

**Putting Homelessness in Context: The Schools and Neighborhoods of Students
Experiencing Homelessness**

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WORKING PAPER

Abstract

The number of K-12 students experiencing homelessness continues to increase across the country. Despite recognition that schools may serve as sources of support and stability for homeless children, little existing research has examined the types of schools homeless students attend and the communities they live in. We fill this gap by analyzing a student-level administrative panel from the Los Angeles Unified School District and publicly available data from the 2008-09 to 2016-17 school years. Our findings suggest that homeless students tend to be clustered within lower achieving schools with higher concentrations of educationally disadvantaged student groups and live in neighborhoods with higher concentrated disadvantage. Despite policy provisions to ensure stability, homeless students have high rates of school and neighborhood mobility in years they are homeless; although mobile students move to less disadvantaged schools. We conclude with policy implications to strengthen the implementation of the federal McKinney-Vento Act.

The number of K-12 students experiencing homelessness has grown since the Great Recession. Recent federal counts find over 1.3 million K-12 students experienced homelessness in the 2016-17 school year, a 7 percent increase from the 2014-15 school year (National Center for Homeless Education 2019). Education data are uniquely positioned to capture trends in homelessness and housing insecurity because schools are required to identify and support homeless students. Federal education policy defines homelessness as lacking a fixed, adequate, and stable nighttime residence, including living doubled up (i.e., the far majority of K-12 homeless students who are temporarily living with others due to housing loss or economic hardship) (*McKinney-Vento Homeless Assistance Act* 2015; National Center for Homeless Education 2019). Other agencies, such as the Department of Housing and Urban Development (HUD), have a more limited charter and, therefore, do not include doubled-up families in their homeless counts. The inclusion of doubled-up students (and their families) means education data provide a broader view of housing insecurity than other agencies.

School districts around the country are concerned about rising homelessness for many reasons, including the direct negative consequences of homelessness on students' academic and behavioral outcomes (e.g., Cowen 2017; Fantuzzo et al. 2012; Rafferty and Shinn 1991). Policymakers and advocates have long recognized the potential of schools to serve as a source of support and stability for homeless students by providing resources (e.g., Free and Reduced Price Lunch [FRL] program) and social connection (Masten et al. 1997). The McKinney-Vento Homeless Assistance Act (McKinney-Vento Act) requires schools to remove barriers to school enrollment (e.g., proof of address, immunization records), provide transportation to and from school, promote stability in school enrollment, and, in cases where school mobility is desirable,

ensure moves are in the best interest of students (*McKinney-Vento Homeless Assistance Act* 2015).

Despite recognition that schools may be especially important community institutions for homeless children, little existing research has systematically examined the types of schools students experiencing homelessness attend, the communities they live in, and how these change with transitions into and out of homelessness. We contribute to the knowledge base by analyzing a rich student-level administrative panel from the country's second largest school district, the Los Angeles Unified School District (LAUSD), and publicly available data on schools and neighborhoods from the 2008-09 to 2016-17 school years to address the following research questions: *1) What are the characteristics of homeless students' schools and neighborhoods? 2) How are homeless students spatially distributed in LAUSD schools and communities? 3) How do the characteristics of students' schools and neighborhoods change during and after becoming homeless?*

We find that students experiencing homelessness tend to be clustered in lower achieving schools that enroll higher proportions of students of color, FRL eligible, and English Learner (EL) students, and they live in disadvantaged neighborhoods. Despite the goals of the McKinney-Vento Act, we find that homeless students have high rates of school and neighborhood mobility, and these rates are higher in years they are homeless. However, school mobility results in moves to more advantaged schools—even for students who move while homeless. While this is consistent with McKinney-Vento's emphasis on facilitating moves that are in the best interest of students, the mobility literature suggests that high levels of school mobility, regardless of destination, may be disadvantageous. We conclude with policy implications for the implementation of the McKinney-Vento Act.

Background

Schools, Neighborhoods, and Homelessness

To our knowledge, Cowen (2017) provides the most detailed information on the schools that students experiencing homelessness attend using data from Michigan. Cowen (2017) finds that homeless students attend more disadvantaged schools than their non-homeless peers.

Homeless students attend schools with larger shares of students of color, FRL and Special Education (SPED) eligible students, EL students, and lower-achieving students than students who are not homeless.

A number of studies have identified neighborhood characteristics associated with homelessness. However, none of these studies draw on education data, thus doubled-up students are excluded. Homelessness is positively related to median rent and is negatively related to the presence of low-cost rental housing, while the relationship between homelessness and other housing and income-related variables (e.g. rental tenure, residential mobility, poverty and unemployment rates) is less consistent (Quigley, Raphael, and Smolensky 1999; Culhane, Lee, and Wachter 1996; Fargo et al. 2013). The inconsistent correlations between homelessness and neighborhood characteristics is perhaps due to the immense heterogeneity in the homeless population (e.g., unaccompanied youth, homeless families, single homeless individuals) and because of differences in the unit of analysis (e.g., city vs. neighborhood characteristics).

Existing evidence suggests that homelessness is higher in cities and clustered in select neighborhoods within them, including neighborhoods outside historic “skid-row” districts (Lee and Price-Spratlen 2004). We may expect that homeless students are less concentrated than other homeless populations because the majority are doubled-up in another persons’ home. As a result, homeless students may be less concentrated in areas with homeless services (i.e., “skid row”).

In this study, we examine the characteristics of homeless students' neighborhoods and schools. Previous research shows that the socioeconomic, network, and institutional resources available in one's neighborhoods and schools matter for children's academic, social, and health outcomes (Coleman et al. 1966; Jencks and Mayer 1990; Sharkey and Faber 2014). Homeless students are particularly at risk for negative academic and behavioral outcomes, so it is important to understand the available supports in their neighborhoods and schools. We also provide among the first evidence on whether students experiencing homelessness are clustered in schools, which could limit schools' ability to provide support if the need is too great.

