Advantaged/Disadvantaged School Neighborhoods, Parental Networks, and Parental Involvement at Elementary School

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Abstract

This article examines the relationship between parental networks and parental school involvement during the elementary school years. Using a large, nationally representative data set of elementary school students—the Early Childhood Longitudinal Study–Kindergarten Cohort—and contextual data from the 2000 U.S. Census, our multilevel analysis shows that higher levels of parental networks in first grade are associated with higher levels of parental school involvement in third grade after controlling for individual- and school-level characteristics. Parental networks are positively related to school involvement activities in formal organizations that consist of parents, teachers, and school staff, including participating in parent–teacher organizations and volunteering at school. Furthermore, the positive effects of parental networks on parental school involvement is stronger for families whose children attend schools in disadvantaged neighborhoods. This suggests that well-connected parental networks can serve as a buffer against school neighborhood disadvantages in encouraging parents to be actively involved in schools.

Keywords

parental networks, parental school involvement, school neighborhood disadvantage, elementary school, ECLS-K

Research consistently shows that parental school involvement is a key factor related to early educational success (Epstein 2001; Epstein and Dauber 1991; Jeynes 2010; Lee and Bowen 2006; Schaub 2010). As such, strategies to expand and enhance parental school involvement have been the focus of recent research and policy-making efforts (Epstein 2005; Henderson and Mapp 2002; Hoover-Dempsey et al. 2005; Hoover-Dempsey and Sandler 1997). Prior research provides insights into the parental characteristics and school institutional factors associated with increased levels of school involvement, and multilevel analysis has helped researchers explore the differential effects of parents and their school environment on involvement (Sui-Chu and Willms 1996).

This strand of literature has explicated factors linked to fostering parental engagement in school. One approach to examining these linkages, emanating from the school level, is to investigate how teachers and staff elicit parental participation (Epstein 1984, 1986, 2001; Posey-Maddox 2012); another approach focuses on the impact of parental social networks (Sheldon 2002). Parents enmeshed

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within strong social networks appear to have greater access to information, support, and connections to others, all of which could lead to greater parental involvement in school (Horvat, Weininger, and Lareau 2003; Morgan and Sørensen 1999; Sheldon 2002).

Parental networks may play a role in eliciting broader parental involvement in schools through numerous channels. Parents may join forces to address a particular problem or concern about school-related issues. They may also engage in different organizational contexts, including parent–teacher organizations (PTOs or PTAs), that support a range of activities that serve the school community. Parents who become connected to others who are involved in the school may feel pressure (self-imposed or externally created) to contribute to these voluntary efforts on behalf of their children so as to not be perceived as disengaged or "free riders." Indeed, one important predictor of attending school meetings or events is being asked to participate by someone with whom one has a personal connection or relationship (Posey-Maddox 2012). The social capital generated through involvement in these activities can spur greater connections among parents, which may benefit students in multiple ways. For instance, the connections formed among parent volunteers for PTO or PTA events creates a network with the potential to connect students to outside resources for additional academic support or access to after-school events and activities (Kimelberg 2014; Useem 1992).

Furthermore, parental networks exist within the context of a broader community that can facilitate (or deter) connections among parents and the school. Research suggests that adults in disadvantaged neighborhoods have lower levels of contact with other adults and their children, weakening parents' ability to build social connections with other parents and participate in school activities (Ainsworth 2002; Catsambis and Beveridge 2012; Greenman, Bodovski, and Reed 2011; Pinderhughes et al. 2001). Perhaps unsurprisingly, highly involved parents with strong networks tend to be concentrated in schools that have high levels of involvement; this is consistent with research on parenting that finds high levels of parental involvement are normative in advantaged school communities (Horvat et al. 2003; Lareau 1987, 2011; Sui-Chu and Willms 1996). Thus, effective parental networks in disadvantaged neighborhoods may be more powerful predictors

of involvement than are such networks in more advantaged contexts. Prior research, however, has not examined the possibility of this differential effect.

Our study focuses on the following research questions: First, do parental networks affect different school-involvement activities net of background characteristics? Second, how do the effects of parental networks on parental school involvement vary by advantaged and disadvantaged school neighborhood contexts? We draw on restricted data from the first- and third-grade waves of the Early Childhood Longitudinal Study–Kindergarten Cohort (ECLS-K; 2000 to 2002) merged with contextual data from the 2000 U.S. Census to characterize the neighborhood surrounding an elementary school. This research contributes to studies of the relationship between parental networks and parental school involvement in several important ways. First, we examine the differential effects of parental networks on a variety of school involvement activities, such as attendance at parent–teacher conferences, engagement in PTOs, attendance at school events, and volunteering at school. Second, our study takes a multilevel approach to investigate the heterogeneous effects of parental networks on school involvement among advantaged/disadvantaged school neighborhoods. Finally, the quantitative, longitudinal, and nationally representative nature of our data adds depth and breadth to our understanding of the relationship between parental networks and parental involvement, as much of the extant research comes from qualitative studies (e.g., Cucchiara and Horvat 2009; Horvat et al. 2003; Kimelberg 2014; Lareau and Horvat 1999; Posey-Maddox 2012).

BACKGROUND

Parents can be involved in their children's education in numerous ways. Scholars often conceptualize these behaviors into two broad categories: those that occur within the context of the home and those that involve interactions with, in, or around the school (Epstein and Dauber 1991; Hill and Tyson 2009; Jeynes 2010; Robinson and Harris 2014). *School-based parental involvement* refers to parents' direct engagement with educators and school institutions as a way to monitor their children's educational progress and foster a sense of community around the school. Scholars

have identified school-based parental involvement as a key component in promoting children's educational success (Epstein 2001; Epstein and Dauber 1991; Fan 2001; Grolnick and Slowiaczek 1994; Hill and Tyson 2009; Sui-Chu and Willms 1996). Drawing on this work, policy makers have also stressed the importance of parental involvement, as seen in the No Child Left Behind (NCLB) provisions calling for "the participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities" (No Child Left Behind Act 2002:9101). In this study, we focus on school-based involvement because these parental activities most directly involve the interplay between parents and the school community (as we will describe), and we seek to understand the role that parental networks play in fostering this involvement.

Parental Networks and Parental School Involvement

Previous research widely documents that parental school involvement is linked to parental, family, and school characteristics,[1] but only a few studies move beyond the examination of individual and school factors to focus on the influence of interpersonal interactions and social connections among parents on parental school involvement. These studies generally conceptualize parental networks as social capital, a parental resource that improves children's education (Coleman 1988, 1990; Dika and Singh 2002; Lin 1999; Portes 1998). Although the educational research on social capital mainly focuses on the relationship between parental networks and students' outcomes (Coleman 1988, 1990; Dika and Singh 2001; Portes 2000), it provides theoretical insights for understanding the relationship between parental networks and school involvement. Coleman's social capital theory argues that the social relationships formed through these parental networks encourage the exchange of information and establish and enforce expectations of behavioral norms. When greater interpersonal and intergenerational closure exists among parents and children within a community, children's behavior is more aligned with socially productive conventional parental norms. This tends to happen more organically in advantaged neighborhoods, for a variety of reasons that we detail below. When schools are in

socially disintegrated neighborhoods, parental monitoring and constraining of children's misbehavior becomes more difficult (Coleman 1988; Coleman and Hoffer 1987).

