis is based than with the values view that underlies deviant subculture theories. As used here, college goals are considerably more narrow than educational values (e.g. enrolling in college after high school is a goal while the importance of education is a value; those who value education in the abstract may nevertheless reject college enrollment as a goal because they see they themselves as unable to accomplish it.) College goals refer to a specific educational and career pathway, rather than to a general, moral evaluation of the idea of education (a distinction that is parallel to Mickelson's [1990] distinction between concrete and abstract attitudes). Second, as discussed above, the mismatch between educational goals and outcomes is a core concern in the educational attainment literature. The analysis below applies the concept of cultural heterogeneity to schooling by investigating neighborhood heterogeneity in college goals and linking that heterogeneity to a greater gap between individual college goals and college enrollment.

Models

To examine Hypothesis 1, that disadvantaged neighborhoods exhibit greater cultural heterogeneity, I constructed neighborhood level measures of cultural heterogeneity for college goals (described below). I then regress this measure of neighborhood heterogeneity on neighborhood disadvantage, controlling for other neighborhood characteristics that might also produce cultural heterogeneity, such as racial and ethnic diversity, residential instability, and neighborhood social organization. More disadvantaged neighborhoods are expected to exhibit greater heterogeneity.

To examine Hypothesis 2, that adolescents in more heterogeneous neighborhoods are less likely to act in accordance with their articulated goals, I estimate a series of multi-level regression models.[2] The models examine the relationship between college goals (F) and future enrollment in college (Y) using an interaction between individual college goals and neighborhood heterogeneity in college goals. If we index individuals with i, neighborhoods with j, and schools with k, we can write a three-level model. The individual level model is:

$$Logit(Y_{ijk}) = \pi_{0jk} + \pi_{1jk} F_{ijk} + \pi_{2jk} X_{ijk} \quad (1a)$$

Because Y is binary, I use a logit link, and Y_{ijk} is the predicted probability of college enrollment. F is a measure of the individual's college goals (described below), and X is a set of control variables measuring individual and family characteristics (and π_2 is a vector of coefficients). There are two neighborhood level equations:

$$\begin{aligned} \pi_{0jk} &= \beta_{00k} + \beta_{01k} \tilde{F}_{jk} + \beta_{02k} W_{jk} + r_{jk} \\ \pi_{1jk} &= \beta_{10k} + \beta_{11k} \tilde{F}_{jk} + \beta_{12k} W_{jk} \end{aligned} \quad (1b)$$

The first equation models the intercept from the individual level model as a function of ~ neighborhood heterogeneity in college goals ($\tilde{F}$) and a set of neighborhood control variables

[2]Due to the way that Addhealth sampled schools (first sampling high schools and then adding feeder junior high or middle schools), the data are technically cross-classified, with neighborhoods possibly nested within two schools. This low level of clustering presents estimation problems for cross-classified models, so instead I use the "school community," the high school and its feeder school combined, as the highest level in the model and estimate traditional multi-level models. This results in larger standard errors for school-level coefficients because the number of school-level units drops from 145 to 89, but since school variables are only used as control variables, this has no impact on the statistical tests for the hypotheses.

(W), including the neighborhood mean college goal and neighborhood intergenerational closure, social cohesion, and disorder. The second equation can be thought of as adding cross-level interaction terms. It models the coefficient capturing the relationship between the college goals (F) and enrollment in college (Y) from the individual level model as a function of neighborhood ~ heterogeneity in college goals ($\tilde{F}$) and the set of neighborhood control variables (W). It is the coefficient on $\tilde{F}$, β_{11k}, in the second neighborhood level equation that tests Hypothesis 2. Finally, there are also two school level equations that serve to control for school influences:

$$\beta_{00k}=\gamma_{000}+\gamma_{001}\widehat{F}_k+\gamma_{002}Z_k+u_k$$
$$\beta_{10k}=\gamma_{100}+\gamma_{101}\widehat{F}_k+\gamma_{102}Z_k \quad (1c)$$

The first equation models the intercept from the first neighborhood level equation as a function of school heterogeneity in the college goals ($\widehat{F}$) and a set of other school control variables (Z), including school mean college goals. The second equation models the intercept from the second neighborhood level equation as a function of school heterogeneity in college goals ($\widehat{F}$) and a set of other school level control variables (Z). School heterogeneity ($\widehat{F}$) is merely a control variable and is not the main focus of the analysis. The analysis proceeds by estimating a set of increasingly more complicated models that build up to the model in Equation 1.