School and Neighborhood Mobility

One of the goals of the McKinney-Vento Act is to promote school stability by allowing homeless students to attend their origin school even if they leave the school attendance boundary. Reducing school mobility is desirable because most studies find negative effects of changing schools on students, including studies of structural moves (i.e., changing schools due to the completion of all available grade levels, such as elementary to middle school transitions) and non-structural moves (i.e., changing schools due to other reasons such as a change in residence) (see Welsh 2017). These negative effects appear to be larger for low-income students and students of color (Xu, Hannaway, and D'Souza 2009; Hanushek, Kain, and Rivkin 2004). Non-mobile students can also be indirectly harmed by attending high-mobility schools (Hanushek, Kain, and Rivkin 2004). Some studies find the initial negative effects of mobility eventually lead to positive benefits for students in the long run but these results are sensitive to the type of move made (i.e., structural vs. non-structural) and the timing of the move (i.e., mid-year vs. over the summer) (Swanson and Schneider 1999; Schwartz, Stiefel, and Cordes 2017). Other studies examining moves to schools with higher test scores find mixed evidence of the effects of

“upward” school mobility (Cordes et al. 2016; Cordes, Schwartz, and Stiefel 2019).

The effects of changing residences or neighborhoods on student outcomes are mixed. Moving to a more advantaged neighborhood is associated with improved academic and life outcomes (Chetty, Hendren, and Katz 2016; Burdick-Will et al. 2011), while moves to similar neighborhoods have no discernable effects on academic outcomes (e.g., Jacob 2004). Most studies, however, fail to disentangle the effect of changing neighborhoods or residences from the effects of changing schools. In one exception, Cordes et al. (2019) find that short-distance residential moves that do not include a school move result in higher academic achievement. Meanwhile, long-distance residential moves without a school move result in lower academic performance, perhaps due to changes in neighborhood social capital or longer school commute times. Overall, the consensus in the mobility literature suggests that McKinney-Vento’s emphasis on stability is a potentially important support for students experiencing homelessness.

We contribute to the existing research by examining whether homelessness is associated with neighborhood and school mobility. Students entering a new school may have to adapt to a new curriculum and a new school environment with its own culture, processes, and expectations, which may pose transition costs (Kerbow 1996; Rumberger et al. 1999). Similarly, a loss of school- and neighborhood-based social capital in the form of social ties and relationships may stunt participation and academic performance (Coleman 1988). For homeless students already facing housing instability, school and neighborhood moves produce multiple instabilities that could exaggerate the negative academic and behavioral outcomes associated with homelessness.

Homeless Student Identification and District Context

LAUSD uses identification tools, staff training, and a system of monitoring to identify and support homeless students. Consistent with best practices, the district collects homeless

status through a student residency questionnaire that is distributed annually during school registration to parents/guardians. The questionnaire can be updated throughout the year if housing status changes. In addition, the district's homeless education program trains teachers and administrators on how to identify and support homeless students. Each school also has a homeless liaison (typically a school counselor or attendance administrator) who undergoes additional training and is responsible for monitoring the school's identification and support of homeless students (Gonzalez 2016). The district's homeless education program monitors school compliance and is accountable to the California Department of Education (CDE).

LAUSD enrolls proportionally fewer homeless students than the overall county rate and other large urban school districts. In the 2016-17 school year, 3.3 percent of LAUSD students were homeless, compared to 4.7 percent of students in Los Angeles County school districts (CDE and LACOE 2018). In New York City Public Schools, the nation's largest district, and Chicago Public Schools, the third largest district, homelessness rates were 9.8 and 4.7 percent, respectively (U.S. Department of Education 2020). Variation in student homeless rates likely reflect differences in the actual incidences of homelessness and differences in how well students are identified as homeless.

Methods

Data and Measures

We draw on a rich panel of student-level administrative data from LAUSD that spans the 2008-09 to 2016-17 school years. The panel includes data on 5.33 million student-year observations and 1.24 million unique K-12 students. The administrative data set includes a homeless indicator for whether the student was identified as homeless at any point in the school year and whether the student was doubled-up or used another type of unstable housing (e.g.,

shelters, hotel/motel, car, unsheltered), which is collected through the student residency questionnaire described above. The data set includes variables related to demographics (i.e., students' race/ethnicity, FRL eligibility, and whether a student is an immigrant), learning needs (i.e., SPED and EL status), and measures of academic performance and behavior (standardized English/Language Arts [ELA] and math achievement, suspensions, and attendance rate). We generate measures of school mobility, which includes all structural and non-structural school changes. Notably, the panel contains student addresses. Students with multiple addresses are assigned to the address they occupy for the longest duration in that school year and addresses are geocoded to census tracts. We supplement the administrative data with publicly available data from the CDE and LAUSD on school type (i.e., traditional public, magnet, SPED, and alternative school). Additionally, we use geocoded data on LAUSD school locations and district boundaries from the City of Los Angeles' GeoHub. The American Community Survey (ACS) five year-estimates provides data on neighborhoods (operationalized as census tracts).¹ We describe ACS data used as indicators of neighborhood concentrated disadvantage below.

Student Sample

On average, 2.1 percent of students in LAUSD are identified as homeless each year between 2008-09 and 2016-17. The vast majority of students experiencing homelessness (81 percent) are observed as homeless in three or fewer consecutive years. We only observe about 8 percent of homeless students exit homelessness and re-enter in a later year. Throughout this study, we draw comparisons between the schools and neighborhoods of homeless and non-homeless students. Consistent with existing studies, results from t-tests within a given year show

¹ Because yearly estimates are not available at the census tract level, we assign each ACS five-year estimate range to its midpoint year. For example, the ACS 2013 five-year estimates (i.e., reflect estimates from 1/01/2009 to 12/31/2013) are assigned to the 2010-2011 school year.

that homeless students differ from non-homeless students along a number of dimensions: homeless students are disproportionately Black (19 vs. 9 percent), FRL eligible (94 vs. 79 percent), mobile between schools (38 vs. 28 percent) and addresses (46 vs. 21 percent), and have lower academic performance (-0.3 SD). We also find that homeless students are more likely to exit the district (17 vs. 15 percent) and be immigrants (14 vs. 10 percent), two findings that are new additions to the literature. When we compare doubled-up homeless student to other homeless students, we find a greater proportion of doubled-up students are Black (18 percent vs. 20 percent), Latinx (77 percent vs. 73 percent), or immigrants (15 percent vs. 13 percent). Doubled-up students are also less likely to exit the district than other homeless students (16 vs. 19 percent). See Supplemental Table A1 for complete results.