In the same vein, in communities where the parents of a group of students all know each other, parents may have more emotional and institutional supports that enhance their ability to effectively engage in their children's education. For instance, parents who are more integrated into informal parental networks have more knowledge about school tracking policies than do isolated parents, which is beneficial to students' academic achievement (Useem 1992). Also, parents of elementary school students who have closer ties with teachers and other parents regularly gain access to and exchange information about the school and their children's schooling (Horvat et al. 2003). The size of parental networks also predicts the degree to which parents are involved in their children's education. Prior research finds that, after controlling for sociodemographic characteristics, parents who report speaking with more parents at their children's school tend to be more involved at school (Sheldon 2002). Taken together, these studies suggest that parental networks act as a communication channel for parents to access valuable information and feedback about school policies and their children's academic performance, potentially facilitating greater involvement in a variety of school activities.

Not all school-based parental involvement activities are equally accessible to parents, because certain types of involvement require greater commitments of time and money. Compared to other forms of school involvement, parents who are actively involved in formal PTOs, for example, tend to volunteer more hours of time and invest more resources to build and maintain school programs and initiatives that are beneficial to teachers, staff, and students (Posey-Maddox 2012). Parents from disadvantaged backgrounds may face more challenges volunteering long hours at schools and donating money (Posey-Maddox 2012) for a variety of reasons, including fewer monetary resources, less work flexibility, and a greater likelihood of being a single-parent family. On the other hand, the collective action of parents from advantaged backgrounds can bring myriad resources to schools that allow for sustainable school involvement (Cucchiara and Horvat 2009). Given the policy efforts to promote greater inclusiveness and equity

for parental school involvement, the challenge lies in bringing parents together across diverse social backgrounds in collective action for organized school involvement (Hamlin and Flessa 2016). Previous research suggests that parental networks may play an important role in encouraging parents from disadvantaged social backgrounds to participate in organized school meetings, committees, and events (Posey-Maddox 2012). Thus, we expect parental networks may matter even more in constructing and sustaining engagement in formal organizational settings, such as volunteering at schools and participating in PTOs.

Effect Heterogeneity of Parental Networks among Advantaged/Disadvantaged School Neighborhoods

The discussion above suggests that parental networks are positively related to parental school involvement net of individual and school institutional factors. One important assumption underlying this argument is that all families benefit equally from the influences of parental networks on parental school involvement, regardless of the school neighborhood context. However, this assumption may overlook potential effect heterogeneity of parental networks on parental school involvement in advantaged and disadvantaged school neighborhoods. Lareau (2011) suggests there are social-class-based differences in parents' propensity to be involved in various aspects of children's lives: high levels of involvement are characteristic of a middle-class parenting style, whereas working-class and poor parents are far less engaged. Similarly, Posey-Maddox (2012) finds that middle-class parents can effectively use their social networks to garner resources for their children even in a context of relative disadvantage. Other studies have found an average effect of parental networks on involvement, but the finding that middle-class parents are already highly involved raises the question of whether networks play less of a role in fostering their engagement, suggesting the possibility that such networks could matter even more in settings where involvement is not as prevalent. Consistent with this argument, Ream and Pallardy's (2008) quantitative study found that although parents of higher socioeconomic status (SES) generally possess greater volumes of social capital, the conversion of this capital into outcomes was significant in

only one of the multiple relationships they examined.

Previous research shows that community institutions, such as recreational facilities, libraries, churches, community centers, banks, convenience stores, and childcare centers, serve as important resources for building individual social networks (Small 2009). Small (2006), for example, finds that childcare centers as community institutions play an important role in expanding the size and usefulness of parental networks. Community institutions, however, exhibit substantial variation across different school neighborhoods. Compared with affluent school neighborhoods, neighborhoods characterized by concentrated disadvantage have multiple barriers to producing well-connected parental networks. Poor school neighborhoods often have fewer neighborhood institutions and thus fewer opportunities for residents to interact with one another in informal settings. This can have implications for the size of the social networks that such individuals are able to amass. Indeed, Small's (2007) study of racially diverse parents across a range of Chicago neighborhoods finds that neighborhood poverty is significantly related to the smaller size of social networks. Similarly, Ream and Pallardy (2008) find that parents with lower SES, who are more likely to live in less advantaged neighborhoods, have more difficulty building social networks and utilizing their networks to advance their children's education. The lack of interconnectedness may lead to the lower levels of social control and less effective collective action observed in these neighborhoods (Sampson, Morenoff, and Earls 1999), and it may intensify feelings of public distrust, fear of strangers, uncertainty, and economic dependency (Small and Stark 2005; Wilson 1987). Additionally, previous research shows that families in disadvantaged neighborhoods tend to have higher rates of residential mobility, hindering the buildup of local parental networks (Astone and McLanahan 1994). In such contexts, the school may be the one stable social institution where parents can interact to build effective social capital (Ream and Pallardy 2008), but the lack of overlap with other institutional contexts may contribute to smaller parental networks in these communities.

In addition, for parents from advantaged backgrounds, interacting with other parents and actively engaging in schools are culturally expected parenting behaviors and thus may be

less related to parental networks than they are for parents in disadvantaged groups. Sui-Chu and Willms (1996) suggest that when there is a strong concentration of advantaged parents in a school community, greater school participation and stronger parental networks are more easily achieved and established. As a result, the benefits of parental networks to facilitating parental school involvement may diminish when a school neighborhood's structural and institutional environments are better, given the normative nature of parental school involvement in more advantaged school neighborhoods regardless of parental networks. Consequently, we hypothesize that parental networks may play a more important role in improving parental school involvement in disadvantaged school neighborhoods than in advantaged school neighborhoods.

Why Parental Involvement at Elementary School?

Prior studies show that the way parents involve themselves in school changes as children grow older (Catsambis 2001; Domina 2005; Muller 1998; Singh et al. 1995). Within an elementary school context, school-based involvement focuses on facilitating parents' active interaction with teachers, which increases parents' knowledge about the curriculum as well as teachers' perceptions about how much parents value education (Epstein 2001; Hill and Taylor 2004). Teachers may also be more likely to elicit parents' participation in the lower elementary grades compared to older grades (Epstein 1986). In middle school and high school, however, school-based involvement often consists primarily of parental attendance at school activities, and thus it is less likely to provide parents with information directly relevant to their children's schooling. Furthermore, because elementary school performance is a significant predictor of high school grades and future educational attainment (Alexander, Entwisle, and Horsey 1997; Entwisle, Alexander, and Olson 2005), most policy-making efforts connected to parental school involvement focus on the elementary school level (Chen and Chandler 2001).

Our research builds on the existing literature to examine how effects of parental networks on parental school involvement vary by school neighborhoods, which we define as the neighborhood (census tract) surrounding an elementary school.

There are both developmental-stage and structural reasons why parental involvement may be a more salient factor in elementary school. First, families are more likely to be geographically proximate to the elementary school their children attend, compared with high school catchment areas, due to the typical configuration of lower-grade schools feeding into upper-grade schools. Second, the life stage of elementary school–age children requires greater levels of parental school involvement. By drawing on longitudinal, nationally representative data, we are uniquely positioned to examine how and whether the effects of parental networks on school involvement vary by school neighborhoods, extending the literature beyond the insights of the qualitative work that dominates our current understanding of the differential impact of social capital. This research may also add to policy discussions on how best to improve school outcomes for children in disadvantaged neighborhood contexts.

DATA, MEASURES, AND METHODS

Data

This study uses data from the restricted version of the ECLS-K of 1998-1999 with geocodes provided by the National Center for Education Statistics. The geocodes allow us to link sample respondents to the 2000 U.S. Census tract areas in which their schools were located, and we can then append school neighborhood characteristics. The ECLS-K selected a nationally representative sample of kindergartners in the fall of 1998 and followed these children through eighth grade. The ECLS-K includes detailed assessments of parental school involvement and parental networks as well as measures of family socioeconomic background and school characteristics.

