Housing and School Outcomes

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K-12
Aspects of Choice

Introduction

Many factors interact to contribute to an inextricable link between housing and education. At the individual level, aspects of students' home environments, such as the quality and stability of housing, shape readiness to learn; housing costs and affordability affect the financial resources available to invest in children's education; and the location of housing or neighborhoods shapes access to schools, peers, and other amenities that may be important for learning and educational attainment. Systemically, the heavy reliance on neighborhood schools, coupled with local finance in the United States, results in a tight link between neighborhood characteristics, housing prices, school characteristics, and school resources. While housing policy and school policy are often discussed and approached as distinct policy spheres, housing policy has significant consequences for school policy, and vice versa. In this chapter, I review research on housing and education, beginning with an overview of how housing itself—including its quality, cost, and stability—affects outcomes. We then turn to the role of neighborhoods in shaping academic outcomes and conclude with a discussion of the links between neighborhoods, school characteristics, and school resources.

Key findings

Key finding #1: *Poor-quality housing and overcrowding are related to lower student performance.*

Housing quality is more predictive of child well-being than residential mobility, housing costs, or housing type, and students who live in lower-quality or less safe housing units have more emotional and behavioral problems and lower achievement than their peers. Children who live in more crowded housing are more likely to repeat a grade, have lower test scores, are less likely to graduate from high school, and have lower educational attainment than their otherwise similar peers. These findings are consistent across both the U.S. and international contexts, suggesting that this link is not unique to the educational and housing contexts of the U.S., although the extent to which this reflects a causal link versus other factors such as poverty is unclear.

Key finding #2: *Housing costs may influence educational outcomes, especially for low-income families.*

National evidence suggests that higher housing costs are detrimental to children from households that spend more than 30% of income on housing. Housing assistance programs, which seek to cap rental

payments of low-income households, demonstrate no or positive effects for children, which also points to the importance of housing costs.

Recognizing the importance of housing affordability, the federal government spends billions of dollars annually on housing assistance programs for low-income households, and many European countries have extensive social housing programs.

Key finding #3: *Residential instability and homelessness are detrimental to student outcomes.*

Robust evidence indicates adverse effects of residential mobility on student attendance, grades, test scores, dropout, and suspensions, particularly for students who make both residential and school moves. Likewise, a body of descriptive evidence shows that homeless students have lower test scores and attendance, have worse behavioral outcomes, and are more likely to be retained in grade. The only federal policies designed to directly address residential mobility are encompassed in the McKinney-Vento Homeless Assistance Act, which mandates a series of supports for homeless students, such as allowing students to remain in their previous school following a move into a homeless shelter and providing them with transportation to do so.

Key finding #4: *Neighborhoods affect both short- and long-term educational outcomes through access to amenities such as schools and libraries, as well as exposure to crime and peers.*

There is some agreement that living in more advantaged neighborhoods increases longer-term outcomes, including educational attainment, earnings, and economic mobility. However, the evidence on how context and specific mechanisms, including school quality, crime, and peers, shape the direction and magnitude of neighborhood effects and affect academic outcomes is conflicting. Growing evidence on the importance of neighborhoods raises critical questions about the relative effectiveness of place-based policies designed to improve neighborhoods versus people-based policies designed to facilitate access to better neighborhoods.

Key finding #5: *Residential segregation influences school segregation, and vice versa, with implications for school finance and student performance.*

Mainly due to a reliance on residentially based student assignment mechanisms, residential and school segregation track closely. This link has important implications for school funding, as a sizeable proportion of school funding comes from local sources such as property tax revenues, which are associated with racial and socioeconomic composition. One of the most promising solutions to decouple residential from school segregation involves redrawing school attendance and district boundaries in ways that lead to more racially and socioeconomically diverse schools. The effects of school choice on segregation are more nuanced—most evidence suggests that choice increases within-district segregation but decreases between-district segregation and may also reduce neighborhood segregation.

The challenges in researching housing and education

Researchers interested in the link between housing and education face two primary challenges. First, families choose where they live, and they do so subject to financial constraints and the heavy reliance on place-based school assignment rules. The resulting close tie between residential location and schooling means that families living in different neighborhoods are likely to value education differently.[1] Specifically, children who live near and/or attend higher-performing schools likely come from families

that place a high value on education and would have better academic outcomes regardless of their housing. In addition, when selecting their housing, many families face financial constraints, which are reflected in housing quality, neighborhood quality, and school quality. Moreover, because housing prices reflect housing characteristics (i.e., size, age, state of (dis)repair), neighborhood amenities (i.e., parks, libraries, crime), and school characteristics (i.e., performance, teacher quality), low-income households are disproportionately more likely to reside in low-quality housing and neighborhoods with less access to high-quality schools. Consequently, it is challenging to disentangle housing and neighborhood characteristics from socioeconomic status. Researchers employ several strategies to address these selection issues, such as focusing on random entry into and exit from subsidized housing (often subject to long wait lists), using rich controls with or without individual or family fixed effects, and adopting instrumental variable designs.