School and Neighborhood Disadvantage

Because many of the school and neighborhood variables are highly correlated, we create indices of school and neighborhood disadvantage. We create a school-level index within each year using exploratory factor analysis of the following variables: percent of underrepresented students of color (Native American, Black, Filipino, Latinx, and Pacific Islander), FRL students, EL students, and SPED students. We retain one factor and create a weighted sum using standardized beta weights for each variable in the factor score (Acock 2013). Supplemental Table A2 shows the rotated factor loadings for the 2016-17 school year; factor loadings and standardized beta weights are consistent across school years. Because student composition shapes the economic, social, and cultural resources (e.g., funding, teacher quality) available, the school concentrated disadvantage index is interpreted as a proxy for the level of material and immaterial resources present at the school (Owens and Candipan 2020). The index scores have a mean of 0 and a SD of 1 in each year.

We use the same process to create an index of neighborhood concentrated disadvantage. A student's neighborhood of residence is the single tract in which the student resides. The index consists of the following variables informed by the literature (e.g., Owens, 2010; Sastry, 2012): percent female-headed households, employed, people and families whose income in the past 12 months is below the poverty level, Black residents, high school graduates, college graduates, employed adults with professional occupations, median log household income, severe rent burden (50 percent or more of income on rent), and severe overcrowding (more than 1.5 occupants per room) (Supplemental Table A2, bottom panel, provides rotated factor loadings). The level of neighborhood disadvantage is a proxy for the neighborhood's available economic, institutional, and relational resources.

Analysis Plan

First Question

We compare homeless (including those that are doubled up) and non-homeless students' school and neighborhood characteristics using t-tests within each year. School characteristics include: peer demographics (race/ethnicity, FRL eligibility, EL, homeless status, SPED eligibility, and whether they are an immigrant), behavior (suspension and attendance rates), school mobility rate, academic achievement (standardized ELA and math achievement), school type (traditional, magnet, SPED, and alternative), and the school disadvantage index. We also test differences among the neighborhood-level variables that comprise the neighborhood disadvantage index listed above along with the index itself.

Second Question

We examine the spatial distribution of homeless students across schools in several ways. First, we map school locations, varying the size of the school marker by the proportion of

homeless students in the 2016-17 school year. To examine the correspondence between neighborhoods and schools, we overlay school locations on census tracts shaded by the neighborhood disadvantage index in 2016. Second, we estimate a homeless isolation index, $I = \Sigma \left[\left(\frac{x_i}{X} \right) \left(\frac{x_i}{t_i} \right) \right]$, for the district to measure whether homeless students are overrepresented in some schools.² I describes the average proportion of homeless students in a homeless student’s school—the extent to which homeless students are “exposed” to other homeless students. An I of 1 indicates exposure only to other homeless students and 0 indicates exposure only to non-homeless students.

Third Question

We examine trends in students’ school and neighborhood disadvantage before, during, and after homelessness using descriptive statistics and a fixed effects model. For these analyses, we limit our sample to homeless students and, for students who exit and re-enter homelessness, we use the first homeless incidence.³ We examine years before, during, and after this homeless incidence. Further, we examine neighborhood characteristics only for doubled-up students. Interpreting the neighborhood characteristics of other homeless students, such as shelter users, is complicated by the fact that the constraints and preferences of service providers govern siting decisions. Focusing on doubled-up students means we can detect changes in neighborhoods for families that are not “pulled” into neighborhoods by the siting decisions of service providers.

First, we generate descriptive statistics on the frequency of school and address moves in

² The isolation index, I , is estimated as

$$I = \Sigma [(x_{i/X})(x_{i/t_i})]$$

where x_i is the number of homeless students in school i , X is the number of homeless students in the district, and t_i is the number of students enrolled in school i (Massey and Denton 1988).

³ Only 8 percent of homeless students exit homelessness and re-enter in a later year, thus, we retain complete data for the majority of homeless students.

the three time periods (before, during, and after homelessness). We examine the extent to which students move to schools or neighborhoods in higher, lower, or relatively similar concentrated disadvantage deciles, which are created within each year.

Next, we examine the mobility patterns of homeless students using the fixed effects model:

$$DisIndex_{st} = \beta_0 + \beta_1 M_{it} + \beta_2 H_{it} + \beta_3 PH_{it} + \beta_4 M_{it} * H_{it} + \beta_5 M_{it} * PH_{it} + \theta_i + \gamma_g + \varepsilon_{ist} \quad (2)$$

Where *DisIndex* is the concentrated disadvantage index for either school or neighborhood *s* in time *t*. These outcomes are estimated as a function of M_{it} , which equals 1 if the student moved to a different school in year *t* compared to *t-1* or if a student lived at a different address in year *t* compared to *t-1*, when estimating school and neighborhood disadvantage, respectively. H_{it} is an indicator for whether student *i* is homeless at time *t*, and PH_{it} is an indicator for whether student *i* is no longer homeless at time *t* (i.e., students have exited homelessness). The years before a student's first homeless incidence serves as the reference category.

Interacting the mobility indicator with each period indicator ($M_{it} * H_{it}$ and $M_{it} * PH_{it}$) measures whether students move to different types of neighborhoods or schools during and after homelessness, versus before. β_4 captures the marginal difference in school or neighborhood concentrated disadvantage for moves made while homeless, while β_5 captures the marginal difference for moves after exiting homelessness. The model includes student fixed effects, θ_i , to account for time-invariant student characteristics that predict neighborhood or school disadvantage (e.g., race/ethnicity) and grade fixed effects, γ_g , to account for the fact that middle and high schools have higher concentrated disadvantage than elementary schools. Standard errors, ε_{ist} , are clustered at the student level. For ease of interpretation, we generate predicted means from this model and report results from significance tests.

We interpret our results as describing homeless students' schools and neighborhoods, not as evidence of casual effects of homelessness. These descriptive results provide useful evidence of the types of schools and neighborhoods homeless students experience and how the student's trajectory into and out of homelessness relates to where they live and attend school.

