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NEIGHBORHOODS AND EDUCATIONAL EXPECTATIONS:

HOW YOUTH COME TO EMBODY THEIR NEIGHBORHOODS

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ABSTRACT

Much of the research on neighborhood effects demonstrates a clear connection between living in disadvantaged neighborhoods and having lower levels of educational attainment. Theories describe multiple mechanisms (i.e. social isolation, collective socialization, contagion/epidemic effects, and institutional resources) that can explain this relationship. However, there is one mechanism often discussed in these theories that has not yet been thoroughly explored – educational expectations. And, arguably, beyond the lack of empirical research around neighborhoods and educational expectations, theories around neighborhood effects generally describe only urban places, with studies solely relying on residential census tracts. More recent research, however, points to the importance of incorporating information on census tracts beyond the focal residential tract (i.e., looking at the 'extralocal' neighborhood), for a fuller understanding of how neighborhoods are interdependent with one another. In this paper I aim to fill this empirical gap by examining whether or not neighborhoods directly affect the development of educational expectations; and if they do, I ask how. Data for this study comes from the ECLS-K (1998/99 cohort) which enables a national study on how neighborhoods impact educational expectations of 8th grade students. Only after accounting for the interdependence of a 'focal' neighborhood with its surroundings (i.e., the 'extralocal' neighborhood), does the focal 8th grade neighborhood show a significant relationship with educational expectations. Additionally, in contrast to the 8th grade focal neighborhood effect, experiencing disadvantage in one's focal neighborhood between the ages of 5 and 9 has a lagged effect on 8th grade educational expectations. Finally, results point to neighborhood effects varying in urban, suburban, and rural areas. Findings from this study have implications which point to importance of 'extralocal' neighborhoods and the salience of neighborhood disadvantage during early childhood.

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INTRODUCTION

While previous research has suggested educational expectations act as a mediator between neighborhoods and educational attainment (Ainsworth 2002; South, Baumer, and Lutz 2003), there is relatively little empirical research that actually tests whether or not neighborhoods have a direct effect on youths' educational expectations. The lack of empirical research is surprising considering that these expectations are one mechanism said to be involved in the process of neighborhood effects. For example, William Julius Wilson (1987) proposed that persons living in neighborhoods structured by concentrated disadvantage, without beneficial social networks and employment opportunities, live in social isolation from mainstream society and norms. Social isolation is often discussed in conjunction with other models of neighborhood effects (i.e., epidemic/contagion effects, collective socialization, and institutional resources) to explain how living in a disadvantaged neighborhood often translates into a higher likelihood of dropping out of high school (e.g. Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Crane 1991; Crowder and South 2003, 2011; Wodtke, Harding, and Elwert 2011). These theories suggest that, surrounded by disadvantage, youth are not only unable to demarcate a clear path to achieving high levels of success, but their social environment normalizes and places less stigma on lower levels of achievement. Hence, while the literature proposes that youth living in more disadvantaged neighborhoods will have lower expectations for their future educational attainment, scant attention has been given to this relationship.

In this paper, I examine the relationship between neighborhoods and educational expectations, a relationship which is widely discussed in the literature yet somewhat under-researched. However, to do this I must confront two recent developments in the literature. First, arguably, much of the work surrounding neighborhood effects and theories of residential

stratification are *urban*. Less is known about the applicability of neighborhood theories in non-urban settings (Lobao and Hook 2007). This suggests the effect of neighborhoods on educational expectations may be dependent on the spatial scale and the definition of *a neighborhood* being used. Second, two recent reviews of the neighborhood effects literature stress the importance of undertaking studies that examine how neighborhoods may matter differently for different people, a phenomenon known as *effect heterogeneity* (Harding, Gennetian, Winship, Sanbonmatsu, and Kling 2011; Sharkey and Faber 2014). Understanding the *effect heterogeneity* (Harding et al. 2011) and asking more than just "'Do Neighborhoods Matter?'" (Sharkey and Faber 2014:559) is a necessary next step for the literature to fully understand the importance of *contexts* in people's lives. This call for more nuanced research on neighborhood effects has implications for the scale at which we are defining neighborhoods (Diez Roux and Mair 2010; Kwan 2012) and for measuring the timing and age at which youth are exposed to neighborhood disadvantage (Wodtke 2013; Wodtke et al. 2011), both of which can provide more insight into *who* neighborhoods affect. To address these concerns, I argue it is still necessary to ask *Do neighborhoods matter?* I also take the next step by asking *If so, how do neighborhoods matter?*

Bridging the empirical gap between neighborhoods and educational expectations is an important step in understanding the processes by which neighborhoods impact educational attainment and work to perpetuate inequality. The sparse existing work that directly ties neighborhoods to educational expectations is limited in that it only uses small, single-city samples of African Americans (Hope 1995; Mello and Swanson 2007; Stewart, Stewart, and Simons 2007). Additionally, there is mixed evidence for whether or not neighborhoods directly impact educational expectations, with some articles finding support (Hope 1995; Mello and Swanson 2007; Stewart et al. 2007), and others not (Newton and Sandoval 2015; Nichols,

Kotchik, Barry, and Haskins 2010). It is therefore still unclear whether or not neighborhoods matter for educational expectations. More empirical work is needed to assess the strength of this relationship and how this relationship may differ for people not living in or near poor urban environments. I fill this empirical gap by considering how accounting for the interdependence of neighborhoods may provide additional information on neighborhood effects, how timing of exposures may matter, and how neighborhood disadvantage may operate differently in urban versus suburban or rural environments. The specific research questions I answer in this paper are as follows:

1. *Does exposure to neighborhood disadvantage in 8th grade significantly affect educational expectations to graduate from college?*
2. *Does accounting for the interdependence of a neighborhood with its surroundings (i.e., incorporating the 'extralocal' neighborhood) strengthen or change the relationship between neighborhoods and educational expectations?*
3. *Does early exposure to neighborhood disadvantage between kindergarten through 3rd grade have a lasting effect onto 8th grade educational expectations to graduate from college?*
4. *Does the neighborhood effect on educational expectations vary in urban, suburban, and rural environments?*

I conduct this study with data from the Early Childhood Longitudinal Study – Kindergarten Class of 1998/1999 (ECLS-K), which follows a cohort of children from kindergarten through 8th grade (2006-2007). Access to the restricted longitudinal dataset allows me to combine the geocoded residential data with the U.S. Census Bureau's 2000 Decennial Census and 2005-2009 5-year estimate American Community Survey (ACS). The combination

of these datasets provides me with the unique opportunity to examine how neighborhoods may matter for educational expectations and how early neighborhood exposures may have lagged effects, in a national study. My findings support and advance existing theory on how neighborhoods work to impact youth development. Results demonstrate the importance of "extralocal" neighborhoods and shows how our definition of *a neighborhood* plays an important role in determining our analytic results. Further, findings points to the salience of exposure to neighborhood disadvantage during early childhood. This study examines and shows one way in which neighborhoods work to perpetuate inequality and have implications for further research into how youth come to embody some of the ecological characteristics of their neighborhoods.

LITERATURE REVIEW

Theorizing Neighborhood Effects

Stratification occurs not only along the social boundaries of class, race, and gender, but on the physical gridlines of city streets. All social phenomena are emplaced. Negative social phenomena such as high rates of crime, low levels of educational attainment, low-achieving schools, high infant mortality rates, low quality housing, and high rates of poverty tend to cluster in place to produce "geographic 'hot spots' of compromised health" (Sampson 2012:13). Where one lives determines their access to institutional resources, social networks, school systems, and economic opportunities (Wilson 1987). Theories of neighborhood effects provide the hypothesized mechanisms through which neighborhoods may positively or negatively affect their residents. While the Chicago School is cited as the source for bringing the importance of *place* into the study of sociology, William Julius Wilson is given credit to reinvigorating the study of place effects when he addressed the increasingly important role of context in the lives of the black urban poor living in areas of concentrated disadvantage.

Wilson's study of the 'underclass' led to his theory of social isolation. After discovering that poor persons were confined to living in the same neighborhoods with one another, Wilson proposed that the concentration of such disadvantage leads to concentration effects. The concentration of poor persons means these neighborhoods lack economic diversity and opportunity. This discovery became a central component of Wilson's theory of social isolation as he set out to provide a structural explanation for how a lack of opportunity and access may cause the 'underclass' to develop individual patterns of behavior, norms, and values not conducive to the working world (Wilson 1987:133). Social isolation describes how those growing up in concentrated disadvantage may develop self-defeating pathologies due to their lack of access to beneficial social networks and role models as well as limited job opportunities. For example, Wilson's theory would propose that youth growing up in areas of high joblessness and low educational attainment may have lowered educational and occupational expectations for themselves based on the low levels of success they see around them.

The Advantages or Disadvantages of Affluent Neighbors?

The neighborhood effects literature has engaged with Wilson's theory of social isolation and concentration effects in combination with ideas on institutional resources, collective socialization, epidemic/contagion effects, competition, and relative deprivation to create more encompassing models of how neighborhoods may matter for youth development and social mobility (Jencks and Mayer 1990; Leventhal and Brooks-Gunn 2000). Although almost three decades old, Jencks and Mayer's (1990) discussion of these models remains a comprehensive overview. They outline three schools of thought that suggest living with advantaged neighbors either confers benefits, presents disadvantages, or has no effect. While empirical support for each school exists, when it comes to educational related outcomes, there is considerable evidence to

refute the latter school of thought which would suggest that neighborhoods have no effect. In fact, in a recent review of educational inequality, *Whither Opportunity*, Julia Burdick-Will and her colleagues report that neighborhoods may not always matter, but they do not never matter (2011:258). However, the evidence for whether or not advantaged neighbors accrue benefits or detriments is mixed. Neighborhoods do not always matter, but often they matter differently for different people (Harding et al. 2011; Sharkey and Faber 2014). Therefore, understanding *where, when, why, and for whom residential contexts matter*[1] requires a thorough understanding of how advantaged neighborhoods can both be beneficial and harmful.

In line with Wilson's theory of social isolation, models that believe advantaged neighbors provide benefits to residents rely on assumptions of positive socialization and access to beneficial resources and institutions. These theories include the contagion/epidemic model, collective socialization model, and institutional resources model. Epidemic/Contagion models focus on the influence of peers and suggests "like begets like," (Jencks and Mayer1990:113). Therefore, a child growing up in an advantaged neighborhood where peers graduate high school and go to college would influence and reinforce similar positive patterns of behavior. The collective socialization model focuses on the importance of adult role models in the neighborhood. The presence of affluent neighbors who are gainfully employed and have higher levels of education would provide an example of achievable success and information on navigating that path to success. Lastly, the institutional resources model emphasizes the difference in quality and quantity of institutions in more affluent neighborhoods. More advantaged neighbors lead to better quality schools, job opportunities, and other community resources not available in disadvantaged neighborhoods. Hence, these youth will be socialized

[1] Question posed by Sharkey and Faber's (2014) most recent review of neighborhood effects.

into having higher expectations for themselves, and when they live in neighborhoods with higher levels of resources and opportunities, these higher levels of expectations will be reinforced as achievable goals. Similarly, children growing up in neighborhoods with disadvantaged neighbors will be socialized into thinking success is harder to achieve and attempts at it will often be met with failure which will reinforce the belief that they should not expect conventional types of success as possible in their own futures.

Like models of epidemic/contagion, collective socialization, and institutional resources, models that explain how advantaged neighbors may have harmful effects (i.e., models of relative deprivation, cultural conflict, and competition) also rely on assumptions of socialization. The relative deprivation model suggests that people judge themselves in relation to others. While this judgement of oneself may cause them to work harder, it could also cause them to "drop out of the competition" (Jencks and Mayer 1990:116). Cultural conflict models are similar to relative deprivation in that groups create deviant subcultures in order to normalize their relative failure and lower status position to their neighbors. As Jencks and Mayer phrase it, "when large numbers of individuals are unable to do what society as a whole expects them to do (finish school, get a respectable job, create and support a family), they will try to create a common culture to deal with their common failure," (Jencks and Mayer 1990:116). Lastly, competition models assume that children and adults must compete harder for grades and jobs in affluent neighborhoods where they have a lower chance of success. This model proposes "a big frog in a small pond is probably better off than a small frog in a big pond," (Jencks and Mayer 1990:117). These models suggest that disadvantaged youth growing up in advantaged neighborhoods will recognize their own lower social status in comparison to their neighbors. In recognizing that they are of lower status, they will perceive their chances for success as being lower and their attempts

at achieving success as being less rewarded than their neighbors. Subsequently, they will not believe they are as capable of achieving high status and will have lowered expectations in their ability to get there, while living in a more disadvantaged neighborhood would boost their expectations to succeed as any impediments to such success would be less apparent, and their competition for such success would appear low.

There is mixed evidence supporting models in both schools of thought. For example, Brooks-Gunn and her colleagues (1993) find support for the collective socialization model, with affluent neighbors increasing the odds that white adolescents will graduate from high school. Further support for the collective socialization model comes from Crowder and South's (2003) finding that black males have a much stronger likelihood of dropping out of high school in more disadvantaged neighborhoods. Turley's (2003) study supports the relative deprivation model, finding that while advantaged neighbors increase the behavior and test scores of white youth, they do not do so for black youth unless their neighborhood has a high proportion of black neighbors. Further, Crowder and South (2011) find that when extralocal neighborhoods are more advantaged than the focal neighborhood, the odds of graduating high school are lower, which supports the relative deprivation model. While these are just examples out of a larger literature, they demonstrate that examining how neighborhoods matter in different ways for different people is key to our future understanding of neighborhood effects and the role neighborhoods play in the perpetuation of inequality.

Can Urban Theories Apply in Non-Urban Settings?