The second challenge is identifying datasets with the necessary information on student academic outcomes, housing locations, and housing characteristics. Data collected to assess educational outcomes and interventions often do not include information on residential location or housing, and housing data often do not include detailed information on occupants, particularly children, much less their education. Therefore, research on education and housing typically relies on broad-based social surveys, such as the Panel Study of Income Dynamics (PSID) in the U.S., data collected to assess specific interventions such as the Moving to Opportunity Demonstration, or researcher-negotiated agreements with departments of education and/or housing departments that facilitate administrative data-linking between agencies.

Evidence

Key finding #1: *Poor-quality housing and overcrowding are related to lower student performance.*

The theory linking the physical quality of housing units to educational outcomes is relatively straightforward. Living in unsafe or unsanitary conditions is likely to affect children's health and development through mechanisms such as illness or sleep quality, which can have consequences for attendance and performance. For example, children who live in units with poor air quality, mold, or leaking pipes might be more susceptible to infectious diseases[2] or chronic health conditions like asthma[3] that could increase school absences and decrease learning. Furthermore, a comprehensive literature links lead exposure to cognitive outcomes, attention, and behavior as well as poor school performance, increased absenteeism, and lower rates of graduation.[4] In fact, evidence on the adverse effects of lead exposure has resulted in widespread policies around lead paint screening/disclosures for prospective homeowners and renters as well as a federal ban on lead paint enacted in 1978.

Despite a solid theoretical basis, more research is needed to explore the relationship between the physical quality of housing units and student performance. The few credibly causal studies on this topic demonstrate that poor physical quality of housing units matters for academic outcomes. For example, a study leveraging detailed longitudinal data and within-child variation from a random sample of over 2,400 low-income households living in moderate- and high-poverty neighborhoods in Boston, Chicago, and San Antonio found that children living in lower-quality housing had more emotional and behavioral problems and lower average reading and math skills than children or adolescents residing in higher-quality housing, even controlling for housing costs.[5] Similarly, a longitudinal study in Cleveland found that children living in lower-quality housing had lower literacy scores upon entering kindergarten, even after accounting for selection into housing and neighborhoods.[6] More recently, a study of New York City exploited the random timing of housing voucher receipt and found positive impacts on student test

scores.[7] The study found that one plausible mechanism explaining these effects was that after voucher receipt, students lived in newer buildings (a proxy for housing quality) and in buildings with significantly fewer hazardous and nonhazardous building violations, suggesting the importance of physical quality for academic outcomes.

Beyond the physical quality of housing units, factors such as the number of rooms and overcrowding may shape student outcomes. While there is no agreed-upon definition of overcrowding in the literature, inadequate space may influence performance and attainment by affecting sleep and the ability to concentrate on education-related tasks like studying or doing homework.[8] Observational studies analyzing the PSID using both child fixed effects and ordinary least squares (OLS) with a rich set of control variables found that students who live in more crowded housing score lower on reading and math tests and are less likely to graduate.[9] Quasi-experimental evidence points to benefits of less crowded housing. One study exploited plausibly random variation in housing unit size driven by public housing allocation criteria that depend on the sex composition and number of children.[10] Specifically, federal guidelines state that boys and girls cannot be required to share rooms and that there can be no more than two children per bedroom. Therefore, a household with two opposite-sex children would be eligible for a unit with more bedrooms and a larger subsidy than a household with two same-sex children. The authors of the study then restricted their sample to families with two children and used the sex composition of children to predict which families are more likely to live in public housing. The reasoning behind this approach was that families that are eligible for a larger subsidy (i.e., those that are eligible for a larger unit) would be more likely to live in public housing projects. The results indicated that children in public housing were less likely to live in overcrowded units (defined as less than three living/bedrooms for households with two children) and less likely to repeat a grade. Quasi-experimental and observational studies from France, Taiwan, and Norway also point to the negative consequences of overcrowding for grade repetition, high school enrollment, and test scores.[11]

The evidence suggests that low-quality housing and overcrowding may lead to worse educational outcomes. While the literature does not provide evidence on specific mechanisms, poor-quality housing may lead to increased illness, with consequences for attendance and performance. Conversely, having more space at home may make it easier for children to sleep, study, and focus, all of which could lead to higher performance.

