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Editorial note and acknowledgements

Abstract

Research calls attention to the divergent school and labor market trajectories of Europe's youth while, across the Atlantic, researchers describe the long-lasting consequences of poverty on adolescent development. In this paper we incorporate both processes to shed a new light on a classic concern in the sociology of stratification: how are adolescents' aspirations, expectations, and school performance shaped by the combined socioeconomic contexts of family, school and neighborhood life? Theoretically, social contexts provide children with cultural resources that may foster their ambitions and bolster their academic performance. Reference group theory instead highlights how seemingly positive settings can depress educational performance as well as aspirations and expectations. We empirically test these competing claims, drawing on the Avon Longitudinal Study of Parents and Children (ALSPAC) which describes the school and neighborhood trajectories of 7,934 British children followed from birth to adolescence. We find that, generally, childhood school and neighborhood deprivation is negatively associated with adolescents' school performance, aspirations and expectations for their future, in line with the cultural resource perspective. However, there are important exceptions to this pattern which point to reference group processes for (1) children of highly-educated parents, whose academic performance especially suffers from growing up in a poor neighborhood, and (2) for children from low-educated parents, whose academic aspirations and expectations are unexpectedly high when they either went to an affluent school or lived in an affluent neighborhood—but not both. We conclude by discussing implications for theory, policy and future research.

Keywords: Adolescents; neighborhood effects; education; cultural resource perspective; reference group theory; United Kingdom; ALSPAC

1. Introduction

Recent research calls attention to the divergent school and labor market trajectories in the transition to adulthood of Europe's youth (Brzinsky-Fay 2007; Buchmann and Kriesi 2011; Buchmann and Solga 2016; Schoon and Lyons-Amos 2016). Meanwhile, across the Atlantic, researchers are making great advances in describing the (long-lasting) consequences of poverty for adolescent development (Alvarado 2016; Chetty et al. 2014; Duncan and Murnane 2011; Hicks et al. 2018; Shonkoff and Phillips 2000). Combining these two processes, in this paper we study the impact of childhood environment on adolescents' academic performance and their expectations and aspirations. Shedding a new light on a classic concern in the sociology of stratification, we ask: how are adolescents' aspirations, expectations, and school performance shaped by the combined socioeconomic contexts of their family, school and neighborhood life?

Theoretically, social contexts provide children with cultural resources that may foster their ambitions. Such is the case when young people find themselves in a supporting family environment where their talents are nourished and skills developed, and which cultivate positive expectations of their future. Lareau's research empirically describes how this is true for (upper) middle class children in the US context, whereas precisely this kind of support may be absent in working class and poor families (Lareau 2011). The theoretical focus on cultural resources has been extended to the broader context of childhood, highlighting the importance of school and neighborhood environments (Lareau and Goyette 2014; Owens 2016). Research in the US and Europe alike describes how adolescents' school performance and views of their future are (positively) shaped by social networks in schools and neighborhoods, the availability of positive role models, and negatively impacted by violence and other sources of stress and anxiety (Chetty, Hendren, and Katz 2016; Kling, Hendren, and Katz 2005; Nieuwenhuis and Hooimeijer 2016; Paulle 2013).

A competing theoretical perspective instead highlights how seemingly positive settings may depress educational performance as well as aspirations and expectations of the future. Reference group theory posits that children's views of self is based on comparison processes and is inextricably linked to their reference group (Merton 1949; Stouffer 1949). As such, young people who find themselves surrounded by high-achieving peers may come to think of their own competencies and potential in much more negative light than those whose social networks are more diverse—or those who positively stand out amidst low-achieving peers. These processes, and their implications, have been powerfully described by studies in education (Chmielewski, Dumont, and Trautwein 2013; Destin et al. 2012; Thijs, Verkuyten, and Helmond 2010), and have informed research on neighborhood settings, where studies find higher occurrence of internalizing problem behavior in more affluent environments (Karraker 2014; Merolla 2017; Nieuwenhuis et al. 2017; Singh-Manoux, Adler and Marmot 2003).

This paper empirically explores these competing claims drawing on the school and neighborhood trajectories of 7,934 British children followed from birth to adolescence who participated in the Avon Longitudinal Study of Parents and Children (ALSPAC). We draw on a subsample of the data to also study aspiration and expectations for 3,208 adolescents who were surveyed in more detail. Our research aims to make three contributions to the literature. First, rather than assume that aspirations and school performance are related, we directly assess both. Second, we expand on existing research by describing adolescents' school performance and future outlook at the intersection of three kinds of context (family, school and neighborhood). Third, we take a longitudinal perspective to consider the impact of adolescents' childhood context as they look ahead. In what follows, we discuss the empirical and theoretical background in order to conceptualize two alternative sets of expectations for how context impacts adolescents' views of future. We then present our data and methodological strategy for testing these expectations, before presenting our findings. We conclude by discussing implications for research, theory and practice.