Theories that spatialize stratification are developed out of the tradition of urban sociology. Lobao and Hooks (2007) argue that urban sociologists have synonymized the city with *place*. Sociologists therefore often discuss theories of *place* effects as if they were

applicable in multiple geographic settings. However, it is generally unknown whether or not the processes underlying our current theories of neighborhood effects are applicable beyond the city, within non-urban settings. While Lobao and Hooks (2007) raise an important question on the applicability of urban theories outside of urban contexts, their question relates to the debate about urban/rural divides which Lichter and Brown (2011) argue are blurring. Lichter and Brown's (2011) review of rural and urban America demonstrates their growing interdependence on one another and the increasing similarities found between family and community life. Therefore, while Lobao and Hooks (2007) provide an argument for how theories of neighborhood effects may not be applicable beyond the city, Lichter and Brown (2011) provide an opposing argument for how these theories may work the same both within and outside of city neighborhoods. These opposing views make it unclear if, with a nationally representative sample of youth, neighborhoods matter for educational expectations. This question may depend both on the surrounding context of a neighborhood, for example if the neighborhood is in a city, suburb, or rural area, as well as the definition of a neighborhood being used.

How Important is the Neighborhood Definition?

A vast majority of the literature examining the effects of neighborhoods use the residential census tract as the focal unit of analysis. Census tracts are arbitrary yet convenient units of analysis meant to capture a homogeneous population of between ~3,000 and ~8,000 people. However, the boundaries defining census tracts are not representative of the communities and neighborhoods they are meant to portray. In fact, Coulton and her colleagues (201) found that most people's definitions of their neighborhoods do not align with the census tract boundaries within which they live. Similarly, the census tract fails to embed one's residence into their broader community and subsequently ignores the other places one is exposed to in their

daily routine (Arcaya, Tucker-Seeley, Kim, Schake-Mahl, So, and Subramanian 2016; Matthews and Yang 2013). And arguably, theories describing the concentration effects of neighborhood disadvantage are conceptually talking about the community in which one lives and operates. Therefore, census tract studies are limited in that the they treat place as a bounded container devoid of a wider context. While data limitations often confine researchers to use residential census tracts as a proxy for neighborhood, it is nevertheless problematic that most studies of neighborhood effects use measures of concentrated disadvantage and social isolation that have stopped at an arbitrary boundary not representative of the context in which one lives.

To answer how youth embody their social worlds, we must take a more encompassing view of neighborhood effects. Crowder and South (2011) measure how the 'extralocal' neighborhood beyond the immediate focal neighborhood affects high school graduation rates among white and black adolescents. They discover that incorporating the 'extralocal' neighborhood into their study as a control provides for a stronger neighborhood effect than when not incorporating information about the 'extralocal' environment. Graif and Matthews (2017) also find support for the importance of 'extralocal' neighborhoods in their study of child victimization; and Peterson and Krivo (2009) show that both 'extralocal' and focal neighborhood characteristics are important for predicting violence. These results imply that not accounting for a neighborhood's interdependence with its local environment limits our understanding of neighborhood processes. Hence, in combination with understanding the larger spatial context under study (i.e., city, suburb, or rural neighborhoods), incorporating information on the surrounding context in which youths' residential neighborhoods are embedded is an important next step in helping to explain neighborhoods effects.

How Important is the Duration and Timing of Exposure?

The most recent literature on neighborhood effects suggests that exposure to disadvantaged neighborhoods during early childhood has the strongest and longest lasting effects on adult outcomes (Rothwell and Massey 2015; Vartanian and Buck 2005). Anderson and her colleagues (2014) also discover that the effects of living in advantaged neighborhoods in early childhood carry into adolescence for reading achievement. Recent work by Chetty and Hendren (2018) and Chetty, Hendren, and Katz (2016) similarly find that moving to more advantaged neighborhoods only affects youth development and outcomes if they move before the age 13, with each year living in more advantaged neighborhoods under 13 being more influential for outcomes. In addition to early childhood exposures to neighborhood poverty, duration is also an important determinant of adolescent and adult outcomes. Studies indicate that extended exposure to neighborhood poverty increases the likelihood of dropping out of high school (Crowder and South 2011; Wodtke et al. 2011). Wodtke and his colleagues (2011) outline how not incorporating measures of duration masks our understanding of the full effect of neighborhoods. These studies give evidence on the importance of examining the influence neighborhoods exert on youth before they enter high school since it is during those ages that neighborhoods seem to be most salient.

Do Educational Expectations Play a Role?

Studies that have examined the direct effect of neighborhoods on educational expectations are sparse but show mixed results. To my knowledge, there are five studies that have directly examined the relationship between neighborhoods and educational expectations (i.e., Hope 1995; Mello and Swanson 2007; Newton and Sandoval 2015; Nichols et al. 2010; Stewart et al. 2007). While Hope (1995), Mello and Swanson (2007), and Stewart and colleagues (2007) find support for theories of neighborhood effects, with neighborhood disadvantage having

a negative effect on educational expectations, Newton and Sandoval (2015) and Nichols and colleagues (2010) do not. Although Newton and Sandoval (2015) find a significant relationship between perception of neighborhood quality and educational values, they do not find a significant relationship with educational expectations.

This mixed evidence may be explained in part by the spatial context in which these studies took place. In contrast to Mello and Swanson (2007), Stewart and colleagues (2007), and Hope (1995), which took place in urban neighborhoods, Newton Sandoval's (2015) study took place in suburban neighborhoods. These conflicting results may be because of the differing spatial context of urban and suburban neighborhoods. While Nichols and colleagues (2010) did use a sample of urban neighborhoods, their measure of neighborhood effects consisted of the number of community resources accessible within the neighborhood, which is arguably not an adequate nor certainly the only way to fully operationalize neighborhood disadvantage or advantage. In addition to the mixed evidence examining neighborhoods and educational expectations, these studies are limited to small, single-community samples of African American adolescents. Hence, the current research on neighborhoods and educational expectations is limited both by restricted sample contexts and inconclusive evidence.

The most recent review of educational expectations by Jacob and Linkow (2011) focuses on the known factors that determine educational expectations. They cite neighborhoods as a source of educational expectations, however upon closer inspection of their citation, (i.e., Teachman and Paasch 1998), the only measure is of family income and education. Teachman and Paasch (1998) discuss that the neighborhood the family buys into may explain part of the effect of family SES, and Jacob and Linkow (2011) appear to take this discussion to mean family SES may act as a proxy for neighborhood disadvantage. Yet the literature suggests that

neighborhoods exert a unique influence on educational attainment and academic achievement above and beyond family SES (Sastry 2012). In addition, Jargowsky (2015) provides evidence that not all poor families live in poor neighborhoods. Hence, Jacob and Linkow's (2011) interpretation of Teachman and Paasch's (1998) results is misleading, and their review provides no support for a relationship between neighborhoods and educational expectations.

Beyond reviewing past work on educational expectations, Jacob and Linkow (2011) conduct their own analysis of predictors of educational expectations. In their paper they test for 'neighborhood' effects on educational expectations, yet their geographic unit of analysis is the county. While in some spatial contexts the county may be the best unit of analysis, it is not in all. For example, while a county may be representative in more rural contexts, a county in a metropolitan area would not be able to capture the stark inequalities that may exist between some urban census tracts and others. In this case, a county is not representative of one's neighborhood and is hard to be generalized as a neighborhood effect. Therefore, the most recent review on educational expectations provides little evidence for whether or not neighborhoods play a direct role in predicting expectations.

Although not directly assessing whether neighborhoods impact youth development, other work does examine the interplay between neighborhoods and expectations. Patrick Sharkey's (2013) *Stuck in Place* provides evidence that neighborhoods may have an intergenerational effect on educational expectations. Sharkey found that youth whose parents grew up in disadvantage on average had lowered expectations than youth whose parents did not grow up in disadvantage, with those living in disadvantage for two generations having even lower expectations. Although Sharkey does not directly examine if neighborhood disadvantage predicts expectations, he does show a significant association between the two. In addition to Sharkey's work, research has

examined educational expectations as a potential mediator between educational attainment and academic achievement. South and his colleagues (2003) demonstrate that the addition of educational expectations in predicting dropping out of high school reduces the effect size of living in disadvantaged neighborhoods by about 10%. Ainsworth (2002) finds similar results when examining mediators between neighborhoods and academic achievement. This work points to the potential way in which educational expectations may be a significant mechanism operating between neighborhoods and educational attainment.

How Might Educational Expectations Matter?

The importance of educational expectations has been studied heavily in the field of education as a mechanism impacting educational and socioeconomic status attainment. While the rise in access to higher education coincided with a rise in student's educational expectations, and more students expect higher levels of education than they will actually attain (Jacob and Linkow 2011), educational expectations are still an important predictor of continuing one's education beyond high school (Vaisey 2010). Psychological variables, such as educational and occupational expectations, were first introduced into status attainment models in the late 1960s by Duncan and his colleagues (1968) as well as Sewell and his colleagues (1969). Sewell and his colleagues (1970) developed their Wisconsin model of status attainment and demonstrated that educational expectations are not only an important mediator in the relationship between family SES and educational attainment, but also are an important predictor of attainment after controlling for family characteristics. Bozick and his colleagues' (2010) reassessment of the Wisconsin model of status attainment found that its core components are still relevant today. The importance of educational expectations is provided in Jacob and Linkow's (2011) review where

they confirm with a robust set of controls that educational expectations are significant predictors of higher education enrollment and completion.

Despite the fact that high expectations are quite common, an important finding in the expectation's literature is the significant difference in expectations among poor and more affluent youth (Jacob and Linkow 2011; Vaisey 2010). Studies indicate that adolescents coming from lower SES backgrounds have lowered educational expectations compared to their more advantaged peers (Jacobs and Linkow 2011; Kao and Tienda 1998; Teachman and Paasch 1998; Sewell et al. 1970; Vaisey 2010). Vaisey (2010) demonstrates that these differences in expectations are important determinants of later enrollment in higher education. These results, according to Vaisey (2010), do not take away the importance of structural factors in determining educational attainment, but they do demonstrate the importance of including psychological variables in explaining differences between the poor and more affluent. Because neighborhood disadvantage affects educational attainment above and beyond the effect of family SES (Sastry 2012), it is reasonable to believe that neighborhoods may also have an effect on educational expectations above and beyond the effect of family SES.

Hypotheses

Theory suggests that neighborhoods matter for educational expectations. Wilson's foundational theory of concentration effects and social isolation suggests that youth growing up surrounded by high rates of joblessness and low levels of education will come to expect the same for themselves. Other theories of neighborhood effects fall under two schools of thought, both of which similarly rely on mechanisms of socialization and expectations to explain the importance of neighborhoods in the perpetuation of inequality. The first assumes that living in more advantaged neighborhoods would be beneficial while the second assumes that it would be

harmful. However, there is an overall lack of empirical research examining the validity of this proposed mechanism, and our theories surrounding neighborhood effects are urban theories. Therefore, we don't know if we can generalize urban theories of neighborhood effects in a national study. In addition, two recent articles reviewing the neighborhood effects literature suggest the importance of examining how neighborhoods may matter in different ways for different people (Harding et al. 2011; Sharkey and Faber 2014). Further, how we define a neighborhood may matter in determining our results. Evidence also points to the importance of examining the influence neighborhoods exert on youth at young ages since it is during those ages that neighborhoods seem to be most salient. With all of this in mind, I hypothesize the following:

1. *Neighborhood disadvantage will be a significant predictor of education expectations.*
2. *The effect of neighborhoods on educational expectations will differ when accounting for the interdependence of a neighborhood with its surrounding (i.e., the 'extralocal' neighborhood).*
3. *The effect of neighborhood disadvantage on educational expectations will be stronger for youth exposed to neighborhood disadvantage at younger ages.*
4. *The effect of neighborhood disadvantage will vary across spatial contexts (i.e., in urban, suburban, or rural neighborhoods).*

Findings will help support or refute existing theory on how neighborhoods work to impact youth development. Understanding if neighborhoods influence educational expectations is important in unveiling one mechanism between neighborhoods and educational attainment. In addition, this work will help answer the call to conduct better neighborhood research by examining how neighborhoods may matter differently for different people. For example, I may find support for opposing neighborhood theories such as relative deprivation or collective

socialization depending on the spatial context in which the neighborhood is embedded. By considering the influence of adjacent neighborhoods as well as the one in which the child resides, this study may help advance our understanding of how exposure to contexts beyond the immediate residential census tract is important for interpreting neighborhood effects. These findings may illuminate another way in which neighborhoods work to perpetuate inequality and have implications for further research into how youth come to embody their neighborhoods.

METHODS

Data

Data for this study comes from the Early Childhood Longitudinal Study (ECLS-K), sponsored and collected by the U.S. Department of Education, National Center for Education Statistics. This dataset follows a nationally representative sample of kindergarten students in the 1998/99 school year into 8th grade (2006-2007). A longitudinal dataset, the ECLS-K is a stratified, multistage probability sample with information on the child's physical, social, emotional, and cognitive development as well as information on the home, school, and classroom environments. For more information on the sampling framework of the ECLS-K see https://nces.ed.gov/ecls/.

This study uses the restricted dataset to gain access to the geocoded files on participants' home census tracts. Geocoded participant data allows for the merge of their residential census tract codes with the 2000 Decennial Census as well as the 2005-2009 American Community Survey (ACS). Both the Decennial Census and the ACS are collected by the U.S. Census Bureau to measure population and housing characteristics across the country. This study uses the geocoded participant data from the spring of kindergarten, spring of 1st grade, spring of 3rd grade, and spring of 8th grade. The 2000 census data merges with the geocoded participant data from

kindergarten, 1st, and 3rd grade at the census tract level. While the 2000 census aligns with the geocoded data for children in the spring of 2000, when most of the children would have been in 1st grade, the 2000 census data is also applied to the children's geocoded data from kindergarten and 3rd grade which would have been the spring of 1999 and spring of 2002. The 2005-2009 5-year estimate American Community Survey (ACS) merges with the geocoded participant data from when most of the students were in 8th grade, in the spring of 2007, also at the census tract level. Figure 1 visually displays the study year and grade level of study participants and how they align with data from the census.