Key finding #2: *Housing costs may influence educational outcomes, especially for low-income families.*

Controlling for quality, housing costs and affordability could influence academic outcomes through multiple channels. First, high housing costs could squeeze out spending on necessities such as food or on supplemental educational provisions such as tutoring. Second, high housing costs could increase parental stress or decrease parental involvement if parents must work longer to pay their rent or mortgage.[12] While there is no universal definition of affordable housing, in the U.S., this term often refers to spending no more than 30% of gross income on housing. The Department of Housing and Urban Development (HUD) spends billions annually on affordable housing programs such as public housing, housing choice vouchers (HCVs), and the Low-Income Housing Tax Credit (LIHTC). Many other countries invest substantially in social housing programs that provide housing to tenants at below-market rates, which is allocated through non-market mechanisms and typically targeted to low-income or vulnerable households.[13] The size of the social housing sector varies widely across countries in the Organisation for Economic Co-operation and Development (OECD).[14] The sector accounts for at least 20% of the housing stock in Austria, Denmark, and the Netherlands; between 10% and 20% of the housing stock in several countries, including Finland, France, and the United Kingdom; and less than 10% of the housing stock in the bulk of OECD countries, including the United States.

Descriptive work on housing costs and educational outcomes in the U.S. shows conflicting findings. For example, one study based on cross-sectional data from the 1997 National Survey of America's Families found positive associations between affordability, student behavioral outcomes, and academic promotion.[15] However, other studies have found no such links.[16] Quasi-experimental evidence may shed some light on these conflicting findings. Results based on the PSID and obtained using both propensity score matching and an instrumental variable approach show a nonlinear relationship between housing costs and academic outcomes among families that are below 200% of the poverty line.[17] Specifically, the results indicate a negative relationship between housing costs and outcomes when households spend more than 30% of their income on rent but a positive relationship among children in households that spend less than 30% of income on rent. This finding suggests four points about housing affordability for low-income households: first, it is the *relative* costs of housing, rather than the *absolute* costs, that matter; second, spending too high a proportion of income on housing may be detrimental; similarly, spending too low a proportion of income may be detrimental to children from low-income households, as this low level of expenditure likely reflects particularly poor housing and neighborhood quality; and finally, housing prices may matter more for the lowest-income families, which are more likely to surpass the 30% threshold. Importantly, while this study included controls for neighborhood characteristics, there was no attempt to disentangle cost from quality. However, to the extent that spending a higher proportion of income reflects higher housing costs (and higher quality housing), the results of the study may underestimate the negative relationship between housing costs and outcomes. Little to no research examines how housing costs matter for children in middle- and high-income households. It seems reasonable to assume that there is some threshold beyond which relative housing costs are detrimental to educational outcomes, regardless of family income. That is, at some point, the benefits of higher-quality housing or more space may be outpaced by the effect of higher housing costs on family stress and financial stability. However, more research is needed to determine whether this is the case and, if so, what that threshold is.

Numerous policies in the U.S. and abroad highlight the importance of affordable housing for children and adults. For example, many countries in Europe have extensive social housing programs that provide housing at low to moderate cost,[18] and the U.S. federal government devotes approximately $40 billion each year to support housing assistance programs for low-income households.[19] Most federal housing programs fall into two broad categories: place-based (public housing and other privately owned and managed projects, such as those funded with the LIHTC) and tenant-based (voucher) programs. Both programs aim to provide decent, safe, and sanitary dwellings for low-income families, and eligible participants typically pay only 30% or less of their income towards rent, with any differences between the payment and rent funded by the federal government. The demand for these programs is high, as evidenced by long waiting lists that often exceed a year for families to receive offers, with substantially longer wait times in larger cities.[20]

A growing body of literature explores the effects of subsidized housing—public housing or HCVs—on student outcomes. However, to understand the links between *affordability* and outcomes, this literature must be interpreted carefully. For example, much of the evidence on HCVs comes from the Moving to Opportunity (MTO) demonstration, which randomly assigned HCVs to public housing residents in five cities. However, because participants moved from one form of subsidized housing to another, the results from this body of work do not necessarily speak to affordability *per se*. Nonetheless, they may provide more insight into other mechanisms, such as neighborhoods.

Even in studies that focus on entry into and exit from subsidized housing, it can be difficult to parse the effects of housing affordability from other factors, such as changes in housing quality and neighborhoods or adjustment costs associated with residential moves. However, a few recent studies on subsidized housing participants suggest the benefits of affordable housing for educational outcomes.