2. Theoretical background

Studying the impact of trajectories and institutions must start from a systematic framework of the kind of settings adolescents are exposed to in this formative stage of their social and cognitive development. Prior research has established the importance of three institutions in this respect: family, neighborhoods and schools. Whereas one family, neighborhood or school is different from the next in myriad ways, most scholars agree that the socioeconomic dimension is of most consequence (Bronfenbrenner 1979; Duncan and Murnane 2011; Lareau 2011; Shonkoff and Phillips 2000). Specifically, in looking at the role of family, school and neighborhood in adolescent development, we must look at the socioeconomic resources (education and income) available to adolescents, from their family and through peers in their neighborhoods and schools. In addition to considering the availability of socioeconomic resources, we can think of neighborhoods and schools as generally characterized by low or high socioeconomic status (SES). The socioeconomic composition of neighborhoods and schools, in other words, determines both the availability of resources to adolescents, growing up, and the extent to which they are exposed to people who are similarly positioned—or not. It is the combination of these dimensions that marks a person's experiences, and their vantage point on the social world. Table 1 schematically describes the possible combinations of socioeconomic resources available to adolescents from their family and through peers and adults in their neighborhoods and schools. We apply this framework to assess competing hypotheses derived from the cultural resource perspective and reference group theory, respectively.

Table 1. *Configuration of adolescents' family, school and neighborhood environment*

	School		
Neighborhood	*Low*	*High*	Family
Low	1	2	*Low*
High	3	4	*Low*
Low	5	6	*High*
High	7	8	*High*

For instance, compare an adolescent growing up in a low SES family and neighborhood attending a low SES school (scenario 1) with her neighborhood friend from a similarly low SES family who attends a high SES school (scenario 2): how do these two friends' different school experiences inform their view of self and society—and how do they make sense of the fact that they are going to different schools in the first place? Or consider a young person growing up in a socioeconomically privileged family, living in a high SES neighborhood and attending a low SES school (scenario 7). How does this students' privileged background impact her interactions with classmates from low SES backgrounds? What do her classmates see, think and feel when they hang out after school in the high SES neighborhood?

Cultural reproduction theory posits that one path through which status is reproduced across generations is by the resources parents provide their children (Bourdieu and Passeron 1977; Lamont and Lareau 1988). In what is arguably the most empirically-grounded study in this theoretical tradition, Lareau (2011) distinguishes between middle-class and working-class modes of childrearing. The two modes of childrearing, she shows, lead to differences in skills, attitudes, and orientation. The result of these modes of childrearing are that working class children tend to develop a sense of constraint regarding their future, whereas middle-class children develop a sense of entitlement. These differences in aspirations and (realistic) expectations are exacerbated by the fact that middle-class children and their parents often seek and receive special attention and treatment from teachers and school administrations (Calarco 2014, 2018; Lareau, Evans, and Yee 2016); and by the fact that working-class and middle-class children are likely to attend schools and live in neighborhoods where they are surrounded by similarly-minded children (Fiel 2015; Lareau and Goyette 2014; Owens 2016). Based on this perspective we can represent the hypothesized academic performance, aspirations and expectations by social class, neighborhood and school as follows (where "-" indicates lower and "+" indicates higher levels of academic performance, aspirations and expectations): where resources are lowest, students perform worst, and expect and aspire to little; but when resources are abundant, students will aim high, expect much and perform well in school (Table 2).

Table 2. *Predicted academic performance, aspirations and expectations from cultural resource perspective*

	School		
Neighborhood	*Low*	*High*	Family
Low	- - -	- -	*Low*
High	- -	-	*Low*
Low	+	+ +	*High*
High	+ +	+ + +	*High*