(Figure 1 goes about here)

The combination of these datasets allows for the examination of how the residential neighborhoods of the student in early childhood and during early adolescence affects educational expectations. Of the 9,730 8th grade respondents, the final sample size includes 8,420 8th grade students. All missing cases on the dependent variable (8th grader's educational expectations) and 8th grade residential census tracts are dropped. If the geocoded participant data was missing in kindergarten, 1st grade, and 3rd grade, then those cases were also dropped. However, if geocoded data was available for at least one of the three early waves, then those cases were kept in the sample. When tract information was missing in one or two of the years, the nonmissing tract data was used again. For example, if the student did not have kindergarten tract data but had tract information in 1st grade, the student was assigned its 1st grade score twice. This study uses multiple imputation with 20 chained iterations for the missing cases in the remaining control variables to limit sample size loss. There are a total of 1,970 observations that are imputed.

While the ECLS-K is a nationally representative sample of kindergarteners in 1998/99, by 8th grade this dataset is only representative of 80% of all 8th graders in the country in 2006-

2007. This means that the results cannot be generalized to students who immigrated to the U.S. after 1st grade, who were homeschooled until after 1st grade, or who began school before 1998 and were held back. Despite these limitations, the unique combination of these data allows for the assessment of whether or not the educational expectations of adolescents in 8th grade are affected by the composition of their residential neighborhood in both 8th grade and during early childhood. Although evidence suggests that youth alter their expectations as they experience high school (Jacob and Linkow 2011), the ECLS-K uniquely allows for an examination into how neighborhoods in early childhood play a role in determining educational expectations.

Variables

Dependent Variable

In this analysis the dependent variable is the student's educational expectations in 8th grade. The ECLS-K reports 8th graders' educational expectations based on the students' response to the question "As things stand now, how far in school do you think you will get?" with eight possible answers: less than high school graduation; high school graduation or GED only; attend or complete a 2-year program in a community college or vocational school; attend college, but not complete a 4-year degree; graduate from a 4-year college; obtain a Master's degree or equivalent; obtain a Ph.D., M.D., or other advanced degree; don't know. Overall, 72% of students in this sample expect to at least graduate from college, which is similar to other datasets that have been used to assess educational expectations (e.g. Jacob and Linkow 2011). This study operationalizes educational expectations by creating a single dichotomous variable representing

whether or not the student believes they will graduate from college or obtain higher education after college.[2]

Independent Variables

To measure the composition of the students' residential neighborhoods, this study uses a standardized continuous scale of concentrated disadvantage and affluence, with higher numbers indicating higher levels of disadvantage and lower numbers indicating lower levels of disadvantage and higher levels of affluence. This measure is created for both the 2000 census and the 2005-2009 ACS. In line with past research on neighborhood disadvantage (e.g. Greenman, Bodovski, and Reed 2011; Harding 2007; Li and Fischer 2017), a slight variation of Sampson and his colleagues' (1997, 1999) original four scales of neighborhood composition (i.e. concentrated disadvantage, concentrated affluence, concentrated immigration, and residential stability) is applied. The neighborhood disadvantage scale incorporates nine neighborhood composition variables pulled from the census. Included in this scale are percent of families living below the poverty line, percent of persons with less than a high school education, percent unemployed, percent black, percent minority, percent of owner-occupied households, percent of families with incomes $75,000 and higher, percent of persons 25 and older with at least a college education, and percent of the civilian labor force employed in professional or managerial occupations, with the latter four being reverse-coded. This score is created at the census tract level for both the 2000 census and 2005-2009 ACS, and is considered the focal neighborhood

[2] Included in the appendix are the same analyses operationalizing educational expectations in three other ways. One dichotomous variable is created for students who believe they will at least further their education beyond high school, whether or not they expect to graduate from college. "Don't know" is considered an important analytic category (Vaisey 2010; Young 2004) and makes up 16% of this sample. As such, a second dichotomous variable is created for students who respond they don't know. The third dichotomous variable is created for students who expect to at least graduate from college, similar to the results presented throughout the paper, however those who respond "don't know" are coded as missing rather than being included in the analysis.

disadvantage score. All of the items in this scale are z-scored, and the internal reliability is α = .8908 (for the 2000 Census) and α = .8853 (for the 2005-2009 ACS).

In addition to the focal neighborhood disadvantage score, a disadvantage score for the extralocal neighborhoods is created with spatial lags of the focal residential census tract. Spatial lags allow researchers to create new geographic variables that can incorporate the characteristics of the census tracts which neighbor the focal census tract of interest. First order spatial contiguity matrices are used to create the spatially lagged unit of analysis. This is done in GeoDa (Anselin, Syabri, and Kho 2006) using the Queen 1 criterion. The Queen 1 criterion allows for the creation of an average disadvantage score of the focal census tract's first-order neighboring census tracts, i.e. every census tract whose border touches the focal census tract.[3] This creates a second neighborhood variable which represents the average level of disadvantage that exists in the 'extralocal' neighborhood which surrounds the focal residential census tract. By creating a disadvantage score for the 'extralocal' neighborhood, this study is better able to account for the fact that a residential census tract is not an isolated island devoid of a wider context. This variable is the extralocal neighborhood disadvantage score.

Both the focal and extralocal neighborhood disadvantage score are created for every study participant's census tract in both the 2000 decennial census and the 2005-2009 5-year estimate ACS. The 2005-2009 focal and extralocal neighborhood variables represent the neighborhood disadvantage experienced in 8th grade, between the ages of 13 to 14. The 2000 focal and extralocal neighborhood variables represent the average neighborhood disadvantage experienced in kindergarten, 1st grade, and 3rd grade. This captures the overall level of neighborhood disadvantage that the youth experienced between the approximate ages of 5 and 9.

[3] A visual example of a focal and extralocal neighborhood is included in the Appendix.

Controls and Confounding Variables

This study includes basic student and household demographics from the 8th grade wave of data. Studies indicate that females generally have higher educational expectations than males (Jackson 2003). Hence, *sex* is included as a binary variable with 1 indicating female and 0 indicating male. *Race/ethnicity* is also an important demographic variable. Although the evidence is mixed, minorities generally have higher expectations than whites (Davis-Kean 2005; Lawrence 2015; Solorzano 1992). Race/ethnicity is coded as four dummy variables: white, black, Hispanic, and other. Family composition matters for educational attainment and may have similar effects on educational expectations. Therefore, a binary variable accounting for if the student lives in a *2-parent household* as well as a count variable for the children's *number of siblings* are included. Parents of students with disabilities are found to have lower expectations for them (Lawrence 2015; Raleigh and Kao 2010), therefore a binary variable indicating if the child has a *disability* is incorporated. Similarly, immigrant parents generally have higher expectations than nonimmigrants (Raleigh and Kao 2010). Immigrant status is accounted for with a binary variable indicating if *English* is not the student's first language at home.

An important potential confounding variable is family SES. Studies show that family SES has an important effect on educational expectations (Jacob and Linkow 2011; Teachman and Paasch 1998; Sewell et al. 1970; Vaisey 2010). The ECLS-K includes a *family SES quintile* variable which combines measures of occupation prestige, educational attainment, and income. In addition to family SES, studies have shown that parental expectations and past academic achievement inform students expectation (Jacobs and Linkow 2010; Sewell et al. 1970). P*arent's past educational expectations* is included as a binary variable where 1 represents expecting their

child to at least graduate from college, and *past reading achievement* is included as a continuous standardized IRT score. Both of these variables come from when the student was in 5th grade.

In addition to family SES, the school context may serve as a confounding variable between neighborhoods and educational expectations (Lawrence 2015). Students that live in more disadvantaged neighborhoods due to high levels of income segregation often attend public, low-achieving schools (Owens 2018). These low-achieving schools tend to have a higher composition of minority students as well as a larger percentage of students who qualify for free or reduced-price lunches (Caldas and Bankston 1997; Condron 2009). These variables are controlled for with a continuous standardized variable for the *percentage of students eligible for free or reduced-price lunches* and a categorical variable for *the percentage of minority students*: less than 10%, 10% to less than 25%, 25% to less than 50%, 50% to less than 75%, and 75% or more. Lastly, a dichotomous variable is included to account for if the school is *private*. An additional context important for students in 8th grade are peers (Behtoui 2017). To account for the student's *peers' attitudes* toward school a continuous standardized variable is created to indicate if the student's friends have positive attitudes toward school. This variable incorporates three ego-reported questions on the student's peers' attitudes about the importance of class, good grades, and higher education ($\alpha = 0.6663$).

In addition to the aforementioned controls, the fourth research question is answered by stratifying the sample by *place*. The place one lives is coded into three dummy variables indicating whether or not the child lives in an urban, suburban, or rural area. Additionally, an interaction term is included in one of the analyses. The interaction term is the product of the 8th grade focal and extralocal neighborhood. Table 1 gives the descriptive statistics for the variables

in this study, not including the interaction term. Table 2 compares the descriptive statistics from the total sample to the urban, suburban, and rural samples.

(Table 1 goes about here)

(Table 2 goes about here)

Analytic Strategy

Given the nested structure of the research questions and data, with individuals being nested within their neighborhoods, this study takes advantage of multilevel models with an individual level (Level 1) and neighborhood level (Level 2). Both focal and extralocal neighborhood disadvantage are measured at Level 2 while the remaining variables are measured at Level 1.[4] Results use STATA 13's (StataCorp 2013) xtmelogit with the mi command to multiply impute the data. The multilevel model is represented below by the following equation:

$$\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)_{ij} = \gamma_{00} + \gamma_{01}Z_j + \gamma_{10}X_{ij} + u_{0j} + e_{ij}$$

Where,

Level 1:

$$\ln\left(\frac{\hat{p}}{1-\hat{p}}\right)_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + e_{ij}$$

Level 2:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}Z_j + u_{0j}$$
$$\beta_{1j} = \gamma_{10}$$

Where *i* represents the student, *j* represents the 8th grade neighborhood census tract grouping, *e* represents the level one residual, *u* represents the random effect residual, *ln* is the natural logarithm and $\hat{p}$ is the probability that educational expectations =1, *X* is a vector of level 1

[4] Although I include 3 school level variables, I treat these as level 1 variables due to methodological constraints.

covariates, and Z is a vector of level 2 covariates. This paper only presents and interprets the fixed effects.

There are 11 unique models included in four tables, one table to answer each of the four research questions. Table 3 includes 4 models to answer the first research question. These models take a cross-sectional approach and ask more generically whether or not after controlling for a host of potential confounding variables neighborhoods affect educational expectations in 8th grade. In this first set of models, neighborhood disadvantage is only represented at the residential census tract level, or what is referred to as the focal neighborhood. By using a set of models that include only the focal neighborhood variable, these results are comparable with much of the literature on neighborhood effects and educational outcomes. The first model is a simple bivariate analysis which regresses educational expectations on focal neighborhood disadvantage alone to estimate the overall neighborhood effect on expectations, regardless of potential confounding variables. Models 2 through 4 then build upon the first model by successively adding sets of family background and demographic variables, school characteristics, and confounders for personal and significant others.

The results in Table 4 are used to answer the second research question. While Model 4 (Table 3) is visually displayed for comparison purposes, there are an additional 3 models included in Table 4 that examine how incorporating information about the extralocal neighborhood changes our understanding and interpretation of the effect that neighborhood disadvantage has on educational expectations in 8th grade. These models, like those in Table 3, present a cross-sectional approach, examining only how neighborhood disadvantage in 8th grade affects educational expectations in 8th grade. All of the controls included in Model 4 remain in Models 5 through 7. Model 5 examines the effect of extralocal neighborhood disadvantage by

itself, while Model 6 includes both the extralocal and focal neighborhood. Model 7 adds the interaction term between the focal and extralocal neighborhood disadvantage scores in 8th grade.

Results answering the third research question are included in Table 5, and an additional 4 models are used in addition to Models 4 and 6 (Table 4) to examine how neighborhood disadvantage experienced in 8th grade and neighborhood disadvantage experienced during between kindergarten and 3rd grade may matter for educational expectations. Model 8 includes focal neighborhood disadvantage experience in K-3 alone (for comparing with Model 5). Model 9 includes both focal neighborhoods experienced in 8th grade and K-3. Model 10 builds off of Model 8 by looking only at neighborhood disadvantage experienced in K-3 at both the focal and extralocal level (for comparing with Model 6). Finally, Model 11 includes all four neighborhood variables, both the focal and extralocal neighborhoods in 8th grade and K-3.

The final set of analyses included in this paper answers the fourth research question, asking how neighborhood effects may differ in urban, suburban, and rural contexts. Table 6 reruns Models 4, 6, and 8. For comparison purposes, Models 4, 6, and 8 are displayed once again for the full sample.

RESULTS

Focal Neighborhood Disadvantage

The results in Table 3 answer the first research question: *Does exposure to neighborhood disadvantage in 8th grade significantly affect educational expectations to graduate from college?* As each model builds upon the last and additional controls are included, the relationship between 8th grade focal neighborhood disadvantage and educational expectations shrinks and eventually disappears. In the final model the relationships between the family background and demographics, school, and personal and significant others variables are mostly in the expected

directions.[5] However, the final addition of the personal and significant others variables prove to be important confounders as they eliminate the relationship between neighborhood disadvantage and expectations.

Without any controls in Model 1, for every standard deviation increase in neighborhood disadvantage, the odds of expecting to graduate from college are 0.67 times lower. Net of each set of controls added to the analysis in Models 2 and 3, neighborhood disadvantage is consistently negatively related to expecting to graduate from college. However, in Model 4, when controls are included for the influence of personal and significant others, neighborhood disadvantage no longer significantly predicts expecting to graduate from college. Upon initial consideration, the models presented in Table 3 would lead to the conclusion that neighborhood disadvantage experienced in 8th grade does not significantly influence educational expectations.