Key Variables

Structural Neighborhood Disadvantage—Neighborhoods are measured as 1990 census tracts. An individual's census tract is that of his or her residence at the wave one in-home interview, which was conducted in spring or summer of 1995. The neighborhood disadvantage scale is the mean of the following standardized items: the census tract's family poverty rate, percent single mother households, male unemployment rate, percent of those over 25 who are college graduates, percent of workers in managerial or professional occupations, and percent affluent families (those with incomes above $75,000 per year), with the last three reversed in polarity. This scale measures the economic and social characteristics of the families that make up the neighborhood and which are thought to lead to negative outcomes for youth. The average inter-item correlation for this scale is 0.59 and Cronbach's alpha is 0.90 (see Table B1 and Appendix D for additional information on this scale).

College Enrollment—This dummy variable indicates that the adolescent has enrolled in a two year or four year college between wave 1 and wave 3 (when respondents are age 18 to 27). One hundred students still enrolled in high school during wave three are omitted from the analysis. Because of panel attrition between waves one and three, 13,943 cases are available for analysis in models of high school graduation. Most of the dropped cases are due to survey design rather than true panel attrition. These include all those students who were high school seniors in wave 1 (3356 cases) as well as members of some of the special samples that were not part of the original core sample (a disabled students sample of 471 cases and the siblings of twins sample of 162 cases).[3]

[3]To assess the impact of panel attrition on the estimates from models predicting the outcomes at wave 3, two additional sets of models were estimated. One set used the wave 3 longitudinal weights provided by Addhealth. The second set used imputed values for those cases that had missing values at wave 3. These were imputed using the multiple imputation methods described below, as recommended by Little (1995). Both of these additional sets of analyses produced estimates consistent with the results presented here.

Neighborhood Cultural Heterogeneity in College Goals—The response to the question, "On a scale from 1 to 5, how much do you want to go to college," (see Table 1 below) measures each respondent's college goals. Calculating neighborhood heterogeneity in college goals is complicated by the ordinal nature of this measure, which makes the variance inappropriate. I use a measure of ordinal variation that measures concentration (Blair and Lacy 2000):

$$I^2 = \frac{\sum_{i=1}^{k-1} (F_i - .5)^2}{(k-1)/4} \quad (2)$$

k is the number of categories (here $k = 5$), and F_i is the cumulative proportion for category i (i.e., $F_i = \sum_{j=1}^{i} p_j$ where p_j is the sample proportion for the jth of k categories). The numerator measures the difference between the observed distribution and a distribution with maximum dispersion, which occurs when responses are evenly divided between the two opposite extremes. The denominator normalizes by dividing by the maximum possible value of the numerator, so that I^2 varies from 0 to 1. Because some neighborhoods have small numbers of adolescents, Blair and Lacy's small sample bias-adjusted I^2 is required:

$$I_u^2 = I^2 - \frac{1 - I^2}{N - 1} \quad (3)$$

I take $1 - I^2_u$ as my measure of neighborhood heterogeneity because I^2_u is a measure of concentration.

The regression models also require controls for the typical college goals in each neighborhood, for which I use the mean. The variable "neighborhood mean college goals" measures the average college goals of an adolescent's Addhealth neighborhood peers. A parallel set of school heterogeneity measures and school means were also constructed for use as control variables. These measures control for the heterogeneity of college goals among school peers and the average college goals among school peers. Neighborhood mean and neighborhood heterogeneity are correlated 0.68, high but not so high that their independent effects cannot be estimated.[4]

While aggregating survey respondents to the neighborhood level provides the only way to measure neighborhood characteristics not measured in the census, doing so with the Addhealth data introduces some complications. One is the small number of respondents in some neighborhoods. For about half of the tracts in which at least one Wave I Addhealth respondent lives there are no other Addhealth respondents, and therefore it is impossible to measure heterogeneity for such tracts. These tracts, representing 42% of tracts in Addhealth, are dropped from the analysis. However, since most Addhealth respondents live in tracts with other respondents, this procedure results in the loss of only about six percent of respondents from the college enrollment models. For another 25 percent of tracts, there are less than five respondents per tract, leading to low reliability of neighborhood level measures created by aggregation. I weight models by the reliability of the neighborhood and

[4]The heterogeneity measure is entered into the models as dummy variables for terciles. Within terciles, there is still considerable variation in the neighborhood means. The standard deviation of the neighborhood mean across all tracts is 0.59. In the first tercile of heterogeneity it is 0.53, in the second 0.32, and in the third 0.55. Results are substantively similar when quartiles or quintiles are used, although standard errors are larger.

school means to account for the low reliability of aggregate measures in small tracts.[5] Differences in measurement reliability across neighborhoods, which are driven by the number of Addhealth respondents per tract, are unrelated to other tract characteristics. For example, the correlation between tract size and neighborhood disadvantage is −0.04.