An alternative perspective, going back to reference group theory (Merton 1949; Stouffer 1949), emphasizes the importance of reference groups and comparison processes in the development of aspirations and expectations (Marsh 1987; Marsh and Hau 2003). Focusing primarily on schools, the big-fish-little-pond hypothesis posits that children's self-concept, academically and more broadly, depends on who they compare themselves to. The implication is that children who previously thought of their academic abilities and potential in favorable terms may develop a less favorable self-concept when they find themselves in a new environment with more high-performing peers. Similarly, children's self-concept is expected to grow more positive when their peers seem less talented than they are. Research describes such processes in schools for children in early-adolescence (Thijs et al. 2010) and adolescence (Chmielewski et al. 2013). In neighborhoods, these processes have mainly been studied with internalizing problem behavior outcomes such as anxiety and depression, however, the evidence points into the same direction (Kessler et al. 2014; Lund and Dearing 2012; Nieuwenhuis et al. 2017). These studies lead us to suspect that the big-fish-little-pond hypothesis can also apply to the neighborhood level. This perspective informs an alternative set of hypotheses which are schematically represented in the table below: when children from lower socio-economic backgrounds find themselves a minority in affluent schools and neighborhoods, their academic performance, aspirations and expectations suffer; conversely, when children from affluent backgrounds find themselves in settings where they positively stand out, we would expect a boost in performance, aspirations and expectations (Table 3).

Table 3. *Predicted academic performance, aspirations and expectations from reference group theory*

	School		
Neighborhood	*Low*	*High*	Family
Low	-	--	*Low*
High	--	---	*Low*
Low	+++	++	*High*
High	++	+	*High*

3. Methodology

3.1. Data

To test these hypotheses and describe the relative importance of family, school and neighborhood context, we draw on British panel data from the ongoing Avon Longitudinal Study of Parents and Children (ALSPAC). The study recruited 14,541 pregnant women in the county of Avon, UK, who were expecting to give birth between April 1st, 1991, and December 31st, 1992. An additional enrolment included 713 more children. The total sample consisted of 15,458 fetuses, of which 14,701 were alive at age one (Boyd et al., 2013; Fraser et al., 2013). We obtain educational test results and aggregated neighborhood and school information by linking ALSPAC data on children's school and neighborhood histories to national databases, such as the Annual School Census and the National Pupil Database. Our analysis of academic performance is based on a sample of 7,934 adolescents for whom both residential and educational information was available. We additionally study the subset of 3,208 adolescents who participated in a questionnaire administered in school year 11 (age 15/16), for whom detailed information is available regarding their aspirations and expectations for the future. Please note that the study website contains details of all the data that is available through a fully searchable data dictionary at <http://www.bris.ac.uk/alspac/researchers/data-access/data-dictionary/>.

3.2. Dependent variables

Our attitudinal variables are based on a block of questions posed to students in spring before their final year of high school (age 15/16), after which they take their final exam, the results of which determine whether or not they qualify for higher education. We measure aspirations as adolescents' response, on 4-point scale ranging from "Not at all important" to "Very important", to the question how important it is for them to get results that would qualify them for higher education (5 GCSEs at C or above). We measure expectations as their assessment of how likely they believe they will qualify, on a 4-point scale from "Not at all likely" to "Very likely". Because both variables are skewed towards "very important" or "likely", we dichotomize the variables to "very important" or "likely" vs. the other responses. Our third variable we derive from a simple subtraction, indicating the extent to which students' expectations meet or fall short of their aspirations.

Academic performance was measured as students' math results from the Key Stage three (age 13/14) and four test (age 15/16), the latter was administered in the same year as our attitudinal variables were measured. The results were obtained from the National Pupil Database. Because the results of the two test were measured on a different scale, we used the proportion of maximum scaling (POMS; Little 2013) to transform the scales to a measure that is comparable between the two time-points, which retains the rank-order of individuals, and avoids measuring mean-level changes.

The transformation was obtained as follows: POMS = (observed – minimum) / (maximum – minimum) (cf. Moeller 2015).

3.3.   Independent variables

Neighborhood deprivation was measured by using the government issued Indices of Multiple Deprivation (IMD) for the neighborhoods in which youth lived when they were aged 10/11 and 13/14 (Khattab et al. 2012; Payne and Abel 2012). We use these two ages for comparability with our measure for school poverty (see below), because these ages correspond to the timing of Key Stage tests two and three, and therefore with the timing of available measures for school poverty. We did not use contextual poverty at Key Stage four (age 15/16), because we wanted to lag the poverty variables with one period. The IMD consists of the following characteristics: income; employment; health and disability; education, skills and training; barriers to housing and services; living environment; and crime. The IMD comes in deciles, ranging from the 1st (least deprived) to the 10th (most deprived).

School poverty was measured as the proportion of children eligible for school meals, which is a commonly used proxy (Gorard 2012). This measure was available from the Annual School Census at the time individuals were taking Key Stage tests two and three, corresponding to ages 10/11 and 13/14, respectively.