Results

School and Neighborhood Characteristics of Students Experiencing Homelessness

In Table 1, we show the schools and neighborhoods of students experiencing homelessness are more disadvantaged than non-homeless students' along a number of dimensions. Because all differences are statistically significant, we call attention to those that are largest in magnitude, although many of these differences are modest. Panel A shows that homeless students attend schools with more students of color (93 vs. 86 percent), FRL students (86 vs. 79 percent), EL students (34 vs. 29 percent), and other homeless students (5 vs. 2 percent). Mean achievement is 0.2 to 0.3 SD lower in homeless students' schools, and homeless students are more likely to attend traditional public schools (85 vs. 81 percent) and less likely to attend magnet schools (2 vs. 4 percent). Panel B shows that homeless students live in neighborhoods with higher poverty rates (25 vs. 21 percent), more Black residents (12 vs. 9 percent) and lower median income (by \$4,942). It follows that homeless students attend schools and live in neighborhoods with higher concentrated disadvantage (0.3 SD higher) (school and neighborhood disadvantage are correlated at $r=0.67$). These differences are broadly similar when comparing the school and neighborhood contexts of doubled-up and non-homeless students.

TABLE 1
School and neighborhood characteristics of homeless and non-homeless students
<INSERT HERE>

Spatial Distribution of Students Experiencing Homelessness

Geospatial analysis shows that students are concentrated in several clusters. Figure 1 maps each school with a circle proportional to its school homelessness rate. Census tracts within the LAUSD boundary are color coded based on concentrated neighborhood disadvantage level. Schools enrolling substantial shares of homeless students tend to be clustered geographically and tend to be clustered in neighborhoods with greater disadvantage.⁴ For example, box A captures census tracts with the highest levels of disadvantage in the district, those in downtown and south central LA, that also have schools enrolling larger proportions of homeless students. Yet there are exceptions to these associations. For example, schools located in relatively less disadvantaged communities, such as those in the west and the north-west areas of the district (see boxes B and C), enroll considerable proportions of homeless students. There are also examples of schools located relatively close to each other with varying proportions of homeless students, which may be an artifact of school attendance boundaries that pull from different neighborhoods (see box D).

FIGURE 1
Distribution of homeless students in LAUSD schools and neighborhoods, 2016-17
<Insert here>

Roughly half of the district's schools (47 percent) enroll about the same or more homeless students than the district as a whole in 2016-17 (3.3 percent), and almost a quarter of schools have homeless rates over 5 percent. We describe the share of schools by homeless student enrollment rates in detail in Supplemental Table A3. Schools that educate large numbers of homeless students may not have sufficient resources to support these students adequately.

The isolation measures confirm that homeless students experience some isolation, but they are less isolated than racial groups within the district. In 2016-17, the homeless isolation

⁴ School homeless rates are correlated with school concentrated disadvantage at $r=0.48$ and neighborhood concentration disadvantage at $r=0.37$

index was 0.05, which means that the average homeless student attends a school that is 5 percent homeless—if there were no segregation, this figure would be 3.3 percent, the district rate.

Comparisons to Black-White or Latinx-White isolation reveal that homeless students are far less isolated than Black and Latinx students ($I=0.73$ and 0.93 , respectively). Isolation measures are sensitive to district composition, so a lower isolation index for students experiencing homelessness is expected, given their smaller population compared to Black or Latinx students.

Changes in Schools and Neighborhoods for Students Experiencing Homelessness

Finally, we explore how changes in homeless status are associated with neighborhood and school mobility and changes in disadvantage. Table 2 shows how frequently students experiencing homelessness move between schools (panel A) and how frequently doubled-up students move between addresses (panel B). Even before becoming homeless, students have high rates of school and residential mobility—about one-third changed schools or addresses. In contrast, roughly a quarter of non-homeless students change schools or addresses during their entire schooling in LAUSD. While experiencing homelessness, mobility nearly doubles, with roughly 60 percent of students changing schools and addresses. In years after homelessness, students experience their lowest school and address mobility rates (27 and 16 percent respectively).

Lower mobility rates after exiting homelessness may be due to the fact that roughly 30 percent of homeless students exit the district (and our data panel) while homeless. Sample attrition could influence our findings if those who exit are different from the students who remain. When we compare exiting and remaining homeless students (see Supplemental Table A4), exiting students are more mobile, as evidenced by higher school and address mobility, than those who remain in the district. Consequently, we may observe mobility decreasing after

homelessness because the students remaining in our sample are generally more stable. However, attrition does not seem to account for differences in the distribution of moves (upwards, similar, downwards), as exiting and remaining students exhibit remarkably similar patterns before students exit.⁵

Homeless students attend more disadvantaged schools (0.2 to 0.4) and live in more disadvantaged neighborhoods (0.7 to 0.8) than the average LAUSD school or neighborhood, although school and neighborhood disadvantage are the lowest after they exit homelessness. To assess more meaningful contextual changes, we compare the share of students that experience a significant upward move (2 or more decile reduction in disadvantage), similar move (same decile of disadvantage), and a significant downward move (2 or more decile increase in disadvantage). Regardless of homeless status, over a third of school moves are significant upward moves, while a smaller share of moves is to similar schools (17 to 19 percent) or significantly downward moves (15 to 18 percent).⁶ Our findings for homeless students are consistent with research showing that school mobility more often leads to significant upwards than downwards moves in school quality (Cordes et al. 2016). Meanwhile, students are most likely to move to similar neighborhoods (45 to 50 percent).

TABLE 2
Prevalence and direction of mobility

<Insert table here>

We test whether differences detected in the descriptive data are statistically significant using a fixed effects model. Predicted means from the fixed effects model are displayed

⁵ Results available upon request.

⁶ The predominance of upwards moves may suggest a “floor” effect where students move upwards because they are already located in the most disadvantaged schools. While homeless students are disproportionately located in more disadvantaged schools, these distributions are not skewed enough to guarantee an upwards move and therefore do not seem to account for our results (see Supplemental Table A5).

graphically in Figure 2.⁷ Starting with school mobility (top panel), when students change schools they move to less disadvantaged schools, regardless of homeless status ($p < .001$). Contrary to moving to disadvantage when homeless, we find that mobility results in similar (upward) moves during homelessness as before and after homelessness. While school mobility is upward, homeless students attend schools that are roughly 0.3 SDs more disadvantaged than the average school, so gains made by mobility are relatively small.