One study exploited the random timing of entry into HCV receipt in New York City and found positive short-term impacts of HCVs on the academic performance of over 88,000 public-school students.[21] The results showed similar impacts for students who moved following voucher receipt compared to those who leased in place (i.e., used the voucher for the unit where they currently resided), suggesting that the housing subsidy itself played an important role in improving outcomes. Another study using a similar strategy found positive effects of public housing on the test scores of New York City public-school students.[22] While the effects were larger among students moving into public housing from lower-income neighborhoods, suggesting an important role of neighborhoods, the effects were positive regardless of the income level of students' origin neighborhoods, once again pointing to a potentially crucial role of housing affordability for student outcomes. Finally, although not directly focused on educational outcomes, one study used national data on public housing and voucher recipients to explore the effects of housing assistance on adult earnings and incarceration.[23] To address concerns about selection into housing assistance, the study compared the outcomes of siblings who experienced public housing or vouchers for different amounts of time. It found that additional years in public housing or voucher receipt led to higher adult earnings and a lower likelihood of incarceration. Since siblings presumably experienced similar changes in neighborhood and housing quality, this finding also points to the positive effects of housing affordability for children.

The literature points to the importance of housing costs, although there is some nuance. Specifically, there may be a nonlinear relationship where housing costs benefit educational outcomes up to some threshold, beyond which the share of income spent on housing becomes detrimental. This nonlinear relationship may indicate that higher-quality or less crowded housing is beneficial only up to a point, beyond which the additional stress and decreased financial resources for necessities or educational inputs may prove detrimental. Furthermore, housing costs may be particularly salient for low-income households, which may have a more difficult time locating affordable housing of adequate quality.

Key finding #3: *Residential instability and homelessness are detrimental to student outcomes.*

Moving homes is frequently portrayed as detrimental for children, but the theoretical relationship between residential mobility and educational outcomes is theoretically ambiguous. On the one hand, students and their families may make residential moves into higher-quality residences in better neighborhoods or gain access to higher-quality schools, which is likely to improve educational outcomes. On the other hand, residential moves made in the face of family stress or hardship, such as a job loss or family dissolution, could result in moves to lower-quality housing and/or worse schools, which is likely to result in worse educational outcomes. Regardless of whether families move to better or worse housing, the move itself may incur adjustment costs. For example, due to the nature of school assignment policies, many residential moves are accompanied by school moves, which may lead to educational disruptions due to mismatched curricula, new peers, or missed school days.[24] Even moves that do not require students to change schools are likely to involve some disruption to school commutes and/or transportation, as children and their families must learn new routes to school. Whether the net effect of residential mobility is positive or negative, as well as the magnitude of these effects, depends on the nature of the residential move (i.e., whether it is to better/worse housing and neighborhoods) and the size of the associated adjustment costs. Furthermore, residential *instability*, characterized by frequent residential moves, is likely to be detrimental to educational outcomes, as adjustment costs accumulate with each move.

Persuasive evidence indicates that residential mobility may negatively affect student outcomes. Numerous descriptive studies find that residential mobility is associated with lower test scores[25] and a higher likelihood of grade retention[26] and dropout.[27] Two studies that improved over prior work by using a nationally representative sample of students from the National Education Longitudinal Study of 1988

(NELS:88) and controlling for a host of student and family characteristics also found evidence of adverse effects.[28] One study found a negative effect of residential and school moves on math scores, with no effect of residential moves without a school move.[29] The other study found that students who made residential moves were 25–75% more likely to drop out; however, students who made "earlier" residential moves (between 8th and 10th grade) experienced later performance gains.[30] While a benefit of the NELS:88 is its nationally representative nature, one of its drawbacks for understanding the consequences of residential mobility for student performance is that the data cannot fully distinguish the effects of residential and school mobility because they do not contain information about the specific timing of moves.

Two more recent studies disentangle residential and school mobility and derive credibly causal estimates of the effects of residential mobility in two urban school districts. To do so, they rely on rich administrative data with annual measures of students' residential location and school enrollment that allow for contemporaneous controls for residential and school moves. Focusing on middle-school students in a large urban district in Tennessee, one study found that residential movers had lower attendance and test scores and higher suspension rates but that the relationships among civically engaged students were smaller.[31] The other study used data on New York City public-school students and both student fixed effects and instrumental variable estimates and showed that the impacts of residential mobility depend on the distance moved—moves of over 1 mile negatively impact both short- and medium-term outcomes, whereas moves of less than one mile positively impact performance.[32] These positive effects are at least partly explained by improvements in housing. Students who made long-distance residential moves accompanied by school moves experienced the worst outcomes, which also persisted beyond the initial year of the move. The authors provided evidence that the large negative effects could be due to the lower performance of mobile students relative to their new school peers and a loss of social capital.