(Table 3 about here)

Extralocal Neighborhood Disadvantage

[5] Once the full set of variables is included in the analysis, sex, race, being in a nuclear family, number of siblings, having a disability, family SES quintile, the school's SES indicator of percentage of students eligible for free or reduced-price lunches, peers' educational attitudes, parents' expectations in 5th grade, and 5th grade reading achievement, all remain significant predictors of expecting to at least graduate from college. With regards to family background and demographic variables, results which prove to be consistent with past research on educational expectations include females having higher expectations than males; living in a two-parent household increases expectations, each additional sibling decreases expectations; having a disability decreases expectation, and residing in higher SES families increases expectations. Somewhat inconsistent results are those for minority students. Although studies indicate that minority parents tend to have higher expectations than white parents (Cheng and Starks 2002), results are mixed for the expectations that minorities hold for themselves compared to whites. Black students have 1.43 times higher odds than white students to expect to at least graduate from college ($p<0.01$), while Hispanic students' expectations are not significantly different from white students', and other minority students have 0.77 times lower odds than white students to expect to at least graduate from college ($p<0.05$). Insignificant factors include being an immigrant. As to school characteristics which predict expecting to graduate from college, only the percentage of students eligible for free or reduced-price lunches is significant, the minority composition and whether the school is private or public is irrelevant. While the finding that having a higher percentage of poor classmates in school increases expectations may appear contradictory, it aligns with findings from other research (e.g. Lawrence 2015), which suggests that youth in more disadvantaged schools may be less aware than if they were at a more advantaged school of the challenges for furthering their education, subsequently leading to higher expectations. Finally, the controls included for personal and significant others are all strong and positive predictors of educational expectations.

The next set of models answers my second research question: *Does accounting for the interdependence of a neighborhood with its surroundings (i.e., incorporating the 'extralocal' neighborhood) strengthen or change the relationship between neighborhoods and educational expectations?* Table 4 presents the results for the logistic regression models which examine how the extralocal neighborhood broadens our understanding of neighborhood effects and how the inclusion of this neighborhood variable even alters the relationship between the focal neighborhood and expectations. While Table 3 left us believing that neighborhood disadvantage experienced in 8th grade does not significantly influence educational expectations, the models presented in Table 4 suggest that it is not quite that simple. Although Model 5, which includes the extralocal neighborhood alone, does not show significant results for neighborhood effects, similar to Model 4, when both the focal and extralocal neighborhood are included, as in Model 6, the results change. With the addition of the extralocal neighborhood, the focal neighborhood effect regains its significance, and the extralocal neighborhood becomes marginally significant. The insignificance of the neighborhood without inclusion of both the focal and extralocal neighborhood may be explained by the opposing direction of their relationships with educational expectations.

Interestingly, while disadvantage in the focal neighborhood is negatively related to educational expectations, disadvantage in the extralocal neighborhood is positively associated with educational expectations. Because the extralocal and focal neighborhood variables are standardized and these analyses control for when each variable is at 0, it means that we are controlling for the other neighborhood variable when it is at its average. This means that when the youth's focal neighborhood disadvantage score is one standard deviation above the mean, but their extralocal neighborhood disadvantage score is 0, that youth lives in a residential census

tract (focal) with a much higher level of disadvantage than its immediately surrounding census tracts. Similarly, when the youth's surrounding neighborhood (extralocal) score is one standard deviation above the mean but their immediate residential neighborhood (focal) is at 0, then the student lives in a relatively more advantaged neighborhood (focal) but they are surrounded (extralocal) by higher levels of disadvantage. This interpretation of the neighborhood variables indicates that neighborhood disadvantage experienced in 8th grade is not an important determinant of educational expectations without taking into consideration the interdependence of a focal neighborhood with the neighborhoods which immediately surround it.

(Table 4 about here)

For every standard deviation increase in focal neighborhood disadvantage, the odds of expecting to graduate from college are 12% lower (p<0.05). However, for every one standard deviation increase in extralocal neighborhood disadvantage, the odds of expecting to graduate from college are 10% higher (p<0.1). The results can be interpreted to mean that youth whose immediate surroundings are disadvantaged have lower expectations. However, for youth whose neighborhoods are embedded in a context of high disadvantage, their expectations will be higher than youth whose neighborhoods are embedded in lower levels of disadvantage. Therefore, while the results for the focal neighborhood are consistent with theories of social isolation, collective socialization, contagion/epidemic effects, and institutional resources, the results for the extralocal neighborhood are more consistent with theories of relative deprivation, competition, and cultural conflict. To further explore these complex results, the final model in Table 4 includes an interaction term for the focal and extralocal neighborhood. The interaction term is positively related to educational expectations (p<0.01), and the focal neighborhood maintains its negative relationship (p<0.05). The final results indicate that the effect of neighborhood

disadvantage on educational expectations is not only dependent on the focal neighborhood, but also the extralocal.

Temporal Neighborhood Disadvantage

Table 5 presents the results to answer the third research question: *Does early exposure to neighborhood disadvantage between kindergarten through 3rd grade have a lasting effect on 8th grade educational expectations to graduate from college?* These models show that exposure to neighborhood disadvantage in the early years between kindergarten through 3rd grade have a lagged effect on 8th grade educational expectations to graduate from college. Compared to Model 4 which shows that the 8th grade focal neighborhood on its own is not significant, Model 8 finds that when the average K-3 focal neighborhood disadvantage is included on its own there is a significant relationship between early exposure to neighborhood disadvantage and later 8th grade educational expectations. These results would suggest that neighborhood disadvantage experienced in early childhood has a sustained negative effect into early adolescence, proving to be an even stronger predictor of educational expectations than the youth's current neighborhood. These results indicate that theories of social isolation, collective socialization, contagion/epidemic effects, and institutional resources are more relevant in interpreting the lagged neighborhood effects from K-3.

(Table 5 about here)

When Model 9 includes both measures of focal neighborhood disadvantage from 8th grade and K-3, neither variable is significant. For comparison with Model 6 which looks at the focal and extralocal neighborhood effect in 8th grade, Model 10 examines focal and extralocal neighborhood disadvantage in K-3. Although the extralocal neighborhood is not significant in K-3, the focal neighborhood maintains its significance and even gains a stronger relationship with

expectations than when the focal neighborhood was measured alone in Model 8. However, similar to Model 9, when Model 11 incorporates all four measures of neighborhood disadvantage, there is no significant effect of neighborhood disadvantage on expectations. Despite null results in Model 9 and 11, Models 8 and 10 point to the importance of neighborhood disadvantage experienced between the ages of 5 and 9. Not only does the K-3 focal neighborhood stand on its own in Model 8, but when accounting for the interdependence of the focal neighborhood with its surroundings in Model 10, the strength of relationship between the focal neighborhood and expectations increases.

Stratification by Place Type

The last set of results are presented in Table 6 to answer my final research question: *Does the neighborhood effect on educational expectations vary in urban, suburban, and rural environments?* The results displayed are for Model 4, including the 8th grade focal neighborhood disadvantage alone, Model 6, including both the focal and extralocal neighborhood in 8th grade, and Model 8, including K-3 focal neighborhood disadvantage on its own, except that the results are stratified by *place*. These models are used to interpret how neighborhood effects may differ in urban, suburban, and rural areas. The results for Model 4 are consistent with the total sample across urban, suburban, and rural areas. The 8th grade focal neighborhood remains an insignificant predictor of educational expectations. However, Model 6 indicates that while neighborhood effects are significant predictors of expecting to graduate from college in the total sample, they are only marginally significant in urban areas, and are not at all significant in either suburban or rural areas.

(Table 6 about here)

The significance of the overall sample, along with the marginal significance of the urban sample after stratifying the results, gives a mixed conclusion. Further, the results for Model 8 show that after stratifying the sample, focal neighborhood disadvantage in K-3 is only significant in suburban areas. Therefore, these results lead me to conclude with a national sample that neighborhood disadvantage experienced in 8th grade and K-3 is a significant determinant of educational expectations. The neighborhood effect, however, is more pronounced in urban areas for 8th grade exposure, and more pronounced in suburban areas for K-3 exposure. There is no detectable effect in rural areas for either model. These results suggest that neighborhood effects are not uniform across urban, suburban, and rural areas, and the relative importance of neighborhoods may differ across places during certain development periods, at least in their effect on educational expectations. Results also suggest that other predictors of educational expectations differ in their significance across urban, suburban, and rural areas.

Robustness Checks

To analyze the robustness of the results and sensitivity of measurements, multiple robustness checks are included in the Appendix. First, the sensitivity of using a Queen 1 criterion to create the spatially lagged variables is tested. Alternatively, spatial lags using a Euclidean distance of 2 miles and 5 miles are used to rerun Model 6. For census tracts where spatial lags could not be created because the distance cutoff did not extend beyond the immediate census tract boundary, the focal census tract measure is imputed. While spatial lags using the Queen 1 criterion are marginally significant predictors of educational expectations and their inclusion in the model allows the focal neighborhood to regain its significance, neither of the alternatively used spatial lags present any significant results for the effect of neighborhoods on educational

expectations. This may be because in many tracts a Euclidean distance of 2 and 5 miles is not far enough to move beyond the immediate census tract, especially in the more rural tracts.

In addition, sensitivity tests examine how changing the definition of neighborhood disadvantage from a composite index to simply the standardized percentage of residents living in poverty would change the results for either the focal or extralocal neighborhood. With these new measures, Models 4, 6, and 8 are run. With the exception of Model 8 which examines early exposure to neighborhood disadvantage, the sensitivity tests support the findings presented above. For a final robustness check, tests examine how the large percentage of students responding "Don't know" may have affected the results. Models 6 and 7 are rerun with the don't know cases coded as missing. The results indicate that the inclusion of the don't know cases does change the results for Model 6, but not for Model 7.

DISCUSSION

The results presented in this paper show support for traditional theories of neighborhood effects which posit that neighborhoods play a role in determining youths' educational expectations. Wilson's theory of social isolation proposes that youth growing up in neighborhoods of concentrated disadvantage will be exposed to conditions which normalize and place less stigma on lower educational expectations. While it is beyond the scope of this paper to identify the specific mechanisms involved in this process, results lend support to the idea that neighborhood disadvantage lowers youths' educational expectations. Youth who spend a part of their early childhood living in concentrated disadvantage grow up to have lower educational expectations in 8th grade. Further, after accounting for the interdependence between focal and extralocal neighborhoods, disadvantage in an 8th grader's focal neighborhood is associated with lower expectations to graduate from college.

It is important to note that the 8th grade focal neighborhood effect could not be adequately estimated without including the effect of the extralocal neighborhood. These results show that neighborhood effects are not always straightforward, and may be highly dependent on the unit of analysis being used. Without incorporating information on the extralocal neighborhood, the 8th grade cross-sectional analysis would have had null findings. Therefore, these results provide strong evidence for the importance of accounting for the interdependence of neighborhoods. While data limitations often force researchers to rely on using administrative boundaries such as census tracts, this study shows that accounting for the surrounding locale helps to provide additional information on neighborhood effects. These findings lend credence to the fact that neighborhoods are not isolated islands, and accounting for their interdependence with their surroundings helps to shed additional light on how neighborhoods are important determinants of youth development and life outcomes.

Consequently, this paper advances the literature in several ways. First, results show that without incorporating the extralocal neighborhood beyond the focal residential census tract, we may not be fully uncovering the ways in which neighborhoods matter for youth outcomes. These findings support similar explorations into the interdependence of neighborhoods, all of which also identify the extralocal neighborhood as an important additional neighborhood effect (Crowder and South 2011; Graif and Matthews 2017; Peterson and Krivo 2009). By including the extralocal neighborhood in this analysis, not only did the initial null neighborhood effect disappear, but also an independent extralocal neighborhood effect appeared with marginal significance.

A second contribution of this paper is in showing how support for neighborhood theories is reliant on the unit of analysis being used. While focal neighborhood findings for youth in

kindergarten through 3rd grade and in 8th grade are consistent with theories of social isolation, collective socialization, institutional resources, and epidemic effects, extralocal findings are more consistent with theories of relative deprivation, cultural conflict, and competition. Youth who live in disadvantaged census tracts, but are surrounded by census tracts which are relatively more advantaged, will have lower educational expectations for themselves. As relative deprivation suggests, these youth may recognize the barriers they face for achieving success and subsequently drop out of the race. They may develop countercultures which identify other avenues for being perceived as successful which defy traditional norms (Harding 2009). In a similar vein, youth whose focal neighborhood is embedded in a context which is relatively more disadvantaged will have higher educational expectations for themselves. These youth may recognize their relative advantage and develop higher expectations as a result. Figure 2 visually displays the number of youths living in such situations. While disadvantage in the focal and extralocal neighborhood is highly correlated (r=0.8512), all of the points which fall out of the diagonal quadrants represent students whose focal neighborhood and extralocal neighborhood experience different levels of disadvantage. When these spatial mismatches occur, neighborhood effects can be better explained by models of relative deprivation, competition, and cultural conflict.

(Figure 2 about here)

A third finding and contribution of this work is its support of other research in pointing to the salience of neighborhoods during early childhood (Anderson et al. 2014; Chetty and Hendren 2018; Chetty et al. 2016; Rothwell and Massey 2015; Vartanian and Buck 2005). Without incorporating the extralocal neighborhood effect, the 8th grade focal neighborhood is not a significant predictor of educational expectations. This contrasts with the results for the focal

neighborhood experienced between kindergarten through 3rd grade. Even without accounting for the extralocal neighborhood, K-3 neighborhood disadvantage is a significant predictor of educational expectations in 8th grade. The lagged effect of neighborhood disadvantage experienced between the ages of 5 to 9 is stronger than the concurrent neighborhood effect to which the child is exposed.