FIGURE 2
Comparing average school and neighborhood disadvantage when mobile and not mobile
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Doubled-up students make similar residential moves before and during homelessness, and they move to slightly more disadvantaged neighborhoods after exiting homelessness ($p < .01$) (bottom panel). Changes in neighborhood disadvantage after exiting homelessness, however, are marginal—0.02 SDs more disadvantaged. Overall, doubled-up students move among neighborhoods that are much more disadvantaged than the district average.⁸

Discussion

Our results deepen the research community's understanding of K-12 homeless students by making several contributions: 1) we describe the schools and neighborhoods of students experiencing homelessness, 2) we assess the spatial clustering of students in schools, and 3) we document homeless students' residential and school mobility and explore whether their contexts change during and after homelessness.

Overall, our findings show that, compared to non-homeless students, students experiencing homelessness are clustered in lower achieving schools that enroll higher

⁷ Regression results are available in Supplemental Table A6.

⁸ The influence of sample attrition on these results is unclear since those who leave our sample tend to live in schools and neighborhoods that are generally similar to those who remain (see Supplemental Table A4).

proportions of students of color, FRL, and EL students, and they live in neighborhoods with higher concentrated disadvantage. We find that homeless students are a highly mobile population and, despite the goals of the McKinney-Vento Act, neighborhood and school mobility is higher in the years they experience homelessness. That said, school mobility tends to be upward, even during homelessness, consistent with McKinney-Vento's emphasis on facilitating moves that are in students' best interest. Whether this upward mobility is beneficial for students is unclear. The school mobility literature suggests moves are generally detrimental, but some find benefits of moving to significantly higher-quality schools. The types of schools homeless students move to in our study are still very disadvantaged compared to the average district school, which may portend little benefit or even harm for students' academic outcomes.

Advocates have described the potential for schools to be a place of "refuge" for students experiencing homelessness (National Association for the Education of Homeless Children and Youth 2010). However, homeless students' schools serve large numbers of other homeless and low-resourced students, and these schools are located in disadvantaged neighborhoods. If schools are overwhelmed by serving higher concentrations of marginalized student groups, this may limit their ability to serve as sources of support for homeless students. Future research should examine schools that disproportionately serve homeless students across other dimensions including those related to teacher quality, funding, and school climate.

Our results show that students experience multiple instabilities when homeless, including changes in schools and neighborhoods. McKinney-Vento is unsuccessful in maintaining enrollment in origin schools for the majority of homeless students in our study. Qualitative research is needed to understand how homeless families understand and use McKinney-Vento. For example, future research should address questions such as: what services provided by

schools do homeless families access? How do homeless families understand McKinney-Vento's school mobility protections? Why do homeless families change schools and what guidance do families receive when they move schools? The answers to these questions could illuminate why McKinney-Vento falls short of ensuring stability for students experiencing homelessness.

Policy Implications

Our results suggest a few policy implications for school districts and practitioners. First, the identification of homeless students could be improved. Variation in student homelessness rates between districts that educate students with similar demographics could mean some districts are better at identifying homeless students than others. The McKinney-Vento Act does not specify how districts should identify students, but best practices suggest that a system of tools (e.g., a questionnaire), training, and monitoring is useful. Additionally, homeless liaisons should frequently and proactively confirm residency status, rather than waiting for families to do it. Because our results suggest higher mobility while homeless, districts should ask students to update their residency status each time a student moves schools or changes addresses. Additionally, students may not feel comfortable disclosing their homeless status because they lack caring and trusting relationships with school personnel and a positive school racial climate (Edwards 2020). Aside from technical fixes in the identification process, building caring relationships and attending to racial disparities in academic expectations and discipline could also improve identification.

Second, because homeless students are more likely to change schools or exit the district when homeless, administrators should ensure that families know their rights to remain in their school via information campaigns, follow-up after McKinney-Vento screening, and connections with transportation. School transfers of homeless students should be flagged for district and

school homeless liaisons so that they can follow up with families to make sure they are aware of their rights. When school transfers are requested by families, district and school staff should work with families to make sure the move is in the best interest of the student.

Third, the increased likelihood of homeless students exiting the district calls for a regional approach to identifying and supporting homeless students. County offices of education (or their equivalent) could assist in forming data-sharing agreements and collaboratives to help track and share educational records for homeless students who move within and between districts. Researchers should also make use of state-level or regional data sets to formulate a more comprehensive picture of how frequently and how long students are homeless.

Finally, the clustering of homeless students in schools provides an opportunity to concentrate support services in schools and neighborhoods. There is also an opportunity for schools that disproportionately serve homeless students to develop and share best practices in identifying and supporting homeless students.

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FIGURE 1
Distribution of homeless students in LAUSD schools and neighborhoods, 2016-17