Existing evidence indicates that most residential mobility is detrimental to student outcomes and that these negative consequences tend to be driven by changes in neighborhoods and schools that accompany residential moves. However, there *is* a set of moves that benefit educational outcomes. As theory suggests, these moves minimize disruptions in schools and peers and are made to higher-quality housing or neighborhoods.

As more specific cases of residential mobility, housing *instability* (characterized by frequent residential moves) and homelessness are likely to harm performance for multiple reasons. Families that experience numerous moves may be more likely to live in low-quality housing, and the adjustment costs associated with moving likely accumulate with the number of moves. Yet students who are officially designated as homeless may be protected from some of the harmful consequences of mobility through supports offered by homeless shelters or social service agencies. In addition, homeless students receive assistance under the education portion of the McKinney-Vento Homeless Assistance Act, which was reauthorized in 2015 as part of the Every Student Succeeds Act. First passed in 1987 as the Stewart B. McKinney Homeless Assistance Act, the law required states to review and revise their policies to ensure school enrollment among homeless children and youth. Currently, McKinney-Vento requires districts to provide homeless students with transportation to and from their origin school and to designate a homeless liaison to monitor and assist homeless students. If effective, these additional supports and services could ameliorate the negative consequences of homelessness.

Causal evidence on homelessness and student outcomes is scant for multiple reasons. First, it is difficult to obtain data on homeless students. Under McKinney-Vento, homelessness is defined as lacking a fixed, adequate, and stable nighttime residence, which can include a variety of living situations such as doubling up (i.e., living with others) or living out of a car. Therefore, identifying homeless students living

outside of a shelter requires self-reporting from students or their families. Even if districts administer annual residency surveys, such surveys may miss families that experience homelessness after the time of survey administration. Furthermore, districts may be reluctant to share data on homeless students due to privacy concerns. Even in cases where districts are willing to share this information, students frequently move in and out of homelessness. However, the administrative data provided to researchers are often point-in-time data and fail to capture homeless spells that ended before or started after districts pull data for researchers. There are also substantial challenges to identifying appropriate counterfactuals, as homeless students may be uniquely disadvantaged due to a lack of stable housing and the accompanying stress. Homeless students in Los Angeles are concentrated in schools and neighborhoods with higher disadvantage, and they also have higher levels of school and neighborhood mobility than nonhomeless students.[33] As such, even other economically disadvantaged students or residentially mobile students may not provide an appropriate comparison. Since the timing of homelessness is unlikely to be random, approaches involving student fixed effects that compare homeless students to themselves over time may also yield biased results. Spells of homelessness may be precipitated by negative or stressful events such as family instability or parental unemployment. Without controlling for these factors, it is hard to say whether differences in performance are due to homelessness per se or to the events that lead a child to experience homelessness.

Consequently, most homelessness research is best viewed as descriptive. The majority of the evidence from this research indicates that homelessness is associated with lower performance and higher absenteeism.[34] Recent work based on data from Los Angeles found that these relationships were strongest in the year in which students experienced homelessness and that the relationships were larger for students who experienced homelessness in only one year than for those who were homeless for two or more years.[35] The larger effects among students experiencing "temporary" homelessness suggest that being identified as homeless in multiple years may allow families to benefit more from McKinney-Vento, either because they have developed better relationships with district officials or because they have become more familiar with the services to which they are entitled. They could also suggest that most of the negative consequences of homelessness are due to the initial disruption. The results from a Midwestern city show a similar pattern—homelessness is negatively related to achievement growth, but there is no significant relationship between achievement and *chronic* homelessness.[36] There is little research that sheds light on the effectiveness of McKinney-Vento itself. Although the evidence above suggests that the policy may benefit students who experience persistent homelessness, evidence from Los Angeles shows that students still experienced high rates of school and residential mobility even in years in which they were identified as homeless.[37]

Key finding #4: *Neighborhoods affect both short- and long-term educational outcomes through access to amenities such as schools and libraries, as well as exposure to crime and peers.*

A key feature of housing is its intrinsic link to place and geography. In particular, all housing exists within a neighborhood, and neighborhoods may shape educational outcomes through a variety of channels. Building on a seminal study,[38] two researchers[39] identified six pathways through which neighborhoods may influence children: the quality of local services and amenities such as public schools and libraries; the set of nearby adults who may serve as mentors or role models and provide access to social networks; the composition of and exposure to same-age peers; neighborhood crime and violence; the physical distance from employment opportunities; and a lack of public transportation.