A second complication is that because Addhealth is a school-based survey, the adolescents in any particular census tract are not, strictly speaking, a random sample of the neighborhood's adolescents. If the adolescents in a particular tract who attend Addhealth schools are systematically different from the other adolescents in the neighborhood, then the neighborhood measures produced by aggregation will have non-random measurement error. Assuming that adolescents who attend the same school are more similar to one another than they are to the other adolescents in the neighborhood, this problem will bias the neighborhood heterogeneity measure toward less heterogeneity, presumably attenuating any estimated effect of neighborhood heterogeneity.

Opportunity plays a large role in determining college enrollment. To minimize selection bias due to opportunity differences between individuals across neighborhoods, individual and family control variables are required. These variables are described in the online appendices. Several control variables have missing values. Rather than drop cases with missing values on control variables, I use multiple imputation (Little and Rubin 2002, Royston 2004). This involves creating multiple full datasets via multiple imputation by chained equations, estimating a model using each full dataset, and then combining results across datasets taking into account the variance in imputed values across datasets. Here I use ten imputed datasets. Finally, continuous variables are grand mean centered in multi-level models.

Results

Table 1 shows the bivariate relationship between neighborhood disadvantage and adolescents' college goals (with 1 being low college desirability and 5 being high desirability). Adolescents in the most disadvantaged neighborhoods are less likely to respond with a five and more likely to respond with a one than their counterparts in the least disadvantaged neighborhoods (Chi Square = 334.96, 16 *df*, $p < 0.001$). More surprising from the perspective of the neighborhood effects literature is that even in the most disadvantaged neighborhoods, 78 percent of adolescents respond with a four or five. Only a small minority claim they do not want to go to college, and wanting very much to go to college is the modal response among adolescents, even in the most disadvantaged neighborhoods. However, this pattern should not be surprising from the perspective of the education literature, which has documented high educational aspirations among adolescents from all class and race backgrounds.

Table 1 also reveals greater heterogeneity of responses in disadvantaged neighborhoods. Descriptively, what distinguishes disadvantaged from advantaged neighborhoods is not just the modal or mean response but also the heterogeneity of responses in disadvantaged neighborhoods. Whereas more advantaged neighborhoods have considerable consensus on college goals, in more disadvantaged neighborhoods there is a sizable minority of adolescents who do not subscribe to the dominant view. Most research on neighborhood context measures neighborhood characteristics using measures of central tendency (such as the mean), but Table 1 reveals that internal variation also differs across neighborhoods, and that neighborhood mean and neighborhood heterogeneity are empirically related.[6]

[5]Supplemental analyses (not shown) indicate that results in Tables 3 and 4 are not sensitive to the exclusion of tracts with low measurement reliability.

Table 2 examines the relationship between neighborhood disadvantage and cultural heterogeneity in college goals controlling for other neighborhood characteristics that may be sources of spuriousness. The key predictor is neighborhood disadvantage. Both neighborhood disadvantage and neighborhood cultural heterogeneity are standardized to have mean zero and standard deviation one. The model is weighted by the reliability of the neighborhood heterogeneity measure. Descriptive statistics for the variables in these models are provided in Appendix Table B2. Model 1 includes controls for other structural neighborhood characteristics that might lead to greater cultural heterogeneity, including immigrant concentration, racial diversity, percent Hispanic, and the two measures of residential stability. This model shows a strong and statistically significant association between neighborhood disadvantage and cultural heterogeneity, net of controls. A one standard deviation increase in the neighborhood disadvantage scale is associated with an increase of about one quarter of a standard deviation in college goal heterogeneity. Model 2 adds the three measures of neighborhood social organization: intergenerational closure, social cohesion, and disorder. The coefficient on the neighborhood disadvantage scale drops by about 15 percent when these variables are added, indicating that they account for only a small portion of the relationship between neighborhood disadvantage and heterogeneity of college goals. Consistent with Hypothesis 1, these results show that more disadvantaged neighborhoods exhibit greater cultural heterogeneity in educational goals.