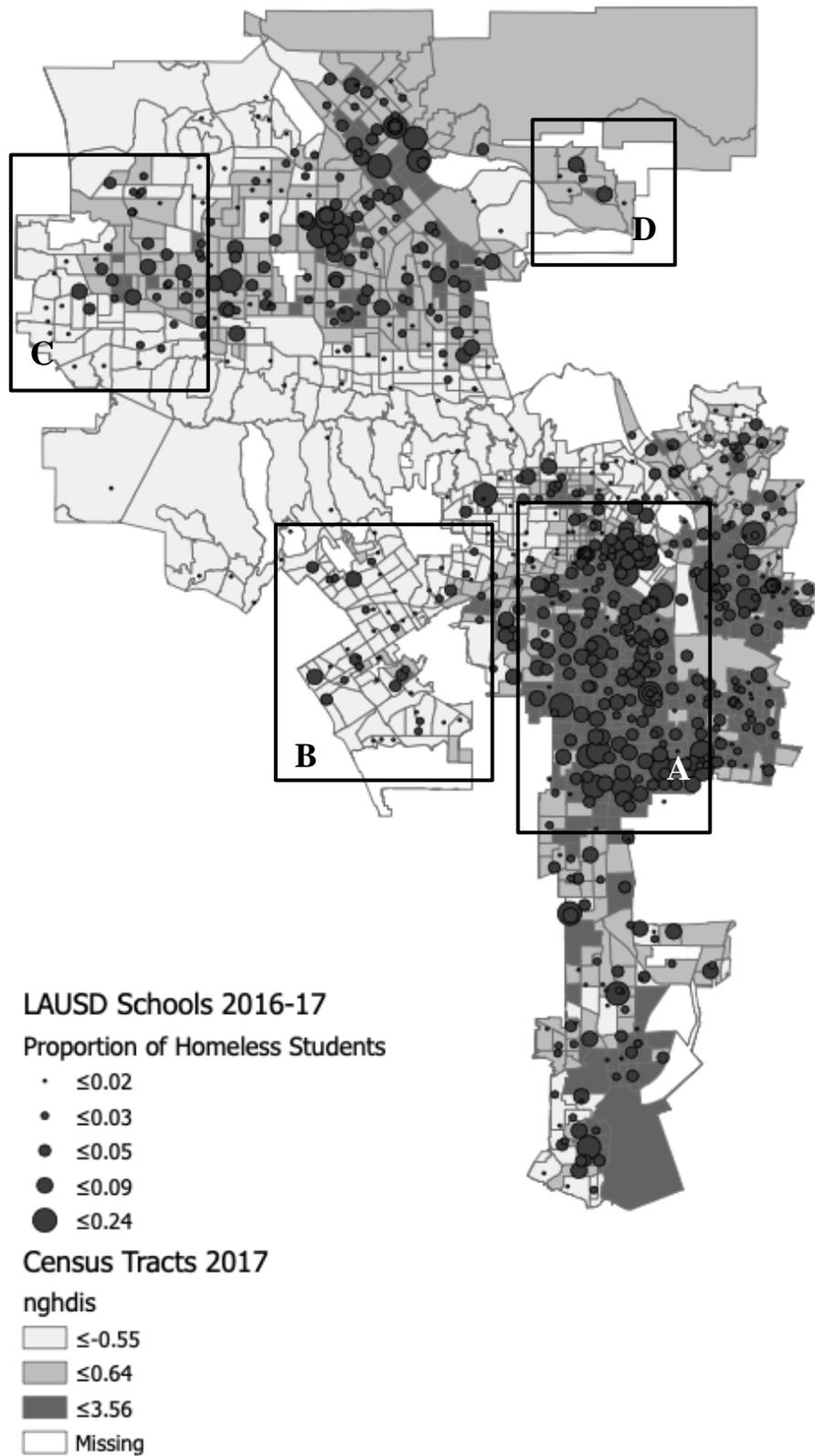
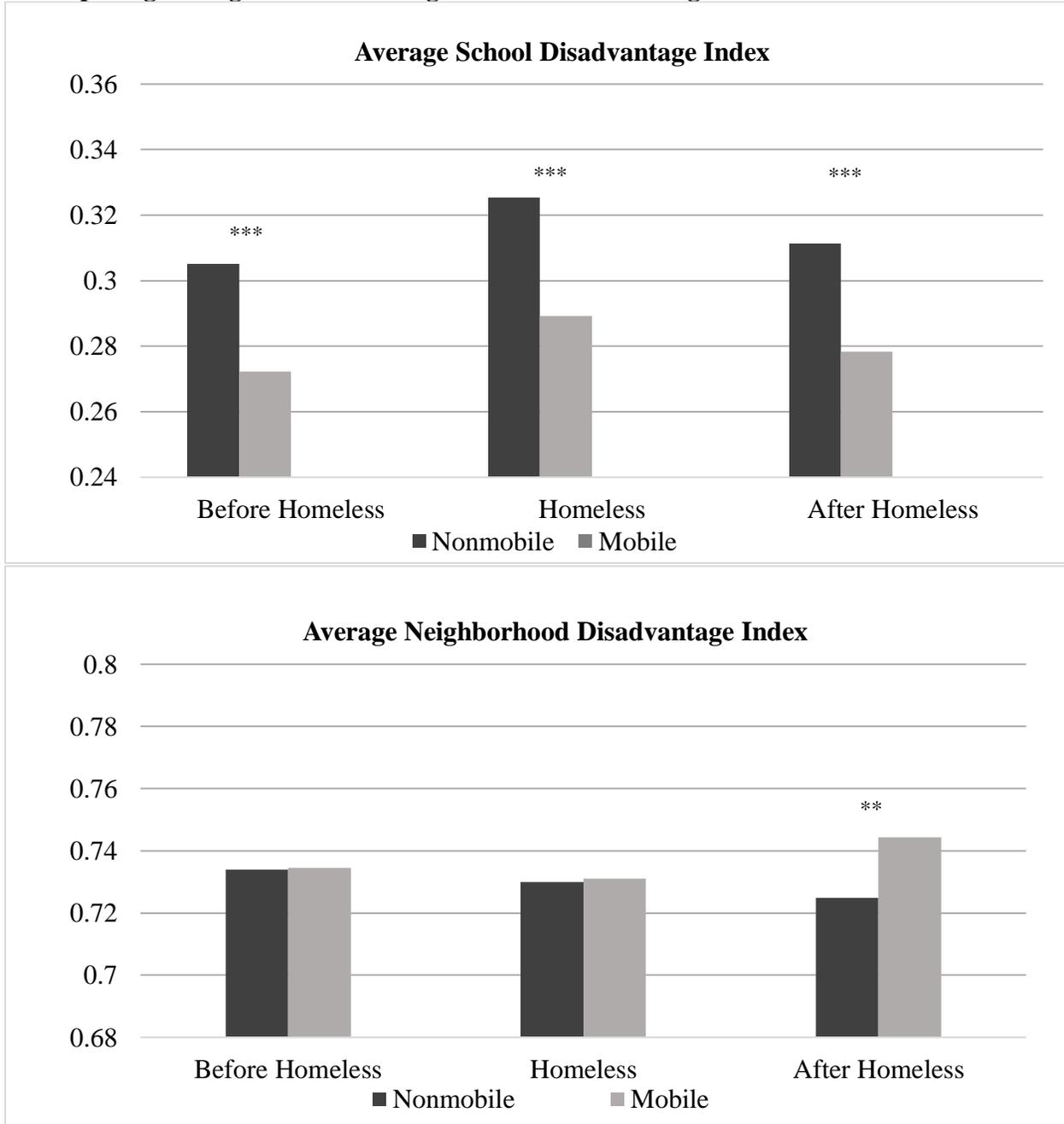


FIGURE 2
Comparing average school and neighborhood disadvantage when mobile and not mobile



Notes. *** $p < 0.001$, ** $p < 0.01$. Significance tests are conducted between the mobile and nonmobile means within each time period.