The fourth and final contribution of this paper is relative support for Lobao and Hooks's (2007) concern that urban theories are not applicable beyond the city over for Lichter and Brown's (2011) suggestion that the urban/rural divide is blurring. While the overall sample finds support for neighborhood theories, the stratified results only showed neighborhood effects appearing in urban areas for exposure in 8th grade, and only in suburban areas for exposure in kindergarten through 3rd grade. There was no relationship in rural areas between neighborhood disadvantage and expectations, which contradicts Lichter and Brown's proposition of a growing similarity between urban and rural areas. Overall, the conclusions point to the importance of investigating how neighborhood effects may vary in different places. Such results have implications for understanding how places matter for youth outcomes.

CONCLUSION

As Diez Roux and Mair importantly note, "It is important to recognize that the search for the perfect definition of a neighborhood is likely to be futile and that the spatial contexts relevant [to health] are likely to have fuzzy boundaries," (2010:134). While Diez Roux and Mair (2010) are talking in the context of health, in all areas of neighborhood research their point is relevant. There is no perfect definition of a neighborhood, and neighborhoods may vary in their effect depending on the spatial context. My results point to the importance of incorporating the extralocal neighborhood in future analyses of neighborhood effects, and further examining how

neighborhoods in urban, suburban, and rural areas may differ. Finally, these results point to the salience of neighborhood effects during early childhood.

These results are limited in that they may not have controlled for all endogenous variables that could explain the relationship between neighborhoods and expectations. Further, the data used for this study does not allow us to examine how these expectations may have changed once the youth entered high school when the initial steps to college enrollment would begin. Additionally, the 8th grade sample used is only representative of 80% of the U.S. population which does not allow it to be generalized to recent immigrant groups or students who are homeschooled. Despite these limitations however, this paper is the first comprehensive analysis in the literature to provide support for the proposition that neighborhoods have a direct effect on youth's educational expectations. Past research examining the relationship between neighborhoods and expectations have been limited to single-city samples of African Americans. Further, the existing work finds mixed results. This paper overcomes this past research by using a national dataset and more objective measures of neighborhood disadvantage.

Implications to come from this research first point to early childhood. Programs directed at boosting children's educational expectations should begin at the younger ages. Not only should classroom teachers strive to provide their students with positive reinforcement and information on how to successfully obtain college educations, but neighborhood community groups such as after school programs can help to foster educational expectations for youth coming from disadvantaged neighborhoods. Both positive reinforcement of student's abilities and their future possibilities should be provided, but also information on how to navigate routes to success. Information on the application system and taking the SAT can prove to be important cultural information gaps. Universities can be another actor in boosting youths' educational

expectations. Programs which make the university campus more accessible to youth in the neighboring communities can help make youth feel that they are capable of one day going to such a university. Whether programs are developed within local schools, community groups, or universities, strategies should be developed to create sustained relationships with youth as they age and eventually are able to take their first steps in applying to college.

However, most important is to remember that structural constraints to educational success must be addressed if higher levels of educational expectations are to be translated into realities. Low-income youth, and youth growing up in disadvantaged neighborhoods face many barriers to achieving higher levels of educational attainment. While fostering higher expectations in these youth can motivate them to persevere, perseverance is not enough to close the educational gap between disadvantaged youth and their more well-off peers.

APPENDIX

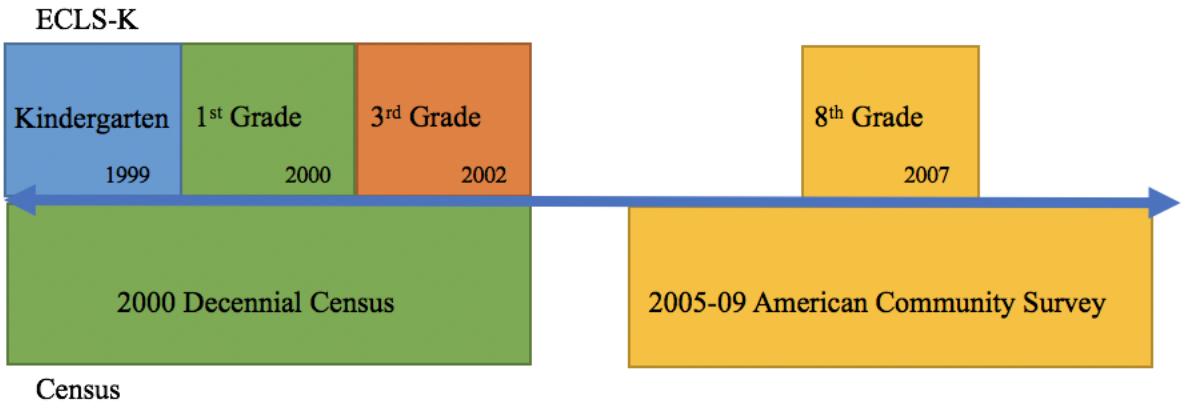

Figure 1. Visual Representation of Datasets and Study Participants' Grade Level

Table 1. Descriptive Statistics for Imputed Data

Variable Type Variable	Mean or %
Dependent Variable	
Expect College +	73.13%
Independent Variables	
Focal Neighborhood (8th)	-0.06
Extralocal Neighborhood (8th)	-0.04
Focal Neighborhood (K-3)	-0.11
Extralocal Neighborhood (K-3)	-0.09
Family Background and Demographics Variables	
Female	49.89%
Race	
White	62.43%
Black	10.05%
Hispanic	18.04%
Other	9.47%
Disabled	15.00%
Siblings	1.49
Lives with 2 Parents	78.34%
Other Language Spoken at Home	14.12%
Family SES Quintile	
SES Quintile 1	15.24%
SES Quintile 2	18.80%
SES Quintile 3	20.16%
SES Quintile 4	20.68%
SES Quintile 5	25.12%
School Variables	
Private	18.27%
Eligible for Free/Reduced Price Lunches	-0.02
Minority Composition	
< 10%	27.39%
10% to < 25%	21.34%
25% to < 50%	19.85%
50% to < 75%	11.73%
75% or more	19.69%
Personal & Significant Others Variables	
Reading Achievement (5th)	0.05
Parent's Expect College Graduation (5th)	78.24%
Friends' Attitudes toward Education	0.01
n	8,420

Table 2. Descriptive Statistics Comparing Non-Imputed Total Sample to Non-Imputed Urban, Suburban, and Rural Samples

Variable Type	Mean or %			
Variable	Total	Urban	Suburban	Rural
Dependent Variable				
Expect College +	72.22%	73.41%	75.75%	69.64%
Independent Variables				
Focal Neighborhood (8th)	0.00	0.24	-0.30	-0.06
Extralocal Neighborhood (8th)	0.00	0.33	-0.34	-0.03
Focal Neighborhood (K-3)	-0.09	0.18	-0.34	-0.10
Extralocal Neighborhood (K-3)	-0.08	0.24	-0.36	-0.09
Family Background and Demographics Variables				
Female	49.23%	51.07%	48.89%	50.26%
Race				
White	62.75%	45.71%	66.65%	75.86%
Black	9.49%	14.41%	7.19%	9.05%
Hispanic	17.06%	28.98%	16.59%	7.63%
Other	10.70%	10.90%	9.57%	7.46%
Disabled	15.46%	13.52%	15.18%	16.08%
Siblings	1.49	1.54	1.48	1.45
Lives with 2 Parents	77.44%	74.94%	80.50%	79.59%
Other Language Spoken at Home	13.71%	23.60%	13.00%	5.12%
Family SES Quintile				
SES Quintile 1	16.02%	21.18%	10.64%	14.74%
SES Quintile 2	19.18%	17.83%	15.83%	24.15%
SES Quintile 3	20.03%	17.52%	20.48%	22.66%
SES Quintile 4	20.47%	18.32%	22.92%	20.40%
SES Quintile 5	24.29%	25.15%	30.13%	18.05%
School Variables				
Private	17.06%	28.01%	15.35%	8.88%
Eligible for Free/Reduced Price Lunches	0.00	0.26	-0.25	0.04
Minority Composition				
< 10%	28.05%	9.78%	25.56%	49.40%
10% to < 25%	20.41%	17.42%	26.14%	18.95%
25% to < 50%	19.33%	17.50%	25.08%	15.57%
50% to < 75%	11.88%	18.65%	9.26%	7.63%
75% or more	20.33%	36.66%	13.96%	8.45%
Personal & Significant Others Variables				
Reading Achievement (5th)	0.00	-0.02	0.14	-0.02
Parent's Expect College Graduation (5th)	76.42%	81.81%	82.84%	67.70%
Friends' Attitudes toward Education	0.00	0.03	0.03	-0.04
n	8,420	2,610	3,280	2,330

Table 3. Multilevel Logistic Regression of Expectations to Graduate from College on 8th Grade Focal Neighborhood Disadvantage

Category	Model 1		Model 2		Model 3		Model 4	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage								
Focal Neighborhood (8th)	0.672	(0.018)***	0.914	(0.032)*	0.859	(0.035)***	0.937	(0.039)
Family Background and Demographics								
Female (=1)			1.524	(0.082)***	1.525	(0.082)***	1.309	(0.073)***
Race (ref. White)								
Black			1.457	(0.158)***	1.354	(0.156)**	1.432	(0.168)**
Hispanic			0.926	(0.084)	0.869	(0.085)	0.935	(0.097)
Other			0.829	(0.087)†	0.792	(0.087)*	0.766	(0.087)*
Non-English (=1)			1.120	(0.110)	1.089	(0.108)	0.932	(0.097)
Nuclear Family (=1)			1.218	(0.086)**	1.223	(0.087)**	1.241	(0.092)**
Siblings			0.911	(0.022)***	0.911	(0.022)***	0.944	(0.023)*
Disabled (=1)			0.521	(0.038)***	0.524	(0.039)***	0.726	(0.057)***
Family SES Quintile (ref. Quintile 1)								
Quintile 2			1.453	(0.128)***	1.469	(0.130)***	1.212	(0.113)*
Quintile 3			2.330	(0.215)***	2.392	(0.224)***	1.661	(0.167)***
Quintile 4			3.768	(0.393)***	3.861	(0.411)***	2.291	(0.261)***
Quintile 5			6.304	(0.706)***	6.419	(0.739)***	3.070	(0.383)***
School Characteristics								
% Eligible for Free/Reduced Lunches					1.099	(0.046)*	1.141	(0.049)**
Minority Composition (ref. < 10%)								
10% to < 25%					0.913	(0.074)	0.875	(0.072)
25% to < 50%					1.093	(0.094)	1.004	(0.089)
50% to < 75%					1.064	(0.112)	1.001	(0.109)
75% or more					1.119	(0.129)	1.011	(0.120)
Private (=1)					1.107	(0.099)	0.959	(0.088)
Personal & Significant Others								
Parents' Expectations in 5th Grade							1.947	(0.133)***
8th Grade Peers' School Attitudes							1.428	(0.038)***
5th Grade Reading Achievement							1.617	(0.056)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 4. Multilevel Logistic Regression of Expectations to Graduate from College on 8th Grade Focal and Extralocal Neighborhood Disadvantage

Category	Model 4		Model 5		Model 6		Model 7	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage								
Focal Neighborhood (8th)	0.937	(0.039)			0.879	(0.050)*	0.867	(0.049)*
Extralocal Neighborhood (8th)			1.007	(0.041)	1.095	(0.060)†	1.064	(0.059)
Focal X Extralocal Neighborhood (8th)							1.068	(0.025)**
Family Background and Demographics								
Female (=1)	1.309	(0.073)***	1.305	(0.072)***	1.309	(0.073)***	1.310	(0.073)***
Race (ref. White)								
Black	1.432	(0.168)**	1.386	(0.163)**	1.419	(0.167)**	1.366	(0.162)**
Hispanic	0.935	(0.097)	0.924	(0.095)	0.937	(0.097)	0.936	(0.096)
Other	0.766	(0.087)*	0.769	(0.087)*	0.772	(0.087)*	0.780	(0.088)*
Non-English (=1)	0.932	(0.097)	0.932	(0.097)	0.931	(0.097)	0.926	(0.096)
Nuclear Family (=1)	1.241	(0.092)**	1.247	(0.093)**	1.239	(0.092)**	1.239	(0.092)**
Siblings	0.944	(0.023)*	0.943	(0.023)*	0.945	(0.023)*	0.943	(0.023)*
Disabled (=1)	0.726	(0.057)***	0.726	(0.057)***	0.728	(0.057)***	0.727	(0.057)***
Family SES Quintile (ref. Quintile 1)								
Quintile 2	1.212	(0.113)*	1.226	(0.113)*	1.212	(0.112)*	1.236	(0.115)*
Quintile 3	1.661	(0.167)***	1.691	(0.169)***	1.664	(0.167)***	1.691	(0.169)***
Quintile 4	2.291	(0.261)***	2.361	(0.267)***	2.294	(0.262)***	2.302	(0.262)***
Quintile 5	3.070	(0.383)***	3.212	(0.395)***	3.080	(0.384)***	2.990	(0.373)***
School Characteristics								
% Eligible for Free/Reduced Lunches	1.141	(0.049)**	1.115	(0.049)*	1.127	(0.049)**	1.135	(0.050)**
Minority Composition (ref. < 10%)								
10% to < 25%	0.875	(0.072)	0.879	(0.073)	0.878	(0.073)	0.870	(0.072)†
25% to < 50%	1.004	(0.089)	1.000	(0.088)	0.999	(0.088)	1.010	(0.089)
50% to < 75%	1.001	(0.109)	0.979	(0.106)	0.994	(0.108)	1.011	(0.110)
75% or more	1.011	(0.120)	0.963	(0.115)	0.980	(0.118)	0.941	(0.113)
Private (=1)	0.959	(0.088)	0.931	(0.086)	0.936	(0.087)	0.951	(0.088)
Personal & Significant Others								
Parents' Expectations in 5th Grade	1.947	(0.133)***	1.957	(0.134)***	1.948	(0.133)***	1.939	(0.132)***
8th Grade Peers' School Attitudes	1.428	(0.038)***	1.430	(0.039)***	1.428	(0.039)***	1.423	(0.038)***
5th Grade Reading Achievement	1.617	(0.056)***	1.624	(0.056)***	1.618	(0.056)***	1.619	(0.056)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 5. Multilevel Logistic Regression of Expectations to Graduate from College on Focal and Extralocal 8th Grade and K-3 Neighborhood Disadvantage