Table 3 shows various specifications of multi-level logit models predicting college enrollment. In model 1, individual college goal is interacted with dummy variables for thirds of the distribution of neighborhood heterogeneity in college goals..[7] Converting the heterogeneity measure to thirds allows its effects to be nonlinear and simplifies the interpretation of interaction terms. The individual goals variable captures the relationship between one's college goals and college enrollment within low heterogeneity neighborhoods. Consistent with prior research, there is a strong relationship between an adolescent's individual college goals and his or her college enrollment among adolescents in these neighborhoods. The interaction terms capture the difference in this relationship across neighborhoods with different levels of cultural heterogeneity. These coefficients show that in more heterogeneous neighborhoods, there is a smaller association between an adolescent's own college goals and his or her future college enrollment. This is the case net of whether the adolescent graduates from high school and net of an adolescent's financial and cultural capital resources as captured by the individual, family, and school control variables.[8]

Model 1 also controls for the neighborhood mean college goal. Recall that neighborhoods with greater heterogeneity in college goals also exhibit a lower average college goal (see Table 1). In other words, there is an association between central tendency and variation at the neighborhood level for college goals. However, its coefficient is not statistically significant. Model 1 also includes a term for the interaction between the individual college goal and the neighborhood mean college goal, which is not significant. These results suggest that the smaller relationship between an adolescent's own college goals and his or her future

[6]An alternative interpretation of the measure of college goals is that it captures abstract attitudes toward education, which are known to show little variation by race or family economic background and have less predictive power than concrete attitudes (Mickelson 1990). Yet both abstract and concrete attitude measures capture views on education and its benefits generally (see Mickelson 1990 for question wording), while the survey question used here is specific to what the individual respondent wants for herself. In addition, the attitude-achievement paradox refers to achievement outcomes like grades and test scores that measure learning and depend closely on school effort, whereas the interest here is attainment, or the amount of schooling.

[7]I experimented with entering this variable into the model as a series of dummy variables, but the relationship with the outcome was fairly linear, so to reduce model complexity, I enter it as a linear term.

[8]Additional models that also control for parental attitudes toward education and involvement in child's schooling produce similar results (estimates not shown).

college enrollment in more heterogeneous neighborhoods is not merely a product of more negative views toward college on average in such neighborhoods.

Model 2 adds controls for neighborhood disadvantage that parallel the variables measuring neighborhood heterogeneity. These include dummy variables for thirds of the distribution of neighborhood disadvantage and interactions between these dummies and the individual college goals. Inclusion of the neighborhood disadvantage variables reduces the magnitudes of the goal heterogeneity interaction coefficients. However, they remain large and statistically significant.

The coefficients in Model 2 show that, consistent with Hypothesis 2, in the lowest heterogeneity neighborhoods, the relationship between individual goals and future behavior is strong, but that the importance of the respondent's goals declines as neighborhood heterogeneity increases. In the lowest heterogeneity neighborhoods, a one category increase in the individual college goal multiples the odds of enrolling in college by about 2.51, while in the highest heterogeneity neighborhoods, a similar increase in the individual college goal multiplies the odds of college enrollment by a more modest 1.63. The estimates in this model also reveal, however, that the key distinction is between neighborhoods with the lowest heterogeneity and the upper two-thirds of the distribution. Among adolescents in the middle third of neighborhoods on the heterogeneity scale, a one unit increase in individual college goals multiplies the odds of college enrollment by 1.75, an impact that is statistically indistinguishable in magnitude from that for the most heterogeneous neighborhoods. The results indicate that adolescents in the lowest heterogeneity neighborhoods are more likely to act in accordance with their articulated educational goals than their counterparts in more culturally heterogeneous neighborhoods, and it is the least heterogeneous neighborhoods that are particularly protective. This result suggests that cultural heterogeneity may also be an important characteristic of working class or moderate income neighborhoods.

Model 3 adds controls for school mean goals and school heterogeneity, entered in the model with a functional form parallel to that of the neighborhood variables. The interactions between individual goals and neighborhood heterogeneity remain substantively large, and the coefficient for the top third of neighborhoods remains statistically significant.