Identifying neighborhood effects presents a thorny empirical challenge since families “choose” their neighborhood subject to various constraints.[40] Therefore, comparisons of children and families residing in different neighborhoods conflate differences due to the neighborhoods with differences in the characteristics of families that reside in those neighborhoods. Researchers have employed a variety of

strategies to address the problem of selection into neighborhoods. One approach focuses on children who move to a different neighborhood and then uses value-added or fixed effects models to explore how outcomes change as neighborhood characteristics change. One benefit of this approach is that following the same children over time can account for time-invariant characteristics related to neighborhood choices. However, moving neighborhoods likely reflects other household changes that may impact performance, and unless the analysis directly accounts for these changes, this approach may still fail to uncover neighborhood effects separate from the effects of those other changes.

Another approach is to focus on children living in the same or similar neighborhoods and compare their outcomes as they move to neighborhoods of differing quality. One benefit of this approach is that children whose families live in the same or similar neighborhoods at some point are likely to have similar tastes in housing and neighborhood amenities. However, this approach may also prove insufficient to uncover neighborhood effects if the researcher cannot account for characteristics that explain where and when households move.

The final approach, which arguably provides the strongest causal evidence on neighborhood effects, relies on moves due to unanticipated shocks, such as public housing demolitions. This approach has strong internal validity because it focuses on families living in the same or similar neighborhoods and the timing of moves is not due to individual decisions. However, the results from these studies tend to be less generalizable to other populations and contexts because they often rely on specific populations, such as residents of public housing.

To better understand the neighborhood effects among low-income families by addressing issues of selection into neighborhoods, MTO randomly assigned participating families to one of three conditions: one group received HCVs that had to be used in low-poverty neighborhoods for the first year and counseling to help them find units in such neighborhoods; a second group received HCVs that could be used anywhere; and the third (control) group did not receive HCVs. Evidence from MTO points to no or small effects of neighborhoods on children's test scores.[41] Similarly, studies exploiting the random timing of public housing demolitions in Chicago to examine the educational outcomes of students after they were displaced to different neighborhoods found no educational impacts. Notably, however, most children did not experience large changes in neighborhood quality following displacement.[42] Nonetheless, there is reason to believe that the *relative* characteristics of origin and destination neighborhoods are important drivers of neighborhood effects. For example, one study exploited the assignment of HCVs to families living in public housing and found that test scores improved when children moved out of disadvantaged neighborhoods.[43] Another study found larger positive effects for students who moved into public housing from lower-quality neighborhoods than for those who moved from higher-income neighborhoods, as well as larger positive effects for students who moved into high-opportunity projects (defined as projects surrounded by census blocks with an income above the New York City median) than for those who moved into low-opportunity projects (surrounded by census blocks with a below-median income).[44]

Evidence on the long-term consequences of neighborhoods consistently indicates that living in better neighborhoods during childhood is associated with educational attainment and labor market outcomes, particularly for younger children. Experimental evidence from MTO suggests that moving to lower-poverty neighborhoods before age 13 increased college attendance and earnings, whereas moving after age 13 slightly decreased outcomes.[45] Quasi-experimental evidence points to similar results. Comparing the outcomes of children who switched to better or worse neighborhoods at different ages based on national de-identified tax record data from more than 7 million families with children born between 1980 and 1988, one study found that moving to a better neighborhood during childhood (defined as prior to age 23) increased college attendance and adult income.[46] Similar to previous work that showed

larger effects for students who moved at earlier ages, the results also showed that the benefits of living in a better neighborhood increased with the amount of time that a child lived in such a neighborhood.[47]

As previously discussed, there are six potential mechanisms through which neighborhoods may influence educational outcomes, but the amount and quality of the evidence on each of these mechanisms vary considerably. The largest body of research focuses on the first mechanism—the quality of public amenities, particularly schools. Here, the evidence is clear—the availability of and access to better schools, as measured by a variety of metrics, improves student outcomes.[48]

Evidence on the second two mechanisms—the influence of neighborhood adults and peers—is more limited and correlational. Data from the 1970 Neighborhood Characteristics Sample of the Census Public Use Microdata Sample showed that even controlling for individual characteristics, adolescents who lived in neighborhoods with a lower percentage of adults holding professional or managerial jobs were more likely to drop out or have a child.[49] Conversely, a study that used rich, national Internal Revenue Service (IRS) data demonstrated that the labor market conditions experienced by adults only moderately correlated with the later life outcomes of children growing up in the same neighborhoods.[50] However, adult support networks could influence children more indirectly by reducing parental stress[51] or by monitoring children in neighborhoods with less access to formal childcare centers or programs.[52] Evidence on neighborhood peers suggests benefits from positive peer influences[53] and drawbacks from negative peer influences, particularly among adolescents.[54] Yet, much of the research on the influence of neighborhood adults and peers is decades old. It is certainly possible that, given more recent developments, such as the growth of school choice and the invention of social media, the influence of these factors may have changed or diminished.