Our analysis uses data from the first grade (spring 2000) and third grade (spring 2002) waves. The longitudinal nature of the data allows us to examine the effects of parental networks on parental school involvement over the course of the early elementary school years. More importantly, the longitudinal design of the ECLS-K data allows us to address simultaneity and reversed causality issues. To address the causal direction, we use data on parental networks and other control variables in the first grade to predict parental school involvement in the third grade.[2]

The sample size of ECLS-K in the kindergarten year is 21,260 respondents. Due to attrition, the available sample is 15,030 in the spring of first grade and 12,650 in the spring of third grade. The child- and parent-complete interview sample size is 12,650 for the spring of first and third grades. To estimate multilevel models of children nested within schools, we deleted an additional 1,290 cases because of nontraditional school cases, missing school neighborhood identifiers, missing school-level characteristics, and missing parental school involvement measures.[3] To preserve cases, we imputed missing values in explanatory variables using multiple imputations by chained equations ($m = 20$; Royston, Carlin, and White 2009).[4] The final sample consists of 11,360 students nested within 1,610 schools.

Measures

Parental school involvement. The dependent variable in our analyses is parental school involvement. The ECLS-K incorporates detailed information about different types of activities for parental school involvement, but it does not include information on how regularly parents are involved in these activities. During the spring of students' first- and third-grade years, parents were asked if they or another adult in their household had participated in the following activities since the beginning of the school year: (1) contacted child's teacher or school; (2) attended an open house or back-to-school night; (3) attended a meeting of a PTA, PTO, or parent-teacher-student organization; (4) went to a regularly scheduled parent–teacher conference; (5) attended a school or class event, such as a play, sports event, or science fair; (6) volunteered at the school or served on a committee; or (7) participated in fund-raising for the school. Several of these measures, including PTOs, parent–teacher conferences, attendance at school events, volunteering and being present at school, and participation in school governance, have been widely used in prior research to assess parental school involvement (Epstein and Dauber 1991; Hill and Tyson 2009; Robinson and Harris 2014; Sui-Chu and Willms 1996). Because all the items are binary, we use two-parameter logistic item response theory models to construct a latent trait variable capturing parents' propensity for school involvement.

Parental networks. Our measure of parental networks focuses on the number of parents whose children attend the same school with whom a student's parents frequently talk. During the spring of students' first- and third-grade years, parents were asked about how many parents in their own child's school they talked with regularly, either in person or on the phone. Following Coleman's (1988, 1990) social capital theory, and the assumption of network homogeneity in traditional social capital research, this measurement for parental networks is commonly used in previous studies (see also Morgan and Sørensen 1999; Sheldon 2002). This assumption, however, does not account for the qualitative differences in networks of parents from diverse social backgrounds or the strength of relationships. Furthermore, note that this is a measure of potential social capital as opposed to activated social capital (Bourdieu 1986), because we do not have any details regarding the type, nature, or frequency of information exchanged through these connections. Nor does this measure capture potentially valuable network connections that parents may have to parents of former students or other members of the school community, such as teachers, after-school program staff, or other individuals knowledgeable about the school who are not parents.

School neighborhood disadvantage. To obtain measures of school neighborhood characteristics, we merged the ECLS-K data with data from the 2000 Census. Because the ECLS-K is a school-based survey and students are randomly sampled within schools, we define school neighborhood as the census tract in which the school is located, rather than the census tract in which a family is located.[5] Because elementary school boundaries tend to be drawn within a small radius around a school, we presume that most, if not all, of the families fall within this boundary. We acknowledge that schools' census tracts are often smaller than the actual school catchment zones, but all families have some interaction within the school's boundary by virtue of their children's attendance, regardless of the distance of their home to the school. We measure school neighborhood disadvantage using methodology similar to previous research investigating neighborhood contextual effects (e.g., Harding 2007, 2011; Sampson et al. 1999). We constructed a scale from several interrelated demographic and economic characteristics of the school neighborhood,

including family poverty rate, percentage single-mother households, percentage youth, unemployment rate, percentage black, percentage receiving public assistance, and percentage of individuals older than age 25 who have less than a high school education. Each item is *z*-scored, and we created the scale of school neighborhood disadvantage by summing the *z*-scored items. A Cronbach's alpha of .88 confirms that combining these items into a single scale is appropriate.

Control variables. We include a number of individual- and school-level control variables known to affect parental school involvement or to potentially affect the relationship between parental networks and parental school involvement. At the individual level, we control for children's gender, race, and behavioral outcomes; parental and family characteristics; and residential and school change. Gender is coded 1 for female child and 0 for male child. Race-ethnicity is measured as a series of dummy variables, denoting whether a child is white (reference group), black, Asian, Hispanic, or other race. We measure children's internalizing and externalizing problems as composite scales, constructed by the ECLS-K. Parental SES is a composite scale, constructed by the ECLS-K, combining information on parental education, income, and occupational status. Parental employment status is coded 1 for two working parents and 0 otherwise. Parents' age is the average age in years of the residential mother and/or father. We measure parents' educational expectations with the years of education parents expect their children to complete. Parental home involvement is a composite variable measuring how often parents engage children in particular skill-building activities at home. Barriers to parental school involvement is measured as the total number of barriers and challenges parents report in their school involvement experiences. We measure family structure as a series of dummy variables: whether the child is from a two-biological-parent family (reference group), two-other-parent family, single-parent family, or other family type. Number of siblings in a family is measured as a continuous variable. We measure residential change by the number of places a family lived since the child entered kindergarten. School change is coded 1 for students changing schools between first and third grades and 0 for those not changing school.

At the school level, we control for characteristics such as school type, school size, racial composition, region, and residential area. School sector is coded 1 for private school and 0 for public school. We measure school size by the total number of enrolled students in the school. Percentage of minority students is a continuous variable. Region is measured as Midwest, South, West, or Northeast (reference group). Residential area is measured as suburban and large town area, small town and rural area, or large and midsize urban city area (reference group). Table 1 provides descriptions of the variables used in our multilevel analysis. Table A1 in the appendix presents summary statistics of all the variables included in this study.

Analytic Strategy

Because the ECLS-K sample is made up of students nested within schools, we use multilevel models to analyze our data. All variables for parental school involvement, parental networks, and parents' and children's sociodemographic characteristics are measured at the individual level (Level 1); the school neighborhood disadvantage scale and other school institutional variables are measured at the school level (Level 2). Our analyses proceed in two stages. First, we examine the effects of parental networks on different parental school-involvement activities. We estimate multilevel mixed-effects linear regression for the composite measure of parental school involvement and multilevel mixed-effects logistic regression for each of seven parental school-involvement activities.

Second, we investigate the effect heterogeneity of parental networks on parental school involvement among advantaged and disadvantaged school neighborhoods. The full estimated model examining effect heterogeneity takes the following form:

$$Y_{ij} = \beta_0 + \beta_1 PN_{ij} + \beta_2 Z_{ij} + \beta_3 SND_j$$
$$+ \beta_4 W_j + \beta_5 PN_{ij} SND_j + u_{0j} + u_{1j} PN_{ij} + r_{ij}$$

where Y_{ij} is the composite measure of parental school involvement for student i in school j. PN_{ij} is the parental networks for student i in school j. Z_{ij} is a group of control variables at the individual level. SND_j is the school neighborhood disadvantage scale for school j, and W_j represents a group of control variables at the school level. βs are the fixed-effects estimators. The random error has three components: u_{0j}, the random effect of school j on parental school involvement; u_{1j}, the random effect of school j on the effect of parental

Table 1. Measures of Variables Used in Multilevel Analysis, ECLS-K 2000–2002.