Finally, Model 4 adds controls for the three neighborhood social organization variables, entered directly and also interacted with individual college goals. These controls ensure that the interactions between individual college goals and neighborhood cultural heterogeneity are not a spurious result of interactions between college goals and social organization characteristics of the neighborhood. Given that neighborhood disadvantage is already in the model, it is not surprising that their coefficients are small and not statistically significant. The important point is that controlling for these measures does not alter the cultural heterogeneity coefficients, indicating that other aspects of social organization uncorrelated with neighborhood disadvantage are not driving the cultural heterogeneity results.[9]

Conclusion

This study has proposed an alternative account of the cultural context of disadvantaged neighborhoods with regard to schooling. It has argued that disadvantaged neighborhoods, rather than being dominated by a subculture that devalues schooling, are characterized by

[9]One might suspect that the effects of neighborhood cultural heterogeneity would be larger for older adolescents, either because the key variables are measured closer to the time period in which educational decisions are being made, or because older adolescents are more susceptible to the effects of cultural heterogeneity because peers and neighborhood adults are a stronger influence in later adolescence. In an additional set of models estimated but not shown, this did appear to be the case, though the differences were not large enough to be statistically significant in these data.

greater heterogeneity of cultural models for schooling. This heterogeneity has consequences for adolescents' college enrollment. Adolescents in more heterogeneous neighborhoods are less likely to realize their educational goals, even taking into account their family cultural and economic resources and the opportunities provided by their secondary schools. Adolescents in neighborhoods with the greatest cultural homogeneity are particularly advantaged relative to their counterparts in more heterogeneous neighborhoods in the top two-thirds of the distribution. These results suggest that compared to their counterparts in poor, working class, and moderate income neighborhoods, adolescents in the most culturally homogenous neighborhoods may derive particular advantage when it comes to realizing college goals.

More generally, these results provide further support for the utility of cultural heterogeneity for understanding neighborhood cultural context and its consequences for youth outcomes. The present findings with regard to education parallel similar findings on neighborhood cultural heterogeneity and romantic and sexual behavior (Harding 2007). The claim is not that cultural processes can completely account for neighborhood effects, nor that cultural heterogeneity operates independently from socio-economic characteristics of neighborhoods, nor that opportunities created by individual and family resources are unimportant for understanding disparities in educational attainment. Rather, cultural heterogeneity provides a more accurate way of describing the cultural context of disadvantaged neighborhoods than deviant subculture-based theories such as oppositional culture, whose empirical validity has been rejected by previous studies. The empirical analyses also reveal that cultural heterogeneity may be important for understanding the educational behavior of adolescents from working class or moderate income neighborhoods as well. This finding is broadly consistent with a larger theme of this study, that it is inaccurate to conceptualize the cultural context of the poorest neighborhoods as fundamentally different from that of other neighborhoods.

In addition to conforming more closely to ethnographic descriptions of daily life in disadvantaged neighborhoods, cultural heterogeneity offers conceptual advantages. By allowing for individual decision-making based on cultural repertoires (which are in part a product of the social environment), it incorporates greater individual agency than a subculture model, in which action is largely determined by group membership. It also helps us to understand how goals or attitudes can be poorly predictive of outcomes among disadvantaged groups (e.g. Mickelson 1990). Cultural heterogeneity may disrupt efforts to both construct and to follow through on effective strategies of action, particularly in post-secondary schooling where institutions are complex and unfamiliar to students from disadvantaged backgrounds (Rosenbaum et al 2006). Building on the emphasis in the educational attainment literature on the importance of navigating educational institutions and constructing effective educational pathways, cultural heterogeneity extends these ideas to the neighborhood effects literature and embeds them within the cognitive perspective in cultural sociology.