Category	Model 4		Model 8		Model 9		Model 6		Model 10		Model 11	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage												
Focal Neighborhood (8th)	0.937	(0.039)			0.983	(0.055)	0.879	(0.050)*			0.920	(0.064)
Extralocal Neighborhood (8th)							1.095	(0.060)†			1.122	(0.083)
Focal Neighborhood (K-3)			0.916	(0.041)*	0.927	(0.055)			0.865	(0.058)*	0.917	(0.076)
Extralocal Neighborhood (K-3)									1.074	(0.067)	0.986	(0.083)
Family Background and Demographics												
Female (=1)	1.309	(0.073)***	1.310	(0.073)***	1.310	(0.073)***	1.309	(0.073)***	1.312	(0.073)***	1.311	(0.073)***
Race (ref. White)												
Black	1.432	(0.168)**	1.467	(0.176)**	1.467	(0.176)**	1.419	(0.167)**	1.466	(0.176)**	1.461	(0.175)**
Hispanic	0.935	(0.097)	0.946	(0.098)	0.946	(0.098)	0.937	(0.097)	0.944	(0.098)	0.952	(0.099)
Other	0.766	(0.087)*	0.769	(0.087)*	0.768	(0.087)*	0.772	(0.087)*	0.774	(0.088)*	0.776	(0.088)*
Non-English (=1)	0.932	(0.097)	0.945	(0.098)	0.943	(0.098)	0.931	(0.097)	0.947	(0.099)	0.945	(0.098)
Nuclear Family (=1)	1.241	(0.092)**	1.242	(0.092)**	1.241	(0.092)**	1.239	(0.092)**	1.241	(0.092)**	1.238	(0.092)**
Siblings	0.944	(0.023)*	0.945	(0.023)*	0.945	(0.023)*	0.945	(0.023)*	0.946	(0.023)*	0.946	(0.023)*
Disabled (=1)	0.726	(0.057)***	0.726	(0.057)***	0.726	(0.057)***	0.728	(0.057)***	0.727	(0.057)***	0.728	(0.057)***
Family SES Quintile (ref. Quintile 1)												
Quintile 2	1.212	(0.113)*	1.210	(0.112)*	1.209	(0.112)*	1.212	(0.112)*	1.210	(0.112)*	1.208	(0.112)*
Quintile 3	1.661	(0.167)***	1.655	(0.166)***	1.653	(0.166)***	1.664	(0.167)***	1.656	(0.166)***	1.653	(0.166)***
Quintile 4	2.291	(0.261)***	2.275	(0.259)***	2.269	(0.260)***	2.294	(0.262)***	2.276	(0.259)***	2.267	(0.259)***
Quintile 5	3.070	(0.383)***	3.024	(0.378)***	3.015	(0.379)***	3.080	(0.384)***	3.020	(0.377)***	3.013	(0.379)***
School Characteristics												
% Eligible for Free/Reduced Lunches	1.141	(0.049)**	1.141	(0.048)**	1.144	(0.050)**	1.127	(0.049)**	1.135	(0.048)**	1.128	(0.050)**
Minority Composition (ref. < 10%)												
10% to < 25%	0.875	(0.072)	0.873	(0.072)	0.873	(0.072)†	0.878	(0.073)	0.875	(0.072)	0.876	(0.072)
25% to < 50%	1.004	(0.089)	1.002	(0.088)	1.003	(0.089)	0.999	(0.088)	0.999	(0.088)	0.996	(0.088)
50% to < 75%	1.001	(0.109)	1.001	(0.108)	1.004	(0.109)	0.994	(0.108)	0.999	(0.108)	0.996	(0.109)
75% or more	1.011	(0.120)	1.019	(0.120)	1.023	(0.122)	0.980	(0.118)	1.003	(0.119)	0.990	(0.119)
Private (=1)	0.959	(0.088)	0.960	(0.087)	0.963	(0.088)	0.936	(0.087)	0.945	(0.087)	0.937	(0.087)
Personal & Significant Others												
Parents' Expectations in 5th Grade	1.947	(0.133)***	1.948	(0.133)***	1.947	(0.133)***	1.948	(0.133)***	1.948	(0.133)***	1.948	(0.133)***
8th Grade Peers' School Attitudes	1.428	(0.038)***	1.426	(0.038)***	1.426	(0.038)***	1.428	(0.039)***	1.426	(0.038)***	1.426	(0.038)***
5th Grade Reading Achievement	1.617	(0.056)***	1.614	(0.056)***	1.614	(0.056)***	1.618	(0.056)***	1.614	(0.056)***	1.614	(0.056)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 6. Multilevel Logistic Regression of Expectations to Graduate from College on Neighborhood Disadvantage by Place Type

	Model 4							
Category	Total		Urban		Suburban		Rural	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage								
Focal Neighborhood (8th)	0.937	(0.039)	0.968	(0.062)	0.910	(0.066)	0.985	(0.099)
Extralocal Neighborhood (8th)								
Focal Neighborhood (K-3)								
Extralocal Neighborhood (K-3)								
Family Background and Demographics								
Female (=1)	1.309	(0.073)***	1.298	(0.129)**	1.360	(0.127)***	1.197	(0.123)†
Race (ref. White)								
Black	1.432	(0.168)**	1.479	(0.285)*	1.400	(0.291)	1.742	(0.411)*
Hispanic	0.935	(0.097)	1.072	(0.191)	0.897	(0.148)	0.841	(0.201)
Other	0.766	(0.087)*	1.003	(0.205)	0.690	(0.130)*	0.696	(0.158)
Non-English (=1)	0.932	(0.097)	0.921	(0.149)	0.995	(0.174)	0.663	(0.176)
Nuclear Family (=1)	1.241	(0.092)**	1.277	(0.163)†	1.226	(0.153)	1.353	(0.186)*
Siblings	0.944	(0.023)*	0.967	(0.041)	0.894	(0.038)**	0.973	(0.045)
Disabled (=1)	0.726	(0.057)***	0.850	(0.129)	0.578	(0.075)***	0.813	(0.117)
Family SES Quintile (ref. Quintile 1)								
Quintile 2	1.212	(0.113)*	1.097	(0.168)	1.316	(0.223)	1.218	(0.214)
Quintile 3	1.661	(0.167)***	1.617	(0.290)**	1.633	(0.289)**	1.750	(0.326)**
Quintile 4	2.291	(0.261)***	2.204	(0.447)***	2.413	(0.477)***	2.189	(0.466)***
Quintile 5	3.070	(0.383)***	3.095	(0.676)***	3.452	(0.734)***	2.518	(0.592)***
School Characteristics								
% Eligible for Free/Reduced Lunches	1.141	(0.049)**	1.195	(0.089)*	1.032	(0.081)	1.081	(0.093)
Minority Composition (ref. < 10%)								
10% to < 25%	0.875	(0.072)	0.702	(0.156)	0.977	(0.129)	0.827	(0.114)
25% to < 50%	1.004	(0.089)	1.138	(0.279)	0.950	(0.132)	1.138	(0.184)
50% to < 75%	1.001	(0.109)	1.038	(0.258)	1.185	(0.237)	0.893	(0.197)
75% or more	1.011	(0.120)	1.016	(0.266)	0.913	(0.188)	1.073	(0.266)
Private (=1)	0.959	(0.088)	1.295	(0.231)	0.931	(0.145)	0.648	(0.130)*
Personal & Significant Others								
Parents' Expectations in 5th Grade	1.947	(0.133)***	1.695	(0.215)***	2.134	(0.248)***	2.049	(0.237)***
8th Grade Peers' School Attitudes	1.428	(0.038)***	1.416	(0.069)***	1.437	(0.066)***	1.433	(0.071)***
5th Grade Reading Achievement	1.617	(0.056)***	1.714	(0.106)***	1.476	(0.086)***	1.710	(0.107)***
n	8420		2610		3280		2330	

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 6 cont. Multilevel Logistic Regression of Expectations to Graduate from College on Neighborhood Disadvantage by Place Type

Category	Model 6							
	Total		Urban		Suburban		Rural	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage								
Focal Neighborhood (8th)	0.879	(0.050)*	0.864	(0.076)†	0.873	(0.086)	0.928	(0.119)
Extralocal Neighborhood (8th)	1.095	(0.060)†	1.172	(0.098)†	1.062	(0.103)	1.100	(0.142)
Focal Neighborhood (K-3)								
Extralocal Neighborhood (K-3)								
Family Background and Demographics								
Female (=1)	1.309	(0.073)***	1.298	(0.129)**	1.360	(0.127)***	1.198	(0.123)†
Race (ref. White)								
Black	1.419	(0.167)**	1.452	(0.281)†	1.400	(0.291)	1.711	(0.406)*
Hispanic	0.937	(0.097)	1.079	(0.192)	0.897	(0.148)	0.842	(0.201)
Other	0.772	(0.087)*	1.017	(0.208)	0.691	(0.130)*	0.706	(0.162)
Non-English (=1)	0.931	(0.097)	0.917	(0.149)	0.998	(0.174)	0.661	(0.175)
Nuclear Family (=1)	1.239	(0.092)**	1.277	(0.163)†	1.225	(0.153)	1.352	(0.187)*
Siblings	0.945	(0.023)*	0.964	(0.041)	0.895	(0.038)**	0.975	(0.045)
Disabled (=1)	0.728	(0.057)***	0.862	(0.131)	0.579	(0.076)***	0.811	(0.117)
Family SES Quintile (ref. Quintile 1)								
Quintile 2	1.212	(0.112)*	1.097	(0.168)	1.313	(0.222)	1.219	(0.214)
Quintile 3	1.664	(0.167)***	1.617	(0.290)**	1.633	(0.290)**	1.753	(0.326)**
Quintile 4	2.294	(0.262)***	2.212	(0.449)***	2.411	(0.477)***	2.189	(0.466)***
Quintile 5	3.080	(0.384)***	3.115	(0.681)***	3.454	(0.735)***	2.523	(0.593)***
School Characteristics								
% Eligible for Free/Reduced Lunches	1.127	(0.049)**	1.178	(0.088)*	1.024	(0.082)	1.065	(0.094)
Minority Composition (ref. < 10%)								
10% to < 25%	0.878	(0.073)	0.695	(0.155)	0.979	(0.130)	0.832	(0.115)
25% to < 50%	0.999	(0.088)	1.144	(0.281)	0.944	(0.132)	1.128	(0.183)
50% to < 75%	0.994	(0.108)	1.043	(0.260)	1.168	(0.235)	0.887	(0.196)
75% or more	0.980	(0.118)	0.966	(0.254)	0.889	(0.187)	1.046	(0.261)
Private (=1)	0.936	(0.087)	1.253	(0.224)	0.915	(0.145)	0.643	(0.129)*
Personal & Significant Others								
Parents' Expectations in 5th Grade	1.948	(0.133)***	1.699	(0.215)***	2.136	(0.248)***	2.046	(0.237)***
8th Grade Peers' School Attitudes	1.428	(0.039)***	1.414	(0.069)***	1.438	(0.066)***	1.432	(0.071)***
5th Grade Reading Achievement	1.618	(0.056)***	1.723	(0.106)***	1.477	(0.086)***	1.707	(0.107)***
n	8420		2610		3280		2330	

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table 6 cont. Multilevel Logistic Regression of Expectations to Graduate from College on Neighborhood Disadvantage by Place Type

Category	Model 8							
	Total		Urban		Suburban		Rural	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage								
Focal Neighborhood (8th)								
Extralocal Neighborhood (8th)								
Focal Neighborhood (K-3)	0.916	(0.041)*	1.003	(0.070)	0.839	(0.062)*	0.977	(0.105)
Extralocal Neighborhood (K-3)								
Family Background and Demographics								
Female (=1)	1.310	(0.073)***	1.296	(0.129)**	1.366	(0.127)***	1.198	(0.123)†
Race (ref. White)								
Black	1.467	(0.176)**	1.443	(0.284)†	1.510	(0.321)†	1.750	(0.416)*
Hispanic	0.946	(0.098)	1.057	(0.189)	0.925	(0.154)	0.843	(0.201)
Other	0.769	(0.087)*	0.999	(0.204)	0.698	(0.132)†	0.696	(0.158)
Non-English (=1)	0.945	(0.098)	0.921	(0.150)	1.019	(0.178)	0.665	(0.177)
Nuclear Family (=1)	1.242	(0.092)**	1.280	(0.163)†	1.222	(0.153)	1.354	(0.186)*
Siblings	0.945	(0.023)*	0.966	(0.041)	0.897	(0.038)*	0.973	(0.045)
Disabled (=1)	0.726	(0.057)***	0.849	(0.129)	0.577	(0.075)***	0.813	(0.117)
Family SES Quintile (ref. Quintile 1)								
Quintile 2	1.210	(0.112)*	1.102	(0.168)	1.317	(0.223)	1.216	(0.214)
Quintile 3	1.655	(0.166)***	1.637	(0.293)**	1.608	(0.286)**	1.748	(0.324)**
Quintile 4	2.275	(0.259)***	2.248	(0.455)***	2.356	(0.466)***	2.184	(0.464)***
Quintile 5	3.024	(0.378)***	3.178	(0.698)***	3.283	(0.699)***	2.509	(0.591)***
School Characteristics								
% Eligible for Free/Reduced Lunches	1.141	(0.048)**	1.184	(0.087)*	1.041	(0.080)	1.082	(0.092)
Minority Composition (ref. < 10%)								
10% to < 25%	0.873	(0.072)	0.704	(0.156)	0.983	(0.130)	0.826	(0.114)
25% to < 50%	1.002	(0.088)	1.139	(0.279)	0.960	(0.134)	1.138	(0.184)
50% to < 75%	1.001	(0.108)	1.032	(0.256)	1.209	(0.240)	0.893	(0.195)
75% or more	1.019	(0.120)	0.997	(0.261)	0.958	(0.195)	1.077	(0.266)
Private (=1)	0.960	(0.087)	1.278	(0.227)	0.952	(0.147)	0.648	(0.130)*
Personal & Significant Others								
Parents' Expectations in 5th Grade	1.948	(0.133)***	1.701	(0.215)***	2.133	(0.248)***	2.049	(0.238)***
8th Grade Peers' School Attitudes	1.426	(0.038)***	1.417	(0.069)***	1.435	(0.066)***	1.432	(0.071)***
5th Grade Reading Achievement	1.614	(0.056)***	1.717	(0.106)***	1.465	(0.085)***	1.709	(0.107)***
n	8420		2610		3280		2330	