Parental education was measured as the highest achieved education of one of the parents, as assessed at 32 weeks into gestation. Education was measured in five ordinal categories: 1) Lowest: Certificate of Secondary Education (CSE) or General Certificate of Secondary Education (GCSE) levels D, E, F, or G; 2) Low: Vocational education; 3) Middle: Ordinary Level (O Level) or GCSE levels A, B, or C; 4) High: Advanced Level (A Level); and 5) Highest: University degree.

Academic ability of the adolescents was measured as the score on the Key Stage one test, taken at age seven. The test result is a comprehensive summary score, comprising of English, math, and science.

Control variables for the longitudinal analyses include the measurement period (age 10/11, 13/14, or 15/16), and whether adolescents moved between the three measurement periods. Table 4 gives the sample descriptives.

Table 4. Sample descriptives

Variable	N	Mean / Prop.	SD	Min.	Max.
Academic performance	12,709	.55	.17	0	1
Aspirations	3,208	.83	.37	0	1
Expectations	3,038	.56	.50	0	1
Mismatched expectations	3,030	.37	.48	0	1
Neighborhood deprivation	12,709	4.70	2.89	1	10
School poverty	12,709	10.15	8.47	0	100
Parental education					
- Lowest (CSE)	12,709	.15			
- Low (Vocational)	12,709	.08			
- Middle (O Level)	12,709	.31			
- High (A Level)	12,709	.32			
- Highest (Degree)	12,709	.14			
Academic ability	12,709	9.35	3.61	0	15
Moved neighborhoods	12,709	.11		0	1

Note. Source: ALSPAC.

3.4.   Analytical approach

Our analyses are designed to estimate both (1) the association between neighborhood, school and family context and a set of dependent variables, and (2) the association between change in neighborhood and school context and our dependent variables. In other words, we are interested in estimating what part of the variation in our dependent variables can be attributed to between-person (cross-sectional) variation, and what part reflects within-person (over-time) variation. To do so, we estimate random-effect regression models of the form

$$Y_{it} = \beta_1 \, \text{Family}_i + \beta_2 \, \text{Neighborhood}_{it-1} + \beta_3 \, \text{School}_{it-1} + \beta \, Z_i + \alpha_i + u_t + \varepsilon_{it},$$

where Y_{it} is the dependent variable (aspirations, expectations or academic performance) for person i at time t, β_1 is a coefficient for the time-invariant independent variable Family, β_2 is a coefficient for the time-varying independent variable Neighborhood, and β_3 is a coefficient for the time-varying independent variable School. Both β_2 and β_3 were lagged by one period. β is a vector of coefficients for a vector of time-constant control variables Z, α_i is the person-specific intercept, u_t is a time-specific intercept, and ε_{it} is the error term.

An important challenge to estimating the effect of context on aspirations, expectations and academic performance is the fact that adolescents are not randomly distributed across neighborhoods and schools. Part of the association between our context variables and our dependent variables likely reflects a treatment effect of the former,

whereas another part of the association is indicative rather of a selection effect whereby some children are more likely than others to find themselves in affluent schools and neighborhoods (Zangger 2018).

To describe this selection effect, we estimate, for each dependent variable, a regression model with and one without a control variable indicating that person's academic ability (as part of the vector Z_i). If the association between school and neighborhood context, on the one side, and academic performance, aspirations and expectations, on the other, is fully reflective of the treatment effect of context, the two models should produce the same results. If results are different, that part of the estimated association that is reduced by including the control variable gives an estimate of the selection effect whereby past school performance may steer students to more affluent schools in more affluent neighborhoods.

We also specify a model where Z_i includes a dummy for whether a person has changed neighborhood, to control for the effect of moving neighborhoods. Doing so allows us to identify the association between our contextual independent variables and our dependent variables of interest, net of the possible positive or negative impact of moving neighborhoods.

In addition to estimating linear effects, we constructed eight categories corresponding to the possible combinations of family background, neighborhood deprivation, and school poverty, to directly address our hypotheses about the cultural resource perspective and reference group theory. In these analyses, we look only at individuals who were exposed to either high or low SES in the three contexts, measured at age 13/14 (i.e., one period before our dependent variables were measured at age 15/16). 'High' and 'low' were defined, respectively, as: 1) parents have A-Level or higher education vs. vocational education or lower; 2) neighborhood is in the three least deprived deciles vs. in the three most deprived; and 3) school has 33 percent or fewer students eligible for free school meals vs. 66 percent or more. Making all possible combinations between these three dimensions yields the eight scenarios described in Table 1. We estimate effects and calculate predicted probabilities based on logistic regression models for aspiration (N=1,764), expectations (N=1,679), and mismatch (N=1,674), with the eight categories as independent variables, once without and once with the control for academic ability.