While the findings in this study are suggestive of the importance of neighborhood cultural heterogeneity for understanding the educational attainment of adolescents, this study has important limitations. First, hypotheses regarding cultural heterogeneity should be tested on other educational outcomes and in other domains of adolescent life. For example, while college enrollment is an important first step toward college completion, many students who enroll do not complete a degree, especially those in community colleges (Rosenbaum et al 2006). Second, stronger tests await better measures of adolescents' cultural models regarding education and its interaction with other life domains such as work and romantic relationships than those available in Addhealth. The measure of college goals used here captures only one aspect of educational goals and is only a rough proxy for the more

complicated cultural models implied by the theory. Ideally one would measure individuals' cultural repertoires in order to provide a full test of the effect of cultural heterogeneity on individual decision-making. Measuring neighborhood cultural heterogeneity as diversity of college goals among neighborhood peers only captures a narrow part of the heterogeneity implied by the theory. Ideally, one would measure directly the presence of competing and conflicting cultural models of schooling and work available in each neighborhood.[10] Third, as described above, because Addhealth is a school-based sample, data are not ideally suited to measuring neighborhood cultural and social characteristics through aggregation. "Ecometric" and other aggregation methods provide the best currently available option for measuring the social and cultural characteristics of neighborhoods. New data collection efforts that incorporate cultural measures and better measures of neighborhood social and cultural environments are required before stronger tests of cultural heterogeneity theory are possible. Fourth, as in all observational studies of neighborhood effects, unobserved selection processes mean causal interpretations must be made cautiously, and the reader should recognize that the results presented here are conditional on the assumption of no unobserved confounding. Finally, because the Addhealth data do not contain detailed retrospective or prospective residential histories, neighborhood context is measured at only one point in time, introducing some unknown degree of measurement error.

The role of cultural heterogeneity in educational outcomes such as college enrollment further suggests the importance of neighborhood social organization, as cultural heterogeneity derives from and extends social organization theory into the cultural domain. Culturally heterogeneous neighborhoods can be thought of as culturally "disorganized," and this study suggests that such disorganization has implications for how adolescents navigate their educational careers, and therefore also for social stratification. Cultural heterogeneity should make it more difficult to effectively pursue career and educational opportunities. If an adolescent shifts to a stronger interest in college, he or she may be unprepared and it may be too late to enroll on the traditional timeline. If an adolescent shifts away from college, this will of course lower future earnings by lowering the probability of college attendance, but it could also make it more difficult to pursue other training or career paths, again because the necessary preliminary steps may not have been taken. Prior research has demonstrated the dangers of delayed entry to college (DeLuca and Bozick 2005) and of transfers between colleges (Godrick-Rab 2006) for college completion. Given the potential human capital and social stratification implications of goal shifting during adolescence, its causes and implications warrant further exploration.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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[10]Alternatively, one might imagine incorporating heterogeneity in behavioral measures like time on homework to construct measures of neighborhood cultural heterogeneity. However, a key feature of the theoretical framework I develop is that one cannot necessarily infer culture from behavior. This paper concerns the connection between culture and behavior, so measuring culture with behavior would be conceptually inappropriate.

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Table 1

College Goals by Neighborhood Disadvantage

"On a Scale of 1 to 5, How Much Do You Want to Go to College?"						
Neighborhood Disadvantage Scale Quintiles	1	2	3	4	5	Row Obs
1st	1.5%	1.6%	6.7%	10.6%	79.7%	2,681
2nd	3.2%	2.9%	9.0%	12.9%	72.1%	4,686
3rd	4.1%	3.4%	11.0%	13.7%	67.8%	5,270
4th	6.6%	3.5%	12.8%	14.5%	62.7%	3,627
5th	5.1%	2.8%	14.1%	14.2%	63.8%	2,349
All	4.1%	2.9%	10.6%	13.2%	69.1%	18,613

Note: Estimates account for Addhealth sample design and Addhealth In-Home Wave 1 weight

Pearson Chi Square = 334.96 (16 *df*, $p < 0.001$)

Table 2

OLS Model of Neighborhood Cultural Heterogeneity in College Goals

	Model 1	Model 2
Nhood Disadvantage Scale	0.24673* (0.02695)	0.21423* (0.02992)
% Hispanic	0.01323* (0.00389)	0.01255* (0.00394)
% Hispanic Squared	−0.00012* (0.00004)	−0.00011* (0.00004)
Racial Diversity Index	−0.00030 (0.00131)	−0.00062 (0.00132)
% Foreign Born	−0.00424 (0.00256)	−0.00378 (0.00260)
% Owner Occupied	0.00329* (0.00132)	0.00415* (0.00140)
% Units Occupied 5 Years	0.20416 (0.17158)	0.36314* (0.18123)
Intergenerational Closure		−0.05694* (0.01870)
Social Cohesion		0.05096* (0.01959)
Disorder		0.05089 (0.02781)
Constant	0.25606* (0.15198)	0.38074* (0.15978)
N neighborhoods	1403	1403
R^2	0.089	0.101