Variable	Descriptions/question wording/coding
Dependent variable	
Parental school involvement	IRT score measure of seven items: During the school year, have parents ever (1) contacted child's teacher or school for any reason having to do with child? (2) attended an open house or back-to-school night? (3) attended a meeting of a PTO/PTA or parent-teacher-student organization? (4) gone to a regularly scheduled parent–teacher conference? (5) attended a school or class event, such as a play, sports event, or science fair? (6) volunteered at the school or served on a committee? (7) participated in fundraising for child's school? (1 = yes, 0 = no)
Key independent variables	
Parental networks	z score measure: How many parents of children in child's class do you talk with regularly, either in person or on the phone?
School neighborhood disadvantage	Composite z score measure of seven items measuring school neighborhood characteristics ($\alpha = .88$), including (1) family poverty rate, (2) percentage single-mother households, (3) percentage youth, (4) unemployment rate, (5) percentage black, (6) percentage receiving public assistance, (7) percentage of those older than 25 who had less than high school
Control variables	
Female child	1 = female child; 0 = male child
Child's race	White child is the reference group; four dummy variables for black child, Hispanic child, Asian child, and other race child
Child's internalizing problem	Child's composite internalizing problem behaviors scale, including items on sadness, loneliness, and anxiety; constructed by ECLS-K
Child's externalizing problem	Child's composite externalizing problem behaviors scale, including items on the frequency with which a child argues, gets angry, acts impulsively, and disturbs ongoing activities; constructed by ECLS-K
Parental SES	Composite scale of parents' socioeconomic characteristics, including parental education, income, and occupational prestige; constructed by the ECLS-K
Parental employment status	1 = two parents working full-time (35 hours or more per week); 0 = otherwise
Parental age	Average age in years of the residential mother and/or father
Parental educational expectations	How far in school do parents expect child to go? Responses are coded as years of education, ranging from 8 (less than a high school diploma) to 23 (finish a PhD, MD, or other advanced degree)

Table 1. (continued)

Variable	Descriptions/question wording/coding
Parental home involvement	Composite z score measure of seven items (α = .69): In a typical week, how often parents do the following things with child? (1) tell stories; (2) sing songs with child; (3) help with arts and crafts; (4) play games or do puzzles; (5) talk about nature or do science projects; (6) practice reading, writing, or working with numbers; (7) read books to child (1 = not at all; 4 = everyday)
Barriers to parental school involvement	Number of reported school involvement barriers by parents: This year, have the following reasons made it harder for parents to participate in activities at child's school? (1) inconvenient meeting times, (2) no child care keeps your family from going to school meetings or events, (3) family members can't get time off from work, (4) problems with safety going to the school, (5) the school does not make your family feel welcome, (6) problems with transportation to the school, (7) problems because you or members of your family speak a language other than English and meetings are conducted only in English, (8) you don't hear about things going on at school that you might want to be involved in (1 = yes; 0 = no)
Family structure	Two biological parents family is the reference group; three dummy variables for two-other-parents family, single-parent family, and other family type
Number of siblings	Number of siblings (not including the child herself/himself)
Residential mobility	Since child entered kindergarten, how many different places has child lived for four months or more?
School change	Did child transfer to different school between grades 1 and 3?
Attending private school	1 = yes; 0 = no
School size	Total number of enrolled students in the school in hundreds
Percentage minority students in school	Percentage minority students enrolled in the school
Region	Northeast is the reference group; three dummy variables for Midwest, South, and West
Residential area	Large and midsize urban city area is the reference group; two dummy variables for suburban and large town area, and small town and rural area

Note: In the multilevel analysis, all measures for parental networks and control variables are taken from the spring 2000 first-grade survey of the ECLS-K. School neighborhood disadvantage is taken from 2000 Census tract data and merged with the spring 2000 first-grade data of the ECLS-K. Items measuring parental school involvement are taken from spring 2002 third-grade survey of the ECLS-K. ECLS-K = Early Childhood Longitudinal Study–Kindergarten Cohort; IRT = item response theory; PTO/PTA = parent–teacher organization; SES = socioeconomic status.

networks on parental school involvement; and r_{ij}, the Level 1 error. More importantly, we examine the cross-level interaction effects between parental networks and the school neighborhood disadvantage scale to investigate the effect heterogeneity of parental networks between advantaged and

disadvantaged school neighborhoods. In our analyses, parental school involvement and parental networks variables are calculated as standardized scores. All other continuous control variables are grand mean centered to allow for easier interpretation of the regression models.

To further examine the robustness of our findings, we carried out three supplementary analyses. We present these results in the online supplement. First, when investigating the relationship between parental networks and parental school involvement, other unmeasured individual or family characteristics might produce endogenous bias. For instance, parents' unobserved commitment to their children's education and intangibles, such as love, emotional support, and devotion, may affect parental networks and parental involvement at school. This study takes advantage of the longitudinal design of the ECLS-K, which includes repeated measures for parental networks as well as other time-varying child and parental characteristics in first and third grades. We estimate the first difference model using two-period panel data of the ECLS-K first- and third-grade waves. The first difference model allows us to net out the influence of individuals' fixed, unmeasured traits that may be associated with both parental networks and parental school involvement (Allison 2009). We acknowledge that a fixed-effects model cannot completely eliminate the possibility of endogeneity, such as from time-varying confounding factors, but it allows us to be more cautious in our analysis.

Second, selection bias may be present to the extent that differences in parental school involvement by school neighborhoods could be causally attributed to school neighborhood context (as opposed to being simply due to differences between students attending schools in different neighborhoods). Systematic differences between families in disadvantaged and advantaged school neighborhoods would bias the estimates of contextual effects. To account for potential selection bias, we carry out the counterfactual approach using propensity score matching to examine the effects of school neighborhood disadvantage on parental school involvement. Compared to the traditional regression method, the matching approach is considered a more cautious and rigorous method for handling the confounding factors that selection bias causes in observational studies (Harding 2003; Morgan and Winship 2007; Rosenbaum and Rubin 1983).

Third, 16 percent of students in our sample changed to different schools between the first and third grades. School change is another source of selection effects that may influence how parental networks affect parental school involvement. If students who change schools are systemically different from those who remain in the same school, the effects of parental networks may vary by the likelihood of school change. We utilize the propensity score subclassification to construct matched strata based on child, parent, and school characteristics between students who change school and those who remain in the same school. We then estimate the adjusted effects of parental networks on parental school involvement in each stratum to examine how the effects of parental networks vary by the likelihood of school change. Overall, these supplementary analyses provide further support for our main findings.

FINDINGS

Parental Networks and Parental School-involvement Activities

Table 2 reports the results showing multilevel regression coefficients on a composite measure of third-grade parental school involvement as well as seven dichotomous parental school-involvement items. As shown in the first column, parental networks are positively associated with the composite measure of parental school involvement. After controlling for all background factors, for every 1-standard-deviation increase in the level of first-grade parental networks, the level of third-grade parental school involvement is expected to increase by .147 standard deviations ($p < .01$).

The individual and school characteristics operate as expected in affecting parental school involvement. The results show that children's race, parental characteristics, family structure, and school change significantly affect parental school involvement. For example, parents of minority children tend to have a lower level of parental school involvement compared to parents of white children. Parents whose children demonstrate more internalizing and externalizing problems are less likely to be involved in school. Parental SES, age, and educational expectations are positively associated with parental school involvement. Compared with two-biological-

Table 2. Multilevel Regression Coefficients on Third-grade Parental School Involvement Activities.