Table 5. Random-effects models predicting academic performance

|	Model 1 Coef. (SE)	Model 2 Coef. (SE)	Model 3 Coef. (SE)
Neighborhood deprivation (lagged)	-.04 (.00)***	-.04 (.00)***	-.03 (.00)***
Neighborhood depriv. × parental education			
× Lowest (CSE)	ref.	ref.	ref.
× Low (vocational)	.02 (.01)*	.02 (.01)*	.02 (.01)*
× Middle (O Level)	.01 (.01)*	.01 (.01)*	.01 (.01)
× High (A Level)	.02 (.01)**	.02 (.01)**	.02 (.01)**
× Highest (Degree)	.01 (.01)	.00 (.01)	.01 (.01)
School poverty (lagged)	.00 (.00)	.00 (.00)	.01 (.00)
School poverty × parental education			
× Lowest (CSE)	ref.	ref.	ref.
× Low (vocational)	-.01 (.01)*	-.01 (.01)*	-.01 (.01)*
× Middle (O Level)	-.01 (.00)	-.01 (.00)	-.01 (.00)*
× High (A Level)	-.02 (.00)***	-.02 (.00)***	-.02 (.00)***
× Highest (Degree)	-.02 (.01)**	-.02 (.01)**	-.02 (.01)**
Parental education			
× Lowest (CSE)	ref.	ref.	ref.
× Low (vocational)	.02 (.01)*	.02 (.01)*	.01 (.01)
× Middle (O Level)	.05 (.01)***	.05 (.01)***	.02 (.00)***
× High (A Level)	.08 (.01)***	.08 (.01)***	.04 (.00)***
× Highest (Degree)	.15 (.01)***	.15 (.01)***	.08 (.01)***
Moved		.00 (.00)	.00 (.00)
Academic ability (age 7)			.08 (.00)***
Intercept	.48 (.00)***	.48 (.00)***	.51 (.00)***
Wald chi2 (df)	1717.65 (15)***	1718.04 (16)***	4945.45 (17)***
R2 (within)	.0000	.0000	.0004
R2 (between)	.1775	.1776	.3715
R2 (overall)	.1570	.1570	.3327

Note. Reported coefficients for neighborhood deprivation, school poverty and prior academic performance are standardized. Not reported but included in the models is a control for measurement period. * p<.05; ** p<.01; *** p<.001. N = 12,709. Source: ALSPAC.

4. Findings

4.1. Social context and academic performance

Looking first at neighborhood context (Table 5), we find that neighborhood deprivation is negatively associated with academic performance. The effect is largest for adolescents from the lowest educated parents, but only about half as strong for children of parents with a middle-level education (Figure 1). We do not find a significant interaction for adolescents with the highest educated parents, but the interaction term is positive nonetheless, suggestive of a weaker association. Including a dummy for whether or not the adolescent's family moved does not change the results. Taking into account the students' prior academic record does not either. In sum, for adolescents from low-educated parents, a one decile improvement in neighborhood context positively affects their school performance, by about 0.14 standard-deviation units (SD), net of moving to a better neighborhood. The findings are in line with the cultural resource perspective, and suggest that children from more highly-educated parents have means of protecting against the potentially detrimental effects of neighborhood poverty.