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

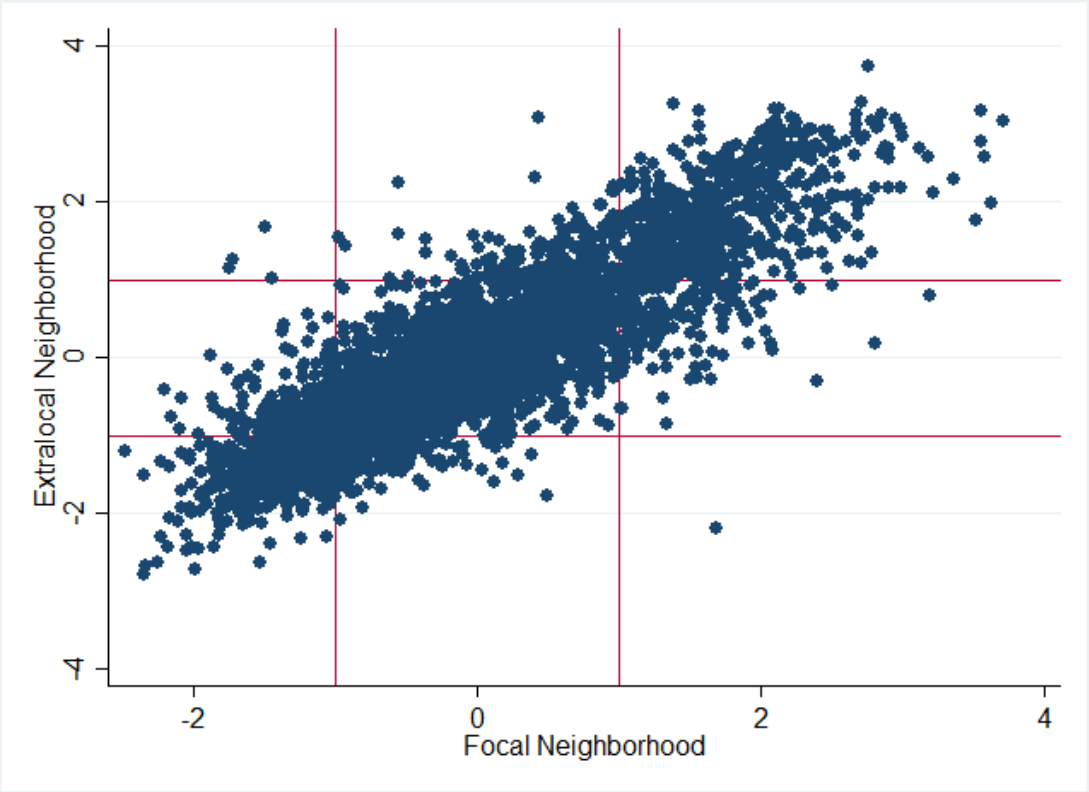

Figure 2. Scatterplot of 8th Grade Focal and Extralocal Neighborhood Disadvantage

Focal Score: 1
Extralocal Score:
(2+1.5+2+1+1+1+2+1.5)/8

Appendix A. Visual Example of a Focal and Extralocal Neighborhood

Appendix B. Descriptive Statistics Comparing Imputed Sample to Non-Imputed Sample

Variable Type	Mean or %	
Variable	Imputed	Non-Imputed
Dependent Variable		
Expect College +	73.13%	72.22%
Expect + High School	80.78%	79.97%
Respond "Don't Know"	15.15%	15.60%
Independent Variables		
Focal Neighborhood (8th)	-0.06	0.00
Extralocal Neighborhood (8th)	-0.04	0.00
Focal Neighborhood (K-3)	-0.11	-0.09
Extralocal Neighborhood (K-3)	-0.09	-0.08
Family Background and Demographics Variables		
Female	49.89%	49.23%
Race		
White	62.43%	62.75%
Black	10.05%	9.49%
Hispanic	18.04%	17.06%
Other	9.47%	10.70%
Disabled	15.00%	15.46%
Siblings	1.49	1.49
Lives with 2 Parents	78.34%	77.44%
Other Language Spoken at Home	14.12%	13.71%
Family SES Quintile		
SES Quintile 1	15.24%	16.02%
SES Quintile 2	18.80%	19.18%
SES Quintile 3	20.16%	20.03%
SES Quintile 4	20.68%	20.47%
SES Quintile 5	25.12%	24.29%
School Variables		
Private	18.27%	17.06%
Eligible for Free/Reduced Price Lunches	-0.02	0.00
Minority Composition		
< 10%	27.39%	28.05%
10% to < 25%	21.34%	20.41%
25% to < 50%	19.85%	19.33%
50% to < 75%	11.73%	11.88%
75% or more	19.69%	20.33%
Personal & Significant Others Variables		
Reading Achievement (5th)	0.05	0.00
Parent's Expect College Graduation (5th)	78.24%	76.42%
Friends' Attitudes toward Education	0.01	0.00
Stratifying Variables		
Urban Area	NA	29.70%
Suburban Area	NA	37.61%
Rural Area	NA	32.69%

Appendix C. Descriptive Statistics Comparing Non-Imputed Total Sample to Non-Imputed "Don't Know" Sample

Variable Type	Mean or %	
Variable	Total	"Don't Know"
Dependent Variable		
Respond "Don't Know"	15.60%	15.60%
Independent Variables		
Focal Neighborhood (8th)	0.00	0.19
Extralocal Neighborhood (8th)	0.00	0.17
Focal Neighborhood (K-3)	-0.09	0.14
Extralocal Neighborhood (K-3)	-0.08	0.13
Family Background and Demographics Variables		
Female	49.23%	45.65%
Race		
White	62.75%	53.75%
Black	9.49%	10.01%
Hispanic	17.06%	25.51%
Other	10.70%	10.72%
Disabled	15.46%	20.82%
Siblings	1.49	1.63
Lives with 2 Parents	77.44%	75.23%
Other Language Spoken at Home	13.71%	21.95%
Family SES Quintile		
SES Quintile 1	16.02%	24.44%
SES Quintile 2	19.18%	25.01%
SES Quintile 3	20.03%	20.78%
SES Quintile 4	20.47%	15.02%
SES Quintile 5	24.29%	14.75%
School Variables		
Private	17.06%	17.23%
Eligible for Free/Reduced Price Lunches	0.00	0.14
Minority Composition		
< 10%	28.05%	22.99%
10% to < 25%	20.41%	19.89%
25% to < 50%	19.33%	18.05%
50% to < 75%	11.88%	12.15%
75% or more	20.33%	26.93%
Personal & Significant Others Variables		
Reading Achievement (5th)	0.00	-0.36
Parent's Expect College Graduation (5th)	76.42%	66.24%
Friends' Attitudes toward Education	0.00	-0.24
Stratifying Variables		
Urban Area	29.70%	32.79%
Suburban Area	37.61%	38.31%
Rural Area	32.69%	28.90%

Appendix D. Comparing Spatial Lag Definitions with Model 6

Category	Model 6					
	Queen 1		2 Miles		5 Miles	
Characteristic	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage						
Focal Neighborhood (8th)	0.879	(0.050)*	0.96	(0.056)	0.939	(0.044)
Extralocal Neighborhood (8th)	1.095	(0.060)†	0.965	(0.058)	0.995	(0.040)
Family Background and Demographics						
Female (=1)	1.309	(0.073)***	1.308	(0.073)***	1.309	(0.073)***
Race (ref. White)						
Black	1.419	(0.167)**	1.434	(0.169)**	1.432	(0.168)**
Hispanic	0.937	(0.097)	0.934	(0.097)	0.935	(0.097)
Other	0.772	(0.087)*	0.765	(0.087)*	0.766	(0.087)*
Non-English (=1)	0.931	(0.097)	0.932	(0.097)	0.932	(0.097)
Nuclear Family (=1)	1.239	(0.092)**	1.241	(0.092)**	1.241	(0.092)**
Siblings	0.945	(0.023)*	0.944	(0.023)*	0.944	(0.023)*
Disabled (=1)	0.728	(0.057)***	0.725	(0.057)***	0.726	(0.057)***
Family SES Quintile (ref. Quintile 1)						
Quintile 2	1.212	(0.112)*	1.212	(0.113)*	1.212	(0.113)*
Quintile 3	1.664	(0.167)***	1.661	(0.166)***	1.662	(0.167)***
Quintile 4	2.294	(0.262)***	2.287	(0.261)***	2.291	(0.261)***
Quintile 5	3.080	(0.384)***	3.065	(0.382)***	3.070	(0.383)***
School Characteristics						
% Eligible for Free/Reduced Lunches	1.127	(0.049)**	1.146	(0.050)**	1.142	(0.050)**
Minority Composition (ref. < 10%)						
10% to < 25%	0.878	(0.073)	0.875	(0.072)	0.875	(0.072)
25% to < 50%	0.999	(0.088)	1.005	(0.089)	1.005	(0.089)
50% to < 75%	0.994	(0.108)	1.002	(0.109)	1.002	(0.109)
75% or more	0.980	(0.118)	1.018	(0.121)	1.013	(0.121)
Private (=1)	0.936	(0.087)	0.969	(0.090)	0.962	(0.090)
Personal & Significant Others						
Parents' Expectations in 5th Grade	1.948	(0.133)***	1.946	(0.133)***	1.947	(0.133)***
8th Grade Peers' School Attitudes	1.428	(0.039)***	1.428	(0.039)***	1.428	(0.038)***
5th Grade Reading Achievement	1.618	(0.056)***	1.617	(0.056)***	1.617	(0.056)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Appendix E. Comparing Neighborhood Disadvantage Definition in Models 4, 6, and 8

	Model 4				Model 6				Model 8			
Category	Disadvantage Scale		Poverty		Disadvantage Scale		Poverty		Disadvantage Scale		Poverty	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage												
Focal Neighborhood (8th)	0.937	(0.039)	0.943	(0.039)	0.879	(0.050)*	0.889	(0.046)*				
Extralocal Neighborhood (8th)					1.095	(0.060)†	1.091	(0.050)†				
Focal Neighborhood (K-3)									0.916	(0.041)*	0.951	(0.042)
Family Background and Demographics												
Female (=1)	1.309	(0.073)***	1.307	(0.072)***	1.309	(0.073)***	1.305	(0.072)***	1.310	(0.073)***	1.308	(0.073)***
Race (ref. White)												
Black	1.432	(0.168)**	1.424	(0.167)**	1.419	(0.167)**	1.405	(0.165)**	1.467	(0.176)**	1.431	(0.170)**
Hispanic	0.935	(0.097)	0.931	(0.096)	0.937	(0.097)	0.932	(0.096)	0.946	(0.098)	0.933	(0.096)
Other	0.766	(0.087)*	0.766	(0.087)*	0.772	(0.087)*	0.773	(0.087)*	0.769	(0.087)*	0.769	(0.087)*
Non-English (=1)	0.932	(0.097)	0.932	(0.097)	0.931	(0.097)	0.933	(0.097)	0.945	(0.098)	0.939	(0.098)
Nuclear Family (=1)	1.241	(0.092)**	1.239	(0.092)**	1.239	(0.092)**	1.240	(0.092)**	1.242	(0.092)**	1.242	(0.092)**
Siblings	0.944	(0.023)*	0.944	(0.023)*	0.945	(0.023)*	0.945	(0.023)*	0.945	(0.023)*	0.945	(0.023)*
Disabled (=1)	0.726	(0.057)***	0.726	(0.057)***	0.728	(0.057)***	0.726	(0.057)***	0.726	(0.057)***	0.726	(0.057)***
Family SES Quintile (ref. Quintile 1)												
Quintile 2	1.212	(0.113)*	1.209	(0.113)*	1.212	(0.112)*	1.212	(0.113)*	1.210	(0.112)*	1.210	(0.113)*
Quintile 3	1.661	(0.167)***	1.661	(0.167)***	1.664	(0.167)***	1.673	(0.168)***	1.655	(0.166)***	1.663	(0.167)***
Quintile 4	2.291	(0.261)***	2.306	(0.262)***	2.294	(0.262)***	2.323	(0.264)***	2.275	(0.259)***	2.311	(0.263)***
Quintile 5	3.070	(0.383)***	3.128	(0.383)***	3.080	(0.384)***	3.156	(0.387)***	3.024	(0.378)***	3.130	(0.385)***
School Characteristics												
% Eligible for Free/Reduced Lunches	1.141	(0.049)**	1.139	(0.049)**	1.127	(0.049)**	1.118	(0.049)*	1.141	(0.048)**	1.132	(0.048)**
Minority Composition (ref. < 10%)												
10% to < 25%	0.875	(0.072)	0.877	(0.072)	0.878	(0.073)	0.877	(0.072)	0.873	(0.072)	0.877	(0.072)
25% to < 50%	1.004	(0.089)	1.000	(0.088)	0.999	(0.088)	0.997	(0.088)	1.002	(0.088)	1.000	(0.088)
50% to < 75%	1.001	(0.109)	0.987	(0.107)	0.994	(0.108)	0.980	(0.106)	1.001	(0.108)	0.987	(0.107)
75% or more	1.011	(0.120)	0.981	(0.113)	0.980	(0.118)	0.956	(0.111)	1.019	(0.120)	0.986	(0.114)
Private (=1)	0.959	(0.088)	0.954	(0.087)	0.936	(0.087)	0.928	(0.085)	0.960	(0.087)	0.948	(0.086)
Personal & Significant Others												
Parents' Expectations in 5th Grade	1.947	(0.133)***	1.947	(0.133)***	1.948	(0.133)***	1.948	(0.133)***	1.948	(0.133)***	1.954	(0.133)***
8th Grade Peers' School Attitudes	1.428	(0.038)***	1.429	(0.039)***	1.428	(0.039)***	1.428	(0.039)***	1.426	(0.038)***	1.429	(0.039)***
5th Grade Reading Achievement	1.617	(0.056)***	1.619	(0.056)***	1.618	(0.056)***	1.620	(0.056)***	1.614	(0.056)***	1.619	(0.056)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Appendix F. Comparing Sensitivity of Models 6 and 7 to 'Don't Know' Sample