TABLE 1
School and neighborhood characteristics of homeless and non-homeless students

Variable	(1) Homeless	(2) Doubled-Up	(3) Non- Homeless	Diff (1)-(3)	Diff (2)-(3)
<i>Panel A. School characteristics</i>					
% Underrepresented students of color	92.96%	93.29%	86.33%	6.62%	6.96%
% FRL	86.48%	87.13%	78.95%	7.53%	8.18%
% EL	33.56%	33.47%	29.43%	4.13%	4.05%
% Homeless	4.69%	4.93%	2.14%	2.55%	2.79%
% SPED eligible	11.95%	11.97%	11.62%	0.33%	0.35%
% Born outside US	10.02%	9.41%	10.26%	-0.25%	-0.86%
Avg suspension rate	2.21%	2.03%	2.05%	0.16%	-0.03%
Avg attendance rate	94.65%	94.85%	95.02%	-0.37%	-0.17%
% Change schools	16.43%	16.58%	14.68%	1.75%	1.90%
Avg ELA Z score	-0.55	-0.54	-0.30	-0.25	-0.25
Avg math Z score	-0.50	-0.47	-0.30	-0.20	-0.16
Traditional public school	84.56%	85.07%	81.18%	3.38%	3.89%
Magnet school	1.93%	1.75%	4.15%	-2.22%	-2.40%
SPED school	0.27%	0.22%	0.58%	-0.31%	-0.36%
Alternative school	3.60%	2.94%	4.64%	-1.04%	-1.70%
School disadvantage index	0.31	0.33	0.001	0.31	0.33
<i>Panel B. Neighborhood characteristics</i>					
% Female-headed households	22.34%	22.75%	20.43%	1.91%	2.32%
% Employed	64.17%	64.24%	65.17%	-1.00%	-0.94%
% Below the poverty line	24.57%	24.28%	21.15%	3.42%	3.13%
% Black residents	11.81%	12.01%	9.12%	2.69%	2.89%
% High school graduates	23.61%	23.67%	22.32%	1.29%	1.35%
% College graduates	10.61%	10.35%	13.46%	-2.85%	-3.11%
Avg Median income	39244.43	39691.05	44186.92	-4942.49	-4495.87
% Professional occupations	11.49%	11.35%	11.89%	-0.40%	-0.55%
% Severe rent burden	34.92%	34.89%	33.36%	1.56%	1.53%
% Severe overcrowding	10.42%	10.15%	9.28%	1.14%	0.87%
Neighborhood disadvantage index	0.73	0.73	0.441	0.29	0.29

Notes. Significance tests show statistical significance at $p < .001$ for all variables. Underrepresented students of color consist of Native American, Black, Filipino, Latinx, and Pacific Islander. FRL = Free/Reduced-Price Lunch eligible. EL = English Learner. SPED = Special Education. ELA = English/Language Arts

TABLE 2
Prevalence and direction of mobility

	Before Homelessness	During Homelessness	After Homelessness
<i>Panel A. School mobility</i>			
% students that change schools	28.7%	59.5%	26.6%
Average school disadvantage	0.38	0.32	0.22
% significant upward moves	38.4%	35.8%	37.4%
% moves to schools in same decile	17.0%	17.7%	18.6%
% significant downward moves	15.6%	17.7%	15.4%
<i>Panel B. Neighborhood mobility (doubled-up students only)</i>			
% students that change addresses	36.0%	58.6%	15.8%
Average neighborhood disadvantage	0.75	0.73	0.69
% significant upward moves	9.1%	12.1%	11.0%
% moves to neighborhoods in same decile	49.9%	44.8%	46.7%
% significant downward moves	9.1%	11.4%	12.3%

Notes. Significant upwards moves are defined as moves in year t to neighborhoods or schools that are 2 or more deciles less disadvantaged than school or neighborhood in year $t-1$ (based on the neighborhood or school disadvantaged indices). Significant downwards moves are defined as moves in year t to neighborhoods or schools that are 2 or more deciles more disadvantaged than school or neighborhood in year $t-1$ (based on the neighborhood or school disadvantaged indices). Percentages do not add to 100 because modest moves up or down (1 decile) are excluded. We limit the analysis of neighborhood mobility to doubled-up students.

Supplemental

TABLE A1
Characteristics of homeless and non-homeless students

Variable	(1) All Homeless	(2) Doubled- Up	(3) Other Homeless	(4) Non- Homeless	Difference (1)–(4)	Difference (2)–(3)
Asian	1.22%	1.09%	1.38%	4.32%	-3.10%	-0.29%
Black	18.67%	17.79%	19.65%	8.98%	9.69%	-1.86%
Latinx	75.05%	76.52%	73.43%	74.58%	0.47%	3.09%
White	3.32%	2.75%	3.96%	9.40%	-6.08%	-1.21%
Native American	0.50%	0.44%	0.57%	0.30%	0.20%	-0.13%
Filipino	0.88%	1.03%	0.72%	2.06%	-1.17%	0.31%
Pacific Islander	0.35%	0.39%	0.30%	0.37%	-0.02%	0.10%
FRL	94.12%	94.37%	93.85%	78.78%	15.34%	0.52%
EL	32.74%	33.73%	31.65%	29.36%	3.38%	2.07%
SPED eligible	13.12%	12.17%	14.16%	11.59%	1.52%	-1.99%
Suspensions	3.46%	3.03%	3.94%	2.03%	1.43%	-0.90%
Attendance rate	92.50%	92.86%	92.10%	95.16%	-2.66%	0.76%
Born outside of US	13.91%	15.13%	12.55%	10.17%	3.74%	2.58%
School mobility	38.16%	38.16%	38.16%	27.72%	10.44%	-0.01%
Residential mobility	45.69%	46.15%	45.18%	21.44%	24.26%	0.97%
Exiting district	17.44%	16.18%	18.79%	14.70%	2.74%	-2.61%
Std ELA achievement	-0.32	-0.34	-0.30	0.01	-0.33	-0.04
Std Math achievement	-0.32	-0.33	-0.31	0.01	-0.33	-0.02