Figure 1. Adolescents' academic performance (math scores) by neighborhood deprivation and parents' educational background
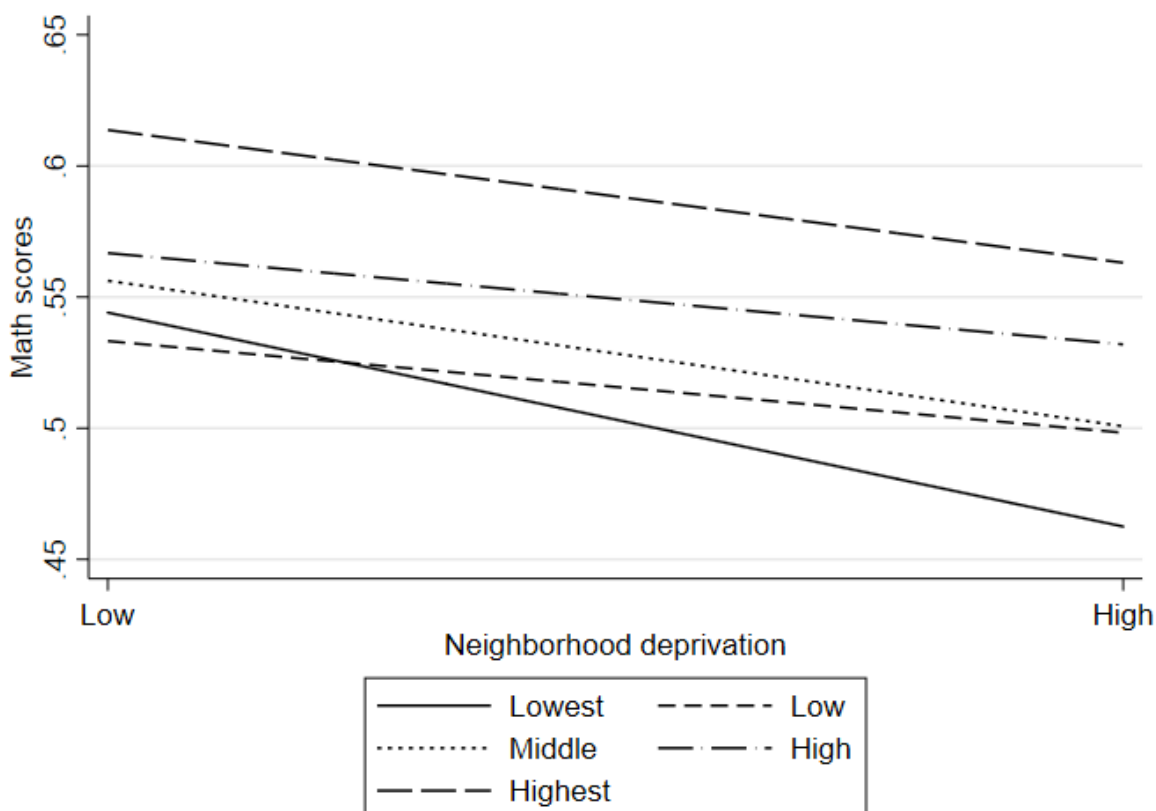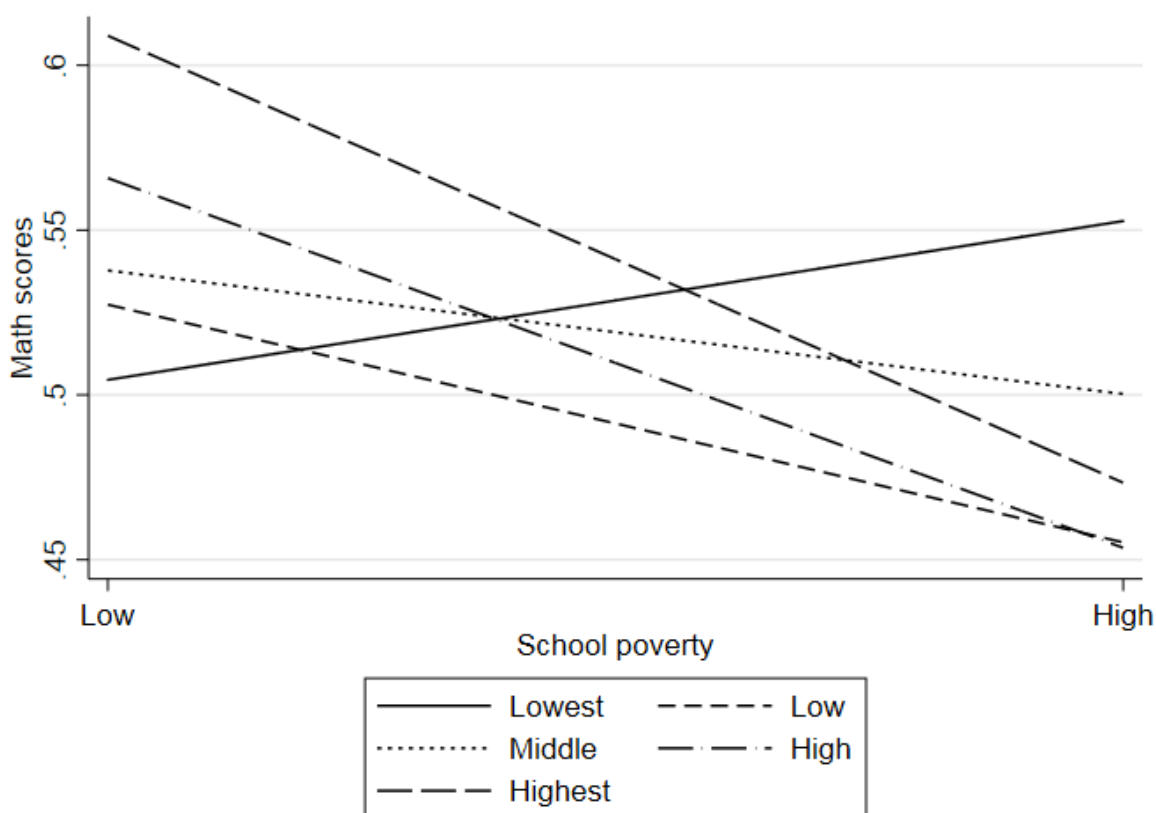

Note. Graphed are predicted probabilities calculated from the regression results reported in Table 5, Model 3. Source: ALSPAC.