The evidence on neighborhood crime and violence, while somewhat limited, is unequivocal—crime negatively impacts student performance across several domains, including graduation and college enrollment[55] and test scores.[56] Interestingly, crime appears to have more substantial effects on reading, vocabulary, and English language arts exam scores and no effects on math test scores. This result is broadly consistent with the findings of other research showing that neighborhood disadvantage and community violence are detrimental to the development of language and reading skills, as well as performance on reading and verbal assessments.[57] Neighborhood crime and violence may also indirectly affect educational outcomes by shaping *where* students go to school. One study of students in Chicago found that students from low-income, violent neighborhoods attended a large number of schools across the city, many of them far from home, whereas students from safer and higher-income neighborhoods attended a smaller set of schools closer to home with larger proportions of their neighbors.[58] Beyond crime itself, feeling unsafe at school is negatively related to performance.[59]

Finally, growing evidence suggests that the sixth mechanism—a lack of transportation—may limit students' school choice options and adversely affect outcomes such as attendance. For more details see the chapter on transportation.

Key finding #5: *Residential segregation influences school segregation, and vice versa, with implications for school finance and student performance.*

Due to both a reliance on a system of zoned neighborhood schools and a strong preference among families for schools that are close to home, there is a strong and persistent link between residential and school segregation. The history of residential segregation in the U.S. is long, and this segregation occurs across many lines. However, one of the most pervasive forms of residential segregation is by race. This segregation was perpetuated by policies such as redlining that denied or limited access to loans for homes in specific neighborhoods primarily based on racial composition and discriminatory lending

practices that denied loans to qualified applicants based on race or ethnicity.[60] Hence, even in districts without explicit segregation policies, schools were often racially segregated due to highly segregated neighborhoods.

The within-district link between residential and school segregation decreased somewhat following the Supreme Court ruling in *Brown v. Board*, which prohibited *de jure* segregated schools, and even more so following *Green v. County School Board of New Kent County,* which required school districts to adopt more effective integration plans. While these plans proved effective in decreasing within-district segregation, between-district segregation increased as white families moved across school district lines.[61]

Many districts were released from these orders beginning in the 1990s, leading to concern that schools would resegregate. However, this was not a foregone conclusion, given the many countervailing trends, such as declining levels of residential segregation and increasing levels of school choice. Indeed, the evidence suggests the sorting of students across schools has remained relatively stable, whereas the overall composition of students has changed due to broader demographic changes in the population.[62]

Nonetheless, since the 1990s, the *link* between residential and school segregation has increased modestly. In 1990, Black–white school segregation, as measured by the information theory (or Theil) index, was 29% lower than was residential segregation in southern metropolitan statistical areas (MSAs).[63] By 2000, the difference between residential and school segregation decreased by more than half, such that public-school segregation was only 13% lower than was residential segregation. The proportion of variation in school segregation explained by residential segregation also increased over this same period, from 50% to 58%.[64] An extension of this work exploring the relationship between residential and school segregation from 2000 to 2010 shows a continuation of these trends at the national level.[65] Notably, Black–white school segregation (as measured by the dissimilarity index) was approximately 3% higher than was residential segregation in 2000, and this figure increased to 4% by 2010. Similarly, the proportion of variation in Black–white school segregation explained by residential segregation increased modestly over this period from 86.4% to 91%, with most of the increase driven by southern MSAs. More recent work based on 2013–14 school district boundaries finds that residential segregation almost entirely explains school segregation.[66] This pattern of convergence between residential and school segregation may reflect the end of court ordered desegregation in a large number of districts over this time period. Notably, over 200 medium-sized to large districts were released from desegregation court orders between 1991 and 2009.[67] Initially, this may seem counterintuitive to the finding that student sorting across schools remained relatively stable over this period. However, residential segregation also decreased.[68] Therefore, it is possible that the end of court-ordered desegregation strengthened the link between residential and school segregation without dramatically increasing school segregation overall.

To be clear, these studies do not answer the question of whether neighborhood segregation causes school segregation, or vice versa. Rather, they describe the correlation between the two. Given the role of distance in school assignment, residential and school segregation are almost mechanically related, making it difficult to disentangle one from the other.