NOTES:

Model weighted by reliability of neighborhood heterogeneity measure

Descriptive statistics available in Table B2

* $p < 0.05$

Missing values on control variables imputed using multiple imputation with 10 replications

Table 3

Three-level Logit Models Predicting College Enrollment

	Model 1	Model 2	Model 3	Model 4
Individual-Level Variables				
High School Graduate	1.3709* (0.0915)	1.3670* (0.0911)	1.3710* (0.0907)	1.3705* (0.09179)
Individual College Goals	0.8898* (0.1588)	0.9194* (0.1599)	1.0434* (0.1694)	1.0169* (0.1759)
Neighborhood-Level Variables and Interactions				
Nhood Mean College Goals	0.0388 (0.1102)	−0.0384 (0.1110)	−0.0971 (0.1234)	−0.1231 (0.1203)
Individual Goals X Nhood Mean College Goals	0.0243 (0.0846)	−0.0059 (0.0837)	0.0287 (0.0925)	0.0133 (0.0995)
College Goals Nhood Heterogeneity Thirds:				
Middle Third vs. Bottom Third	−0.0161 (0.1102)	−0.0178 (0.1086)	−0.0179 (0.1342)	0.0441 (0.1134)
Top Third vs. Bottom Third	−0.0827 (0.1217)	−0.0851 (0.1280)	0.0889 (0.1478)	−0.0080 (0.1326)
Individual Goal X NHood Goal Heterogeneity Thirds:				
Middle Third vs. Bottom Third	−0.3885* (0.1623)	−0.3584* (0.1647)	−0.3130 (0.1830)	−0.3139 (0.1833)
Top Third vs. Bottom Third	−0.4679*	−0.4309* (0.1678)	−0.3752* (0.1858)	−0.3741* (0.1865)
Nhood Disadvantage Scale Thirds:				
Middle Third vs. Bottom Third		−0.0526 (0.0769)	−0.0242 (0.0749)	0.0092 (0.0762)
Top Third vs. Bottom Third		−0.2504* (0.0917)	−0.1980* (0.0938)	−0.1045 (0.1025)
Individual Goal X Nhood Disadvantage Scale Thirds:				
Middle Third vs. Bottom Third		−0.0812 (0.0587)	−0.0756 (0.0590)	−0.0637 (0.0595)
Top Third vs. Bottom Third		−0.0900 (0.0741)	−0.1001 (0.0703)	−0.577 (0.0768)
Nhood Intergenerational Closure				−0.1158 (0.1201)
Nhood Social Cohesion				0.0209 (0.0984)
Nhood Disorder				−0.0768 (0.0512)
Ind. Goals X Nhood Intergenerational Closure				0.0256 (0.1001)
Ind. Goals X Nhood Social Cohesion				0.0396 (0.0591)
Ind. Goals X Nhood Disorder				−0.0380 (0.0491)
School-Level Variables and Interactions				
School Mean College Goals			0.6967 (0.4589)	0.6871 (0.4796)
Individual Goals X School Mean College Goals			−0.3089 (0.2387)	−0.2949 (0.2622)
College Goals School Heterogeneity Thirds:				
Middle Third vs. Bottom Third			−0.3787* (0.1515)	−0.4086* (0.1541)
Top Third vs. Bottom Third			−0.3537 (0.2294)	−0.3618 (0.2384)
Individual Goal X School Goal Heterogeneity Thirds:				
Middle Third vs. Bottom Third			−0.1187 (0.1385)	−0.1294 (0.1411)
Top Third vs. Bottom Third			−0.2329 (0.1586)	−0.2337 (0.1648)
Constant	−2.2160* (0.2738)	−2.1326* (0.2649)	−1.8547* (0.3264)	−1.9071* (0.3481)
Variance Components				
neighborhood	0.0378	0.0389	0.0474	0.0437
school community	0.1023	0.0985	0.0617	0.0612
N individuals	13,943	13,943	13,943	13,943

	Model 1	Model 2	Model 3	Model 4
N neighborhoods	1,337	1,337	1,337	1,337
N school communities	89	89	89	89

NOTES: Models weighted by reliability of neighborhood goal means and school goal means

* $p < 0.05$; Robust standard errors in parentheses

Individual, family, and school control variable coefficients in Appendix Table B4; Missing values on control variables imputed using multiple imputation with 10 replications