Turning to school context, we find that school poverty is negatively related to academic performance for children of higher educated parents, but not for children of the lowest educated parents (Figure 2). Including a dummy for whether or not the adolescent's family moved, did not change this pattern. Findings are robust also when taking into account academic ability to control for selection effects. In sum, we find a positive relationship between school performance and school affluence, but with an important interaction effect by social background: students from highly-educated parents are especially impacted by school poverty; a ten percentage-point change in school poverty relates to a 0.20 SD change in school performance. The school records of students from the lowest educated parents however are unaffected by changes in school affluence or poverty. In other words, whereas highly educated parents manage to insulate their children, at least academically, against the potentially detrimental effects of neighborhood context, they are unable to do so with regard to school context. In short, school context matters especially for children of highly-educated parents, whereas neighborhood context matters most for children of low-educated parents.

In the next section we evaluate whether these patterns hold with regard to adolescents' aspirations and expectations.

Figure 2. Adolescents' academic performance (math scores) by school poverty and parents' educational background

Note. Graphed are predicted probabilities calculated from the regression results reported in Table 5, Model 3. Source: ALSPAC.

4.2. Social context and adolescents' views of their future

4.2.1. Adolescents' aspirations

In Table 6, we describe adolescents' aspirations as the proportion of respondents who think it is "very important" to qualify for higher education for each combination of family, school and neighborhood affluence (low or high), based on the regression results reported in Table 9 and discussed in more detail in the next section. Overall, we find that the empirical pattern in adolescents' aspirations follows the cultural resource perspective: higher family, school and neighborhood SES generally go together with higher aspirations. Over 90 percent of children who grew up in universally affluent settings aspire to go to university, as compared to an estimated 69 percent of children growing up in universally poor settings; a difference of 21 percent.

Looking at the childhood neighborhood and school context of adolescents in affluent families, we find a similar pattern, where those who grew up in poor neighborhoods and schools come to hold lower aspirations by about 9 percentage points. There is a 5 percentage point difference, comparing adolescents who spent their childhood in poor neighborhoods with those in affluent neighborhoods, holding constant their school and family context. Interestingly, there is no difference between adolescents who attended an affluent or poor school for students in otherwise affluent settings.

Table 6. Adolescents' aspiration to attend university

	School		
Neighborhood	*Low*	*High*	Family
Low	.69 (.82)	.58 (.69)	*Low*
High	.69 (.80)	.80 (.85)	*Low*
Low	.81 (.85)	.85	*High*
High	.90 (.89)	.90	*High*

Note. Listed is the proportion of adolescents, in each category, who aspires to attend university. Included in parentheses is the corresponding value, net of adolescents' academic ability, in cases where the two are different. "Low" indicates lower and "high" indicates higher socio-economic background. N = 1,764. Source: ALSPAC.

For adolescents from low-educated families, we find confirmation that context matters in the fact that adolescents who grew up in affluent neighborhoods and attended affluent schools come to hold aspirations about as high as their peers from affluent backgrounds. Eighty and 85 percent, respectively, aspires to go to university. The gap, in aspirational terms, opens up however for adolescents from poor families who grew up in poor school or neighborhood contexts, only 69 and 58 percent of whom aspire to go to university. The level of aspirations of the latter group of adolescents from low-SES backgrounds who attended affluent schools is markedly lower than that of young people in universally poor settings—by 11 percentage points. It is a full 32 points lower

than adolescents in universally affluent contexts. Whereas the overall pattern follows the expectations of the cultural resource perspective, this last finding suggests that reference group processes may depress the aspirations of particular groups of youth within these contexts.

Statistically controlling for academic ability reaffirms the close link between family background and educational aspirations, but the differences decrease in size. Taking into account adolescents' academic ability, the large aspirational gap between students in universally affluent context and those who attended affluent schools but came from poor families and neighborhoods closes by more than 10 points—or 33 percent. The gap between students from rich and poor families who spent their childhood in comparable school and neighborhood context similarly decreases by 11 and 13 points, respectively. Net of academic ability, adolescents from low-SES families who grew up in affluent neighborhoods and attended affluent schools hold aspirations as high as those of their peers from high-SES backgrounds who lived in poor neighborhoods or attended poor schools.