While a great deal of research focuses on racial segregation, there has been a substantial increase in residential income segregation over the past several decades. The extent to which this increase has translated to schools is unclear due to the lack of systematic school-level measures of family income. However, limited evidence suggests that both between- and within-district income segregation also increased from 1991 to 2012.[69]

This link between residential and school segregation has two critical implications for educational outcomes. First, research suggests that segregated schools reinforce disparities in other outcomes, including test scores, educational attainment, and earnings.[70] Second, because a large percentage of education funding derives from local revenues, the link between residential and school segregation can translate into resource and quality disparities between schools. One study describes four mechanisms through which residential segregation may translate into differences in school resources.[71] First, due to redistributive federal and state finance policies, racial differences in poverty may be related to higher federal and state revenues but lower local revenues that reflect the lower tax base of higher-poverty households. Second, there are well-documented racial differences in property wealth stemming from redlining and racial stereotypes in property assessments. Given the heavy reliance on property taxes as a local revenue source, these differences may translate into fewer resources in cases where school segregation reflects residential segregation. Third, higher-wealth districts may be more successful in securing other sources of revenue, including private contributions and donations from school-supporting nonprofit organizations. Finally, the demographic composition of districts may be related to residents' willingness to fund education; neighborhoods with greater ethnic diversity and higher shares of Black residents spend significantly more on education net of federal and state subsidies. While this mechanism may partly reflect the redistributive features of federal and state finance policies, it may also reflect that voters of color in racially and ethnically diverse districts tend to support spending on education.

The findings based on a 15-year nationally representative panel of school districts show that, once adjusted for racial differences in poverty, increased racial segregation between districts is associated with racial disparities in total and local revenue that disfavor the typical Black student's district relative to the typical white student's district.[72] While these results are descriptive in nature rather than causal, this study suggests that between-district residential segregation may affect students through disparities in local funding and that federal and state funding sources do not fully address these disparities.

While politically thorny, redrawing attendance boundaries to draw students from a diverse set of families is perhaps the most direct policy lever to alter the link between residential and school segregation in the short run. However, whether such policies work in the long run—and how—remains an open question, as it is possible that households would re-sort based on new boundaries. Combining data on school attendance zone boundaries, demographics, and school resources, one national study found that approximately 6% of attendance boundaries (including both district and attendance zones) are highly segregative, with vastly different racial/ethnic populations living on either side of the boundary as well as differences in school quality.[73] Of these boundaries, the majority (55%) are district boundaries, echoing previous findings that between-district segregation is more prevalent than within-district segregation. There also appears to be a link between many of these boundaries and redlining maps. As further evidence of the potential for attendance boundaries to weaken the link between residential and school segregation, comparisons of 2013–14 school attendance boundaries with boundaries designed to minimize distance indicate that observed school boundaries reduce school segregation by 5% over a distance-based assignment mechanism.[74]

A second policy with the potential to weaken the link between residential and school segregation is school choice, that is, decoupling residence from school assignment. There is some evidence that increased school choice in the form of charter schools leads to greater neighborhood diversity;[75] however, this increased diversity may come at the cost of increased school segregation.[76] There is no evidence that moves toward centralized lottery systems, which facilitate the choice process, have changed school segregation patterns.[77] Taken together, the findings suggest that choice may slightly weaken the link between residential and school segregation but with undesirable consequences.

Future directions for research

While there is compelling evidence that housing matters for educational outcomes, more work is needed to identify the specific characteristics of housing units that matter. For example, is it more beneficial to have additional square footage or separate rooms? Does the structure of units (multifamily, detached, etc.) matter? Do other aspects of the unit, such as ventilation, matter? A better understanding of the consequences of specific housing characteristics could help guide policy in terms of public housing unit allocation, quality standards for voucher programs, or building codes.

Furthermore, almost all research on the role of housing in shaping educational outcomes focuses on low-income households. While these households are certainly a population of interest, particularly from the perspective of educational equity, housing may also affect students from middle- and upper-income households. Understanding the consequences of housing for these students can provide useful information about the consequences of housing policies that may affect these groups, such as single-family zoning.

While there is a significant amount of research exploring the educational consequences when students move to a new neighborhood, there is much less research examining the consequences of neighborhood change. For example, the rhetoric about the potential ills of gentrification notwithstanding, we know almost nothing about how it affects schools and students. Similarly, we know little about the benefits of public investments in neighborhood revitalization for schools and students.

Undoubtedly, the questions above are complex and require access to data that link children to both their housing and educational records, as well as sophisticated empirical techniques. However, the results from such work would be invaluable to housing and education policymakers alike.

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