Variable	School involvement (composite)[a]		Parent–teacher contact[b]		Attend open house[b]		Attend PTO/PTA meeting[b]		Attend parent–teacher conference[b]		Attend school event[b]		Act as school volunteer[b]		Participate in fund-raising[b]	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Parental networks (first grade)	.147	(.009)**	.108	(.026)**	.350	(.046)**	.329	(.026)**	.171	(.051)**	.291	(.040)**	.411	(.030)**	.276	(.032)**
Female	.016	(.016)	-.210	(.046)**	.127	(.061)*	-.031	(.044)	-.153	(.078)	.030	(.056)	.045	(.046)	.131	(.048)**
Black	-.113	(.034)**	-.138	(.099)	-.554	(.113)**	.267	(.093)**	-.075	(.145)	-.381	(.105)**	-.129	(.092)	-.113	(.097)
Hispanic	-.178	(.028)**	-.260	(.080)**	-.336	(.104)**	.257	(.078)**	.092	(.141)	-.272	(.094)**	-.387	(.078)**	-.660	(.081)**
Asian	-.451	(.040)**	-.945	(.107)**	-1.076	(.137)**	.088	(.108)	-.106	(.197)	-1.154	(.122)**	-.801	(.111)**	-.598	(.114)**
Other race	-.144	(.039)**	-.230	(.112)*	-.377	(.140)**	-.040	(.110)	.035	(.205)	-.176	(.132)	-.302	(.108)**	-.391	(.113)**
Child's internalizing problems	-.039	(.017)*	.068	(.051)	-.087	(.064)	-.070	(.048)	.080	(.084)	-.072	(.058)	-.039	(.049)	-.134	(.052)**
Child's externalizing problems	-.039	(.015)*	.292	(.044)*	-.186	(.050)**	-.049	(.041)	.077	(.069)	-.143	(.048)**	-.081	(.042)	-.019	(.043)
Parental SES	.274	(.013)**	.359	(.038)**	.685	(.055)**	.184	(.036)**	.389	(.067)**	.548	(.048)**	.588	(.038)**	.386	(.041)**
Two working parents	.018	(.019)	.129	(.055)*	.379	(.075)**	-.125	(.053)*	.021	(.097)	.151	(.068)*	-.200	(.055)**	.158	(.058)**
Parental age	.004	(.001)**	-.006	(.004)	.012	(.005)*	.005	(.004)	-.006	(.006)	.002	(.005)	.011	(.004)**	.007	(.004)
Parental educational expectations	.004	(.003)	.003	(.008)	.022	(.011)*	.028	(.008)**	-.040	(.013)**	.033	(.010)**	-.005	(.008)	-.010	(.009)
Parental home involvement	.115	(.008)**	.144	(.023)**	.161	(.030)**	.133	(.022)**	.163	(.039)**	.160	(.027)**	.222	(.023)**	.189	(.024)**
Barriers to parental school involvement	-.076	(.007)**	-.004	(.019)	-.136	(.024)**	-.139	(.019)**	-.029	(.032)	-.122	(.022)**	-.165	(.020)**	-.025	(.020)
Two-other-parents family	-.174	(.028)**	.215	(.084)*	-.321	(.097)**	-.351	(.079)**	.012	(.136)	-.097	(.093)	-.467	(.079)**	-.211	(.082)*
Single-parent family	-.171	(.027)**	.088	(.076)	-.013	(.093)	-.407	(.074)**	-.093	(.122)	.060	(.087)	-.597	(.076)**	-.104	(.078)
Other family type	-.234	(.058)**	.149	(.167)	-.283	(.185)	-.363	(.158)*	.012	(.248)	.032	(.179)	-.721	(.165)**	-.329	(.162)*
Number of siblings	-.020	(.007)**	-.081	(.021)**	.023	(.026)	.020	(.020)	-.036	(.035)	-.004	(.024)	-.023	(.021)	-.089	(.022)**
Residential change	.002	(.016)	.068	(.048)	.015	(.054)	-.064	(.045)	-.123	(.072)	.021	(.052)	.043	(.046)	.009	(.047)
School change	-.112	(.023)**	.155	(.069)*	-.209	(.080)**	-.150	(.066)*	.103	(.113)	-.177	(.075)*	-.211	(.065)**	-.267	(.068)**
School neighborhood disadvantage	-.074	(.020)**	.050	(.059)	-.035	(.064)	.111	(.060)	-.169	(.099)	-.095	(.061)	-.241	(.055)**	-.130	(.060)*
Private school	.212	(.029)**	-.247	(.089)**	-.063	(.111)	.353	(.090)**	.074	(.176)	.233	(.111)*	.673	(.080)**	.624	(.100)**
School size	-.019	(.005)**	-.013	(.015)	.007	(.017)	-.019	(.015)	-.025	(.027)	-.084	(.016)**	-.020	(.013)	-.034	(.015)*
Percentage minority students	.000	(.001)	.002	(.001)	.004	(.002)*	.006	(.002)**	-.002	(.003)	-.005	(.002)**	-.001	(.001)	-.002	(.002)
Midwest	.124	(.032)**	.314	(.093)**	-.033	(.112)	-.178	(.096)	1.130	(.194)**	.596	(.106)**	.301	(.083)**	-.050	(.100)
South	.140	(.030)**	.625	(.091)**	-.102	(.106)	.575	(.093)**	-.656	(.156)**	.513	(.098)**	.187	(.081)*	.159	(.096)
West	.158	(.034)**	.347	(.100)**	.175	(.121)	-.248	(.104)*	.748	(.194)**	.509	(.111)**	.465	(.091)**	.095	(.106)
Suburban and large town area	.043	(.025)	-.212	(.074)**	.134	(.087)	.000	(.075)	.383	(.135)**	-.032	(.082)	.063	(.065)	.055	(.077)
Small town and rural area	-.112	(.030)**	-.267	(.091)**	-.363	(.101)**	-.281	(.094)**	.158	(.170)	-.197	(.101)	-.137	(.079)	-.168	(.095)
Intercept	-.024	(.035)	.897	(.101)**	2.306	(.127)**	-.112	(.102)	2.802	(.187)**	1.509	(.115)**	.244	(.093)**	1.035	(.107)**

Note: N = 11,360 students in 1,610 schools. All regression coefficients are calculated from imputed data set (m = 20). White, two-biological-parents family, Northeast, and large and midsize urban city area are reference categories. Coef. = coefficient; PTO/PTA = parent–teacher organization; SES = socioeconomic status.

[a]Multilevel mixed-effects linear regression.

[b]Multilevel mixed-effects logistic regression.

*p < .05. **p < .01 (two-tailed tests).

parent families, two-other-parent families, single-parent families, and other family types have a significant lower level of parental school involvement. The increasing number of siblings within a household is also related to a decline in parental school involvement. Parents whose children change schools between first and third grades tend to have a lower level of parental school involvement than do parents whose children stay at the same school.

Turing to school-level variables, the school neighborhood disadvantage scale is negatively associated with parental school involvement, indicating that parents from a disadvantaged school neighborhood are less likely to be involved in school activities than are parents from an advantaged school neighborhood. The effects of other school-level factors also meet our expectations. Parents whose children attend private school have a higher level of parental school involvement compared to parents whose children enroll in public school.[6] School size is negatively related to parental school involvement, indicating that parents are more likely to be involved in schools with a small number of total enrolled students. We also find considerable geographic variation in parental school involvement. Compared to schools in the Northeast, schools in the Midwest, South, and West have a higher level of parental school involvement. Furthermore, schools in small towns and rural areas tend to have a lower level of parental school involvement than do schools in major urban and suburban areas. This result is consistent with previous research documenting that suburban and urban parents attend school meetings with more regularity and interact with teachers more frequently than do parents living in rural areas (Prater, Bermudez, and Owens 1997).