Notes. Other homeless includes all non-doubled-up students (e.g., those in shelters, cars, hotels/motels, unsheltered). Significance tests show statistically significant differences between all homeless and non-homeless students at $p < .001$ for all variables except for Pacific Islander; and statistically significant differences between doubled-up and other homeless students at $p < .001$ for all variables except Pacific Islander, school and residential mobility, and standardized math achievement. FRL = Free/Reduced-Price Lunch eligible. EL = English Learner. SPED = Special Education. ELA = English/Language Arts

TABLE A2
Rotated factor loadings for school and neighborhood concentrated disadvantage indices,
2016-17

Variable	Factor Loadings
School Concentrated Disadvantage Index	
% Underrepresented minority students	0.92
% FRL eligible	0.93
% EL	0.51
% SPED	0.16
Neighborhood Concentrated Disadvantage Index	
% Female-headed households	0.77
% Employed	-0.35
% People and families below the poverty line	0.81
% Black residents	0.23
% High school graduates	0.71
% College graduates	-0.87
% Professional/scientific/managerial occupations	-0.54
Median log household income	-0.82
% Severe rent burden	0.43
% Overcrowded	0.55

Notes. Underrepresented Minority Students includes Native American, Black, Filipino, Latinx, and Pacific Islander. FRL = Free/Reduced-Price Lunch eligible. EL = English Learner. SPED = Special Education. Factor loadings from 2016-17 school year; loadings are similar in all years.

TABLE A3
Schools by homeless student enrollment rate, 2016-17

	<u>School Enrollment</u>				
	<u>< 2% homeless</u>	<u>>2% and <3% homeless</u>	<u>>3% and <5% homeless</u>	<u>>5% and <9% homeless</u>	<u>>9% homeless</u>
Percent of district schools	34	19	25	17	5

TABLE A4
Comparing homeless students who exit the district to those who remain

Panel A. Homeless student sample for school mobility analyses			
<i>Variable</i>	<i>Exit while homeless</i>	<i>No exit</i>	<i>Difference</i>
Asian	1.24%	1.02%	0.22%
Black	20.97%	16.26%	4.71%
Latinx	72.53%	78.13%	-5.60%
White	3.68%	2.90%	0.78%
Native American	0.55%	0.44%	0.12%
Filipino	0.69%	0.92%	-0.23%
Pacific Islander	0.34%	0.35%	-0.01%
FRL	89.55%	93.32%	-3.77%
EL	29.01%	34.36%	-5.35%
SPED eligible	11.45%	14.49%	-3.05%
Suspensions	5.66%	2.60%	3.06%
Attendance rate	91.10%	93.63%	-2.54%
Born outside of US	15.55%	11.25%	4.30%
School mobility	40.58%	37.64%	2.93%
Std ELA achievement	-0.30	-0.33	0.03
Std Math achievement	-0.30	-0.30	0.00
Change addresses	49.89%	38.42%	11.47%
School disadvantage index	0.23	0.34	-0.11
Neighborhood disadvantage index	0.71	0.73	-0.02
Panel B. Doubled-up student sample for neighborhood mobility analyses			
<i>Variable</i>	<i>Exit while doubled up</i>	<i>No exit</i>	<i>Difference</i>
Asian	1.11%	0.88%	0.23%
Black	20.53%	16.17%	4.35%
Latinx	73.70%	78.47%	-4.77%
White	3.06%	2.59%	0.47%
Native American	0.50%	0.40%	0.11%
Filipino	0.80%	1.04%	-0.24%
Pacific Islander	0.30%	0.45%	-0.16%
FRL	89.98%	93.12%	-3.14%
EL	31.09%	33.39%	-2.30%
SPED eligible	10.81%	13.38%	-2.57%
Suspensions	5.27%	2.29%	2.97%
Attendance rate	91.39%	93.73%	-2.33%
Born outside of US	16.13%	11.60%	4.52%
School mobility	40.49%	37.61%	2.88%
Std ELA achievement	-0.34	-0.33	-0.01
Std Math achievement	-0.32	-0.31	-0.02
Change addresses	51%	40%	11.26%

School disadvantage index	0.28	0.34	-0.07
Neighborhood disadvantage index	0.74	0.73	0.01

Notes. Significance tests show statistical significance at $p < .001$ for all variables except for Pacific Islander. FRL = Free/Reduced-Price Lunch eligible. EL = English Learner. SPED = Special Education. ELA = English/Language Arts. We limit the analysis of neighborhood mobility to doubled-up students.

TABLE A5
Disadvantage deciles for homeless students, year before mobility

Disadvantage Decile	Freq.	Percent
<i>Panel A. School Disadvantage Index</i>		
1	1295	2.0%
2	3559	5.6%
3	3707	5.8%
4	4140	6.5%
5	6697	10.6%
6	8222	13.0%
7	8926	14.1%
8	8850	14.0%
9	9343	14.7%
10	8677	13.7%
<i>Panel B. Neighborhood Disadvantage Index (doubled-up students only)</i>		
1	279	1.0%
2	433	1.5%
3	1011	3.5%
4	1523	5.2%
5	2023	7.0%
6	2362	8.1%
7	3298	11.3%
8	4449	15.3%
9	5705	19.6%
10	7982	27.5%

Note. This table describes the disadvantage deciles of homeless students' schools and neighborhoods in the year before they change schools or residences. We limit panel B to doubled-up students (the same sample used for the neighborhood mobility analyses).

TABLE A6
Fixed Effects Regression Results

	(1)	(2)
	School Concentrated Disadvantage	Neighborhood Concentrated Disadvantage
Mobile	-0.033*** (0.003)	0.000 (0.006)
Years Homeless	0.020*** (0.003)	-0.004 (0.006)
Years After Exiting Homelessness	0.006 (0.005)	-0.009 (0.008)
Mobile* Years Homeless	-0.003 (0.004)	0.001 (0.008)
Mobile* Years After	-0.000 (0.005)	0.019* (0.009)
Constant	0.529*** (0.004)	0.740*** (0.011)
Observations	190,325	83,303
R-squared	0.763	0.814

Notes. . *** p<0.001, ** p<0.01, * p<0.05. Standard errors are clustered at the student level and are shown in parentheses. Student and grade-level fixed effects are included in the model. We limit the analysis of neighborhood mobility to doubled-up students.