	Model 6				Model 7			
Category	Total Sample		No 'Don't Know'		Total Sample		No 'Don't Know'	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage								
Focal Neighborhood (8th)	0.879	(0.050)*	0.883	(0.071)	0.867	(0.049)*	0.857	(0.069)†
Extralocal Neighborhood (8th)	1.095	(0.060)†	1.095	(0.085)	1.064	(0.059)	1.029	(0.082)
Focal X Extralocal Neighborhood (8th)					1.068	(0.025)**	1.113	(0.039)**
Family Background and Demographics								
Female (=1)	1.309	(0.073)***	1.529	(0.120)***	1.310	(0.073)***	1.534	(0.121)***
Race (ref. White)								
Black	1.419	(0.167)**	1.455	(0.243)*	1.366	(0.162)**	1.373	(0.229)†
Hispanic	0.937	(0.097)	0.900	(0.132)	0.936	(0.096)	0.899	(0.132)
Other	0.772	(0.087)*	0.797	(0.132)	0.780	(0.088)*	0.810	(0.135)
Non-English (=1)	0.931	(0.097)	1.204	(0.182)	0.926	(0.096)	1.198	(0.181)
Nuclear Family (=1)	1.239	(0.092)**	1.430	(0.146)***	1.239	(0.092)**	1.433	(0.146)***
Siblings	0.945	(0.023)*	0.954	(0.033)	0.943	(0.023)*	0.950	(0.033)
Disabled (=1)	0.728	(0.057)***	0.745	(0.080)**	0.727	(0.057)***	0.747	(0.081)**
Family SES Quintile (ref. Quintile 1)								
Quintile 2	1.212	(0.112)*	1.379	(0.167)**	1.236	(0.115)*	1.417	(0.172)**
Quintile 3	1.664	(0.167)***	2.037	(0.270)***	1.691	(0.169)***	2.065	(0.273)***
Quintile 4	2.294	(0.262)***	2.913	(0.448)***	2.302	(0.262)***	2.890	(0.441)***
Quintile 5	3.080	(0.384)***	5.906	(1.161)***	2.990	(0.373)***	5.528	(1.086)***
School Characteristics								
% Eligible for Free/Reduced Lunches	1.127	(0.049)**	1.155	(0.070)*	1.135	(0.050)**	1.174	(0.071)**
Minority Composition (ref. < 10%)								
10% to < 25%	0.878	(0.073)	0.962	(0.112)	0.870	(0.072)†	0.946	(0.111)
25% to < 50%	0.999	(0.088)	1.183	(0.147)	1.010	(0.089)	1.205	(0.151)
50% to < 75%	0.994	(0.108)	1.111	(0.165)	1.011	(0.110)	1.150	(0.172)
75% or more	0.980	(0.118)	1.279	(0.216)	0.941	(0.113)	1.202	(0.202)
Private (=1)	0.936	(0.087)	1.439	(0.213)*	0.951	(0.088)	1.487	(0.221)**
Personal & Significant Others								
Parents' Expectations in 5th Grade	1.948	(0.133)***	2.152	(0.188)***	1.939	(0.132)***	2.146	(0.188)***
8th Grade Peers' School Attitudes	1.428	(0.039)***	1.476	(0.054)***	1.423	(0.038)***	1.472	(0.054)***
5th Grade Reading Achievement	1.618	(0.056)***	1.718	(0.082)***	1.619	(0.056)***	1.715	(0.082)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Appendix G. Comparing Educational Expectations to Graduate from College and Obtain Further Education after High School in Models 4, 6, and 8

	Model 4				Model 6				Model 8			
Category	College		High School		College		High School		College		High School	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage												
Focal Neighborhood (8th)	0.937	(0.039)	0.934	(0.043)	0.879	(0.050)*	0.873	(0.054)*				
Extralocal Neighborhood (8th)					1.095	(0.060)†	1.100	(0.066)				
Focal Neighborhood (K-3)									0.916	(0.041)*	0.936	(0.045)
Family Background and Demographics												
Female (=1)	1.309	(0.073)***	1.219	(0.074)**	1.309	(0.073)***	1.220	(0.074)**	1.310	(0.073)***	1.218	(0.074)**
Race (ref. White)												
Black	1.432	(0.168)**	1.460	(0.187)**	1.419	(0.167)**	1.446	(0.186)**	1.467	(0.176)**	1.473	(0.192)**
Hispanic	0.935	(0.097)	0.937	(0.105)	0.937	(0.097)	0.939	(0.105)	0.946	(0.098)	0.942	(0.106)
Other	0.766	(0.087)*	0.815	(0.101)	0.772	(0.087)*	0.822	(0.102)	0.769	(0.087)*	0.818	(0.102)
Non-English (=1)	0.932	(0.097)	0.824	(0.091)†	0.931	(0.097)	0.823	(0.091)†	0.945	(0.098)	0.832	(0.092)†
Nuclear Family (=1)	1.241	(0.092)**	1.118	(0.089)	1.239	(0.092)**	1.116	(0.088)	1.242	(0.092)**	1.120	(0.089)
Siblings	0.944	(0.023)*	0.946	(0.025)*	0.945	(0.023)*	0.946	(0.025)*	0.945	(0.023)*	0.946	(0.025)*
Disabled (=1)	0.726	(0.057)***	0.709	(0.059)***	0.728	(0.057)***	0.711	(0.059)***	0.726	(0.057)***	0.709	(0.059)***
Family SES Quintile (ref. Quintile 1)												
Quintile 2	1.212	(0.113)*	1.142	(0.117)	1.212	(0.112)*	1.142	(0.117)	1.210	(0.112)*	1.144	(0.117)
Quintile 3	1.661	(0.167)***	1.453	(0.161)***	1.664	(0.167)***	1.455	(0.161)***	1.655	(0.166)***	1.456	(0.161)***
Quintile 4	2.291	(0.261)***	1.977	(0.251)***	2.294	(0.262)***	1.980	(0.252)***	2.275	(0.259)***	1.984	(0.252)***
Quintile 5	3.070	(0.383)***	2.220	(0.301)***	3.080	(0.384)***	2.227	(0.302)***	3.024	(0.378)***	2.222	(0.302)***
School Characteristics												
% Eligible for Free/Reduced Lunches	1.141	(0.049)**	1.097	(0.052)†	1.127	(0.049)**	1.083	(0.052)†	1.141	(0.048)**	1.090	(0.051)†
Minority Composition (ref. < 10%)												
10% to < 25%	0.875	(0.072)	0.793	(0.074)*	0.878	(0.073)	0.796	(0.074)*	0.873	(0.072)	0.793	(0.074)*
25% to < 50%	1.004	(0.089)	0.899	(0.089)	0.999	(0.088)	0.895	(0.089)	1.002	(0.088)	0.896	(0.089)
50% to < 75%	1.001	(0.109)	0.891	(0.108)	0.994	(0.108)	0.886	(0.107)	1.001	(0.108)	0.886	(0.107)
75% or more	1.011	(0.120)	0.858	(0.113)	0.980	(0.118)	0.830	(0.110)	1.019	(0.120)	0.851	(0.111)
Private (=1)	0.959	(0.088)	0.794	(0.080)*	0.936	(0.087)	0.774	(0.079)*	0.960	(0.087)	0.788	(0.079)*
Personal & Significant Others												
Parents' Expectations in 5th Grade	1.947	(0.133)***	1.685	(0.126)***	1.948	(0.133)***	1.686	(0.126)***	1.948	(0.133)***	1.689	(0.126)***
8th Grade Peers' School Attitudes	1.428	(0.038)***	1.352	(0.039)***	1.428	(0.039)***	1.352	(0.039)***	1.426	(0.038)***	1.352	(0.039)***
5th Grade Reading Achievement	1.617	(0.056)***	1.554	(0.058)***	1.618	(0.056)***	1.555	(0.059)***	1.614	(0.056)***	1.553	(0.059)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Appendix H. Comparing Educational Expectations to Graduate from College and Responding 'Don't Know' in Models 4, 6, and 8

	Model 4				Model 6				Model 8			
Category	College		Don't Know'		College		Don't Know'		College		Don't Know'	
Characteristic	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood Disadvantage												
Focal Neighborhood (8th)	0.937	(0.039)	1.060	(0.052)	0.879	(0.050)*	1.113	(0.074)				
Extralocal Neighborhood (8th)					1.095	(0.060)†	0.934	(0.060)				
Focal Neighborhood (K-3)									0.916	(0.041)*	1.050	(0.054)
Family Background and Demographics												
Female (=1)	1.309	(0.073)***	0.921	(0.060)	1.309	(0.073)***	0.920	(0.060)	1.310	(0.073)***	0.921	(0.060)
Race (ref. White)												
Black	1.432	(0.168)**	0.744	(0.102)*	1.419	(0.167)**	0.749	(0.103)*	1.467	(0.176)**	0.742	(0.103)*
Hispanic	0.935	(0.097)	1.001	(0.120)	0.937	(0.097)	0.999	(0.120)	0.946	(0.098)	0.999	(0.120)
Other	0.766	(0.087)*	1.170	(0.153)	0.772	(0.087)*	1.163	(0.152)	0.769	(0.087)*	1.168	(0.152)
Non-English (=1)	0.932	(0.097)	1.367	(0.162)**	0.931	(0.097)	1.368	(0.162)**	0.945	(0.098)	1.356	(0.161)*
Nuclear Family (=1)	1.241	(0.092)**	0.985	(0.084)	1.239	(0.092)**	0.986	(0.085)	1.242	(0.092)**	0.983	(0.084)
Siblings	0.944	(0.023)*	1.055	(0.030)†	0.945	(0.023)*	1.055	(0.030)†	0.945	(0.023)*	1.055	(0.030)†
Disabled (=1)	0.726	(0.057)***	1.256	(0.115)*	0.728	(0.057)***	1.253	(0.115)*	0.726	(0.057)***	1.256	(0.115)*
Family SES Quintile (ref. Quintile 1)												
Quintile 2	1.212	(0.113)*	1.048	(0.114)	1.212	(0.112)*	1.048	(0.114)	1.210	(0.112)*	1.045	(0.114)
Quintile 3	1.661	(0.167)***	0.890	(0.109)	1.664	(0.167)***	0.890	(0.108)	1.655	(0.166)***	0.887	(0.108)
Quintile 4	2.291	(0.261)***	0.680	(0.097)**	2.294	(0.262)***	0.680	(0.097)**	2.275	(0.259)***	0.676	(0.096)**
Quintile 5	3.070	(0.383)***	0.611	(0.091)***	3.080	(0.384)***	0.610	(0.091)***	3.024	(0.378)***	0.608	(0.091)***
School Characteristics												
% Eligible for Free/Reduced Lunches	1.141	(0.049)**	0.931	(0.047)	1.127	(0.049)**	0.939	(0.048)	1.141	(0.048)**	0.937	(0.047)
Minority Composition (ref. < 10%)												
10% to < 25%	0.875	(0.072)	1.236	(0.123)*	0.878	(0.073)	1.233	(0.123)*	0.873	(0.072)	1.236	(0.123)*
25% to < 50%	1.004	(0.089)	1.147	(0.121)	0.999	(0.088)	1.150	(0.122)	1.002	(0.088)	1.149	(0.122)
50% to < 75%	1.001	(0.109)	1.094	(0.142)	0.994	(0.108)	1.099	(0.143)	1.001	(0.108)	1.101	(0.143)
75% or more	1.011	(0.120)	1.249	(0.173)	0.980	(0.118)	1.278	(0.180)†	1.019	(0.120)	1.263	(0.174)†
Private (=1)	0.959	(0.088)	1.371	(0.145)**	0.936	(0.087)	1.396	(0.150)**	0.960	(0.087)	1.382	(0.145)**
Personal & Significant Others												
Parents' Expectations in 5th Grade	1.947	(0.133)***	0.686	(0.056)***	1.948	(0.133)***	0.686	(0.056)***	1.948	(0.133)***	0.685	(0.056)***
8th Grade Peers' School Attitudes	1.428	(0.038)***	0.788	(0.024)***	1.428	(0.039)***	0.788	(0.024)***	1.426	(0.038)***	0.788	(0.024)***
5th Grade Reading Achievement	1.617	(0.056)***	0.715	(0.029)***	1.618	(0.056)***	0.715	(0.029)***	1.614	(0.056)***	0.715	(0.029)***

† $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

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