As discussed earlier, the efficacy of parental networks may differ according to particular parental school-involvement activities. The second through eighth columns in Table 2 show results of multilevel logistic regression on seven parental school-involvement activities. After controlling for individual- and school-level characteristics, an increase in the size of parental networks is associated with a higher likelihood of participation in all the different parental school-involvement activities. Note that most effects of control variables also vary by different parental school-involvement activities. For example, compared with parents of white children, parents of Hispanic and Asian children are more likely to attend PTA meetings but less likely to participate in other parental school-involvement activities. However, parents' SES and home involvement are consistently and positively associated with all parental school-involvement activities. Overall, Table 2 demonstrates a significant and positive relationship between first-grade parental networks and third-grade parental school-involvement activities.

The results presented in Table 2 suggest that the positive effects of parental networks vary by different parental school-involvement activities. Table 3 illustrates this finding by calculating the predicted probabilities for each of the multilevel logistic regressions in Table 2 at low and high levels of parental networks. *Low parental networks* is defined as less than the 10th percentile of the standardized score for parental networks; *high parental networks* is defined as above the 90th percentile of the standardized score for parental networks. Holding all other covariates at their sample means, the observed difference in predicted probability between low and high parental networks is .038 for contacting a child's teacher or school (.707 vs. .745); .052 for attending an open house or back-to-school night (.877 vs. .929); .143 for attending a PTA, PTO, or parent-teacher-student organization meeting (.391 vs. .534); .012 for attending a regularly scheduled parent–teacher conference (.955 vs. .967); .059 for attending a school or class event, such as a play, sports event, or science fair (.833 vs. .892); .175 for volunteering at the school or serving on a committee (.464 vs. .639); and .090 for participating in fund-raising for the school (.703 vs. .793). All observed differences in predicted probabilities are statistically significant ($p <$ .01). Overall, these results suggest that well-connected parental networks are more important in encouraging parents to actively engage in PTA, PTO, or parent-teacher-student organizations and volunteering at school or serving on a committee. This finding implies that well-established parental networks can help parents actively engage in formal organizations that consist of parents, teachers, and school staff, activities that typically require more parental commitment of time and money.

Table 3. Predicted Probabilities on Parental School Involvement Activities for Parental Networks.

Parental school involvement activity	Low parental networks	High parental network	Difference
Contacted child's teacher or school	.707	.745	.038**
Attended an open house or back-to-school night	.877	.929	.052**
Attended a meeting of a PTA/PTO or parent-teacher-student organization	.391	.534	.143**
Went to a regularly scheduled parent–teacher conference	.955	.967	.012**
Attended a school or class event, such as a play, sports event, or science fair	.833	.892	.059**
Volunteered at the school or served on a committee	.464	.639	.175**
Participated in fundraising for school	.703	.793	.090**

Note: These predicted probabilities are calculated from multilevel logistic models of Table 2 and from imputed dataset ($m = 1$). *Low parental networks* is defined as the 10th percentile of the parental networks scale, and *high parental networks* is defined as the 90th percentile of the parental networks scale. Asterisks indicate a statistically significant difference between the probabilities calculated at low and high parental networks. All other covariates are held at their sample means when calculating predicted probabilities. PTA/PTO = parent–teacher organization.
*$p < .05$. **$p < .01$ (two-tailed tests).

Effect Heterogeneity of Parental Networks among Advantaged/Disadvantaged School Neighborhoods

Table 4 shows the results of regression parameters for two-level models examining the effect of heterogeneity of parental networks among disadvantaged and advantaged school neighborhoods. Model 1 begins by estimating an unconditional model to examine the intraclass correlation coefficient (ICC) for parental school involvement, which is the ratio of the between-school variance to the total variance. Here, the between-school variance in parental school involvement is .226, and the within-school variance in parental school involvement is .783. Therefore, the ICC for parental school involvement is .226 / (.226 + .783) = .224. This suggests that 22.4 percent of the variability in parental school involvement is accounted for by school clusters, and the correlation among respondents within the same school for parental school involvement is .224. This closely parallels Sui-Chu and Willms (1996), who find that 22.6 percent of the variation in levels of parental school participation is between schools.

Model 2 examines the bivariate relationship between parental networks and parental school involvement. The estimate of within-school variance is .749. By comparison, the estimated within-school variance in the unconditional model is .783, suggesting that parental networks reduce the within-school variance of parental school involvement by 4.3 percent. This finding aligns with prior research highlighting that parental networks significantly explain the variation in parental school involvement (Sheldon 2002). Model 3 adds individual- and school-level control variables, and the results are identical to those in the first column of Table 2. The model shows that parental networks and all background factors account for 15 percent of within-school variance in parental school involvement.

Model 4 investigates the effect heterogeneity of parental networks across schools by estimating a random coefficient model and including random intercepts and random slopes for parental networks after controlling for other individual- and school-level factors. The estimated variance of the parental networks slopes is .005 with a standard error of .002, suggesting that effects of parental networks on parental school involvement vary significantly across schools. The 95 percent plausible value range for the parental networks slopes is $.158 \pm 1.96 \times (\sqrt{.005}) = (.019, .297)$. The model also produces an estimate of the covariance between the intercept and the slope, which is $-.004$. Thus, the correlation between the intercept and the slope is $(-.004)/(\sqrt{.045} \times \sqrt{.005}) = -.267$. This suggests there is a moderate association between levels of parental school involvement and effects of parental networks, where the higher the level of parental

Table 4. Effect Heterogeneity of Parental Networks on Third-grade Parental School Involvement among School Neighborhoods.

Variable	Model 1		Model 2		Model 3[a]		Model 4[a]		Model 5[a]	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Individual-level variable										
Parental networks (first grade)			.246	(.009) **	.147	(.009) **	.158	(.009) **	.158	(.009) **
School-level variable										
School neighborhood disadvantage					−.074	(.020) **	−.073	(.020) **	−.066	(.020) **
Cross-level interaction effect										
Networks × Disadvantage									.042	(.013) **
Intercept	−.046	(.016) **	−.028	(.015)	−.024	(.035)	−.020	(.035)	−.012	(.035)
Variance estimates										
Within-school variance	.783	(.011)	.749	(.012)	.667	(.009)	.662	(.009)	.663	(.009)
Between-school variance	.226	(.014)	.170	(.012)	.046	(.005)	.045	(.005)	.045	(.005)
Parental networks slope variance							.005	(.002)	.004	(.002)
Covariance (intercept, slope)							−.004	(.003)	−.004	(.003)
AIC	30972.296		30272.732		28287.521		28283.360		28275.701	
BIC	30994.310		30302.085		28522.341		28532.856		28532.535	

Note: N = 11,360 students in 1,610 schools. All regression coefficients are calculated from imputed data set (m = 20), and variance estimates and AIC and BIC are calculated from the first imputed data set (m = 1). White, two-biological-parents family, Northeast, and large and midsize urban city area are reference categories. Parental school involvement is measured as a composite scale. Parental school involvement and parental networks are calculated as standardized score, and all continuous control variables are grand mean centered in the analysis. Coef. = coefficient; AIC = Akaike information criterion; BIC = Bayesian information criterion.

[a]Models include controls for child's gender and race, child's internalizing and externalizing problems, parents' socioeconomic status, parental employment status, parental age, parental educational expectations, parental home involvement, barriers to parental school involvement, family structure, number of siblings, residential and school change, school sector, school size, percentage minority students in school, region, and residential area.

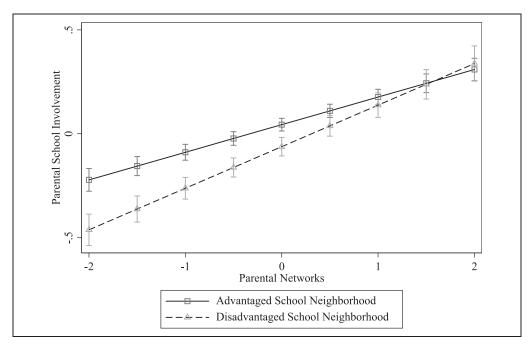*p < .05. **p < .01 (two-tailed tests).

Figure 1. Effects of parental networks in advantaged and disadvantaged school neighborhoods

school involvement, the less the effect of parental networks. Given the fact that advantaged school neighborhoods have higher levels of parental school involvement, the positive effects of parental networks would be smaller in advantaged school neighborhoods than in disadvantaged school neighborhoods, consistent with our earlier hypothesis.

To examine how the effects of parental networks vary across advantaged and disadvantaged school neighborhoods, Model 5 includes a cross-level interaction term between parental networks and the school neighborhood disadvantage scale. The cross-level interaction term is significant and positive, indicating that effects of parental networks are conditioned on school neighborhood disadvantage, and the effects of parental networks on parental school involvement are more important in highly disadvantaged school neighborhoods. After taking into account the cross-level interaction effect, the residual variance of the parental networks slopes is .004, which, when compared to the slope variance in Model 4 of .005, implies a reduction of 20 percent. Therefore, the school neighborhood disadvantage scale helps explain 20 percent of the variation in the effects of parental networks across schools.

Figure 1 illustrates the cross-level interaction effects, allowing a more direct comparison of the effects of parental networks in advantaged and disadvantaged school neighborhoods. The positive effects of parental networks on parental school involvement are stronger in disadvantaged school neighborhoods than in advantaged school neighborhoods. For example, holding all other covariates at their sample means, we find a significant difference in predicted standardized scores of parental school involvement when parental networks are one standard deviation below the mean between advantaged (defined as school neighborhoods at the 10th percentile of the school neighborhood disadvantage scale) and disadvantaged (school neighborhoods at the 90th percentile of the school neighborhood disadvantage scale) school neighborhoods. However, when parental networks are one standard deviation above the mean, the difference between advantaged and disadvantaged school neighborhoods becomes statistically nonsignificant. Overall, parental networks play a more important role in improving parental school involvement in more disadvantaged school neighborhoods.

ROBUSTNESS CHECK

Endogenous Bias for the Effects of Parental Networks

Table S1 of the online supplement presents results of cross-sectional ordinary least squares (OLS) regression for each grade and the first difference model. We begin by investigating the relationship between parental networks and parental school involvement separately for each grade, using OLS regression with robust standard errors adjusted for school clusters. The results are shown in the first two columns of Table S1 in the online supplement. After controlling for individual- and school-level factors, parental networks are associated with higher levels of parental school involvement in the first and third grades. However, neither of these two regressions include any other controls for potential omitted time-invariant variables. Rather than including those unobserved variables in the model, however, we can control for all time-invariant variables by running the regression with difference scores. For each respondent and each variable, we subtract the first-grade value from the third-grade value and then regress the difference in parental school involvement on the difference in parental networks as well as other time-varying variables. As shown in the third column, after controlling for the observed time-variant factors, the change in parental networks has a significant and positive effect on the change in parental school involvement between the first and third grades. Overall, after accounting for the risk of potential endogenous bias, our analysis demonstrates that parental networks have a significant and positive effect on parental school involvement during the early elementary school years.

Selection Bias for the Effects of School Neighborhood Disadvantage

Table S2 of the online supplement reports the results from a logistic regression of disadvantaged school neighborhood status on background factors. The treatment variable is a binary measure for disadvantaged school neighborhood status, which is defined as above the 75th percentile in the school neighborhood disadvantage scale. We use the predicted probabilities from this logistic model as the propensity scores to calculate matching estimators. The results show that students from minority families, low-SES families, families with larger number of siblings, and families with younger parents tend to attend schools located in disadvantaged neighborhoods. Table S3 of the online supplement demonstrates that after propensity score matching, the adjusted differences between disadvantaged and nondisadvantaged school neighborhoods are substantially reduced, and most of the differences are no longer statistically significant. Table S4 of the online supplement presents the results of matching estimators and shows that levels of parental school involvement are significantly lower in disadvantaged school neighborhoods, which is consistent with previous research highlighting the negative effects on parenting practices of residing in disadvantaged neighborhoods (Ainsworth 2002; Catsambis and Beveridge 2001; Crosnoe 2001; Greenman et al. 2011; Harding 2003, 2007).

Influence of School Change

Table S5 of the online supplement presents results from a logistic regression of school change on background characteristics. The results indicate that parental networks are significantly and negatively associated with school change. Students from minority families, families reporting more barriers to school involvement, and families with a higher level of residential mobility are more likely to change schools. On the other hand, students who attend private schools and small-sized schools are less likely to change schools. The predicted probabilities from this logistic model are the propensity scores used to construct different propensity score strata with balancing covariates. In Table S6 of the online supplement, there are five different propensity score strata: students in Stratum 1 are least likely to change schools; students in Stratum 5 are most likely to change schools. Students within the same stratum share similar sociodemographic characteristics. Table S7 of the online supplement reports results for the effects of parental networks on parental school involvement within each school-change stratum. The results show that parental networks are positively related to parental school involvement across different strata. More importantly, we see that the positive effects of parental networks are stronger for students who are more likely to change schools. This suggests that for parents whose children transfer to a new school,

connecting with other parents in the new school environment may help them get involved in school activities.

DISCUSSION AND CONCLUSIONS

Parental school involvement is often considered an effective strategy for improving children's academic performance and behavioral outcomes (Fan 2001; Jeynes 2010; McNeal 1999; Sui-Chu and Willms 1996). Many sociological studies have offered critical information for school staff, parents, and community leaders aiming to create initiatives that engage families and communities in student learning. However, parents, educators, and policy makers still face challenges to creating and sustaining connections between families and school staff from diverse backgrounds. We contend that parental school involvement is a dynamic process influenced by interpersonal connections and the social context within which they are embedded. Using data from the ECLS-K and 2000 U.S. Census, our study contributes to the sociology-of-education literature by exploring the effects of parental networks on different school-involvement activities and how parental networks play an important role in building connections between families and schools in advantaged and disadvantaged school neighborhood contexts.

On the basis of results from multilevel analyses using a large nationally representative data set, we find that parental networks have significant and positive effects on parental school involvement net of individual and school factors. Higher levels of parental networks in first grade are associated with higher levels of parental school involvement in third grade. This is consistent with previous studies that link parental networks to various forms of parental involvement in children's education (Cucchiara and Horvat 2009; Horvat et al. 2003; Kimelberg 2014; Lareau and Horvat 1999; Posey-Maddox 2012; Sheldon 2002). Furthermore, the results demonstrate that the positive effects of parental networks vary across different school-involvement activities. We find that parental networks play a more important role in facilitating parents' participation in institutional organizations consisting of parents, teachers, and school administrator (e.g., PTAs, PTOs, and parent-teacher-student organizations) and volunteering at school or serving on a committee. More

importantly, our analyses reveal that the positive effects of parental networks on parental school involvement are stronger for children who live in disadvantaged school neighborhoods compared to advantaged ones.

These findings have both pessimistic and optimistic implications for parental school involvement in disadvantaged school neighborhoods. On the negative side, the results suggest that parents whose children attend schools in disadvantaged neighborhoods are less likely to engage in school activities. School neighborhood disadvantage may shape parents' propensity to be involved in school through several potential mechanisms. Families who live in poor neighborhoods are more likely to encounter socioeconomic and environmental hardships, such as worse mental and physical health, long-term joblessness, welfare dependency, family disruption, social disorder and crime, and educational failure (Ceballo and McLoyd 2002; Charles 2003; Crane 1991; Klebanov, Brooks-Gunn, and Duncan 1994; Massey and Denton 1993; Sampson, Morenoff, and Gannon-Rowley 2002; Wilson 1987). Low-SES minority parents thus report more barriers to participation in school and are less likely to be involved at school (Turney and Kao 2009). Furthermore, the demographic composition of teachers and students differs in advantaged and disadvantaged neighborhoods. Prior research finds that novice teachers are more likely to take jobs in disadvantaged schools where a majority of students are from low-income minority families (Clotfelter, Ladd, and Vigdor 2005). Teacher leadership plays an important role in improving parental involvement programs (Epstein 1984, 1986), and these novice teachers may be less skilled in forming connections among parents, particularly when interacting with diverse parents whose backgrounds may be different from their own. The racial mismatch between teachers and students within disadvantaged schools results in lower teacher satisfaction and a higher turnover rate (Renzulli, Parrott, and Beattie 2011). This may hinder stable social connections between teachers and parents and subsequently lead to lower levels of school involvement in disadvantaged school neighborhoods.

On the positive side, our results suggest that if parents whose children attend schools in disadvantaged neighborhoods can form bonded social connections with other parents, the negative association between school neighborhood disadvantage and parental school involvement will substantially

decrease. In other words, collective social and interpersonal interactions among parents may overcome the negative contextual effects of living in a disadvantaged school neighborhood during elementary school. From a policy perspective, programs and initiatives designed to build respectful and trusting relationships among parents, school staff, and community members should be targeted toward parents in poor neighborhoods, because these interventions will be more effective in creating and sustaining family connections with schools in disadvantaged neighborhoods. Overall, well-connected parental networks can serve as a buffer against school neighborhood disadvantages by encouraging parents to be actively involved in schools.

In conclusion, this study sheds light on how to forge connections among school staff, family, and community members that can support student achievement. Sociological and educational research has largely focused on the relationship between parental school involvement and student achievement, with strong consistent findings supporting the critical role that parental school involvement plays in children's education. However, how best to make connections among school staff, families, and community members to support student achievement is less well understood. Our study shows that focusing on parental networks, particularly in the most disadvantaged neighborhood contexts, could be an effective way to promote parental school involvement among families who may benefit from it the most. Current school practices that aim to facilitate parental involvement often rely solely on interactions between teachers and parents, requiring school staff to communicate with parents and provide opportunities for parents to shape school policies that are beneficial for children's education. Our research suggests, however, that building social connections among families with children in the same school may enhance parental school involvement, especially for parents in disadvantaged school neighborhoods. Future research should look at the underlying mechanisms of how to forge connections among parents in disadvantaged school neighborhoods to help bolster parental participation with the aim of improving student outcomes.

APPENDIX

Table A1. Descriptive Statistics of Variables Used in the Analyses.

Variable	First grade (2000)		Third grade (2002)	
	M	SD	M	SD
Parental school involvement	−0.102	0.794	−0.100	0.792
Parental networks	2.404	3.089	2.752	4.811
Female[a]	0.486	0.500	—	—
White[a]	0.563	0.496	—	—
Black[a]	0.167	0.373	—	—
Hispanic[a]	0.196	0.397	—	—
Asian[a]	0.030	0.171	—	—
Other race[a]	0.045	0.206	—	—
Child's internalizing problems	1.610	0.522	1.650	0.539
Child's externalizing problems	1.673	0.659	1.728	0.622
Parental SES	−0.089	0.789	0.115	0.785
Two working parents	0.489	0.500	0.502	0.500
Parental age	35.320	6.711	38.368	6.724
Parental educational expectations	16.280	3.000	16.337	2.945
Parental home involvement	−0.011	1.013	0.005	1.024
Barriers to parental school involvement	1.407	1.250	0.343	1.287
Two-biological-parents family	0.626	0.484	0.594	0.491
Two-other-parents family	0.108	0.310	0.127	0.333
Single-parent family	0.236	0.424	0.247	0.431
Other family type	0.030	0.170	0.032	0.175

Table A1. (continued)

Variable	First grade (2000)		Third grade (2002)	
	M	SD	M	SD
Number of siblings	1.491	1.111	1.555	1.119
Residential change	1.266	0.609	1.169	.489
School change[a]	0.270	0.444	—	—
School neighborhood disadvantage[a]	0.034	0.715	—	—
Private school[a]	0.124	0.329	—	—
School size[a]	5.284	2.349	—	—
Percentage minority students[a]	38.858	32.242	—	—
Northeast[a]	0.182	0.386	—	—
Midwest[a]	0.232	0.422	—	—
South[a]	0.361	0.480	—	—
West[a]	0.224	0.417	—	—
Large and midsize urban city area[a]	0.365	0.481	—	—
Suburban and large town area[a]	0.436	0.496	—	—
Small town and rural area[a]	0.199	0.399	—	—

Note: N = 11,360. Means are calculated from imputed data set (m = 20), and standard deviations are calculated from the first imputed data set (m = 1). Data are adjusted for survey sampling design. All variables are unstandardized and uncentered for descriptive purposes. SES = socioeconomic status.
[a]Time-invariant variables.

RESEARCH ETHICS

We affirm that the research was registered and conducted in line with requirements of the institutional review boards (IRBs) at the University of Connecticut. All human subjects gave their informed consent prior to their participation in the ECLS-K data collection, and adequate steps were taken in this study to protect participants' confidentiality.

SUPPLEMENTAL MATERIAL

Additional supplement is available in the online version of the article.

NOTES

1. Some individual-level factors are commonly associated with higher levels of school involvement, including intact family structures, higher socioeconomic status (SES), and nonminority racial status (Astone and McLanahan 1991, 1994; Cheadle 2008, 2009; Cheng and Powell 2007; Desimone 1999; Downey 1995; Hamilton, Cheng, and Powell 2007; Lareau 1987; McLanahan and Sandefur 1994; Milne et al. 1986). School institutional characteristics, such as school type and size, the school's quality, and school-based programs, are also associated with parental engagement with schools (Coleman and Hoffer 1987; Epstein 2001; Feuerstein 2000; Griffith 1998; Kerbow and Bernhardt 1993; Morgan and Sørensen 1999).

2. We acknowledge there may be a reciprocal relationship between parental networks and school involvement. Parental networks may increase parental school involvement, and parental school involvement may further enhance parental networks. Although we cannot rule out the possibility of simultaneity between parental networks and school involvement, our focus is on how parental networks can help facilitate school involvement. Without discounting the potential reciprocal effects, our results confirm that increased parental networks contribute to higher levels of school involvement.

3. We deleted 810 cases of students who were homeschooled or had missing data for school community identifiers, 400 cases for missing school-level characteristics, and 80 cases for missing parental school-involvement measures.

4. Following recommendations by Von Hippel (2007), we included missing cases in the dependent variables in the imputation equations but excluded them in the regression analysis.

5. In the supplementary analyses, results from estimated multilevel models using family residential census tract to define neighborhood yield the same conclusion (see Tables S8 and Table S9 of the online supplement). Due to the way we measure the school neighborhood indicator, our data technically have a three-level structure in which students are nested within schools, and schools are nested within school neighborhoods. In additional analyses, we estimated three-level models and the results are similar. These results are available upon request.

6. Some scholars argue that parental choice to send children to a private school can be considered a form of parental involvement itself (Cheng and Powell 2007; Hamilton et al. 2007). Thus, parents whose children are enrolled in private schools are more likely to get involved in school activities.

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