4.2.2. Adolescents' expectations

We now turn to consider the role of context in shaping adolescents' expectations of their educational future, measured as the proportion who expects they are "very likely" to go to university (Table 7). If aspirations are statements of hope, expectations reflect adolescents' realistic assessments of what they think they will achieve (Buchmann and Park 2009). In what follows we explore whether the latter are similarly or differently impacted by the social context of childhood.

Table 7. Adolescents' expectation to attend university

	School		
Neighborhood	*Low*	*High*	Family
Low	.23 (.36)	.40 (.49)	*Low*
High	.30 (.44)	.34 (.39)	*Low*
Low	.56 (.62)	.69 (.69)	*High*
High	.76 (.76)	.71 (.69)	*High*

Note. Listed is the proportion of adolescents, in each category, who expects to attend university. Included in parentheses is the corresponding value, net of adolescents' academic ability, in cases where the two are different. "Low" indicates lower and "high" indicates higher socio-economic background. N = 1,679. Source: ALSPAC.

Like with adolescents' aspirations, looking at their expectations we find a pattern that is broadly in line with the cultural resource perspective, but more pronouncedly so:

those in universally affluent environments have greater expectations than those who grew up in poor environments, by as much as 49 percent. Whereas 71 percent of the former expects to go to university, only 23 percent of the latter does. Importantly, the largest part of this difference holds when we control for academic ability (33 of 49 point), meaning that only about a third of the association we observe is indicative of a selection effect. In short, we find that equally talented students growing up in different social settings hold dramatically different expectations for their educational future.

A large part of these differences in expectations can be attributed to family background; the difference between adolescents from affluent and poor families in otherwise similarly affluent environments is 37 percentage points (.71 – .34); the corresponding difference between students from high and low family backgrounds in otherwise poor environments is 33 percentage points (.56 – .23). In fact, whereas we found only a small difference in aspirations when comparing adolescents from lower backgrounds to those from more privileged backgrounds when both attended affluent schools and lived in affluent neighborhoods, the corresponding gap in expectations is twice that size—22 percentage points. Evidently, expectations are more strongly conditioned by family context than are aspirations.

For young people in highly-educated families, the joint impact of low SES school and neighborhood context is about 15 percentage points (.71 – .56). However, adolescents who either attended a poor school or lived in a poor neighborhood, but were otherwise surrounded by affluent peers, do not seem to suffer: the latter's expectations are virtually identical to their peers in universally affluent environments (.69 as compared to .71) whereas students who attended poor schools actually hold higher expectations than their peers in affluent schools (.76 as compared to .71). In other words, students from affluent backgrounds who attended high poverty schools hold slightly higher expectations than their peers at more affluent schools, who grew up in similarly affluent neighborhoods, and markedly higher expectations than their peers at more affluent schools who lived in poor neighborhoods.

For adolescents from low-educated parents, we find that those in universally poor environments have the lowest expectations for their future education. Adolescents from low-SES backgrounds who grew up in affluent neighborhoods and/or attended affluent schools hold higher expectations. Note that the combination of affluent school and neighborhood makes for lower expectations than is true for students who attended an affluent school (but lived in a poor neighborhood): about 34 percent of the former expects to go to university as compared to 40 percent of the latter. This finding mirrors what we observed for the aspirations of adolescents from low-SES backgrounds: mixed social contexts may give rise to comparison processes. Here, the comparison with their neighborhood friends attending high poverty schools may be what bolsters these young people's educational expectations.

Table 8. Adolescents' hoping for university, but not expecting it to happen

	School		
Neighborhood	*Low*	*High*	Family
Low	.62 (.47)	.40 (.31)	*Low*
High	.53 (.38)	.57 (.51)	*Low*
Low	.38 (.33)	.27	*High*
High	.19	.25 (.26)	*High*

Note. Listed is the proportion of adolescents, in each category, whose expectations to attend university do not meet their aspirations. Included in parentheses is the corresponding value, net of adolescents' academic ability, in cases where the two are different. "Low" indicates lower and "high" indicates higher socio-economic background. N = 1,674. Source: ALSPAC.

When we hold up adolescents' aspirations against their realistic expectations (Table 8), we find that those from affluent backgrounds set higher aims and are more confident of attaining their goals than students from low-education backgrounds: whereas three quarters of adolescents in universally affluent settings hold aspirations matching their expectations, only 38 percent of young people in fully low-SES settings do (1 – .62). As discussed in the preceding, a large part of these differences can be attributed to family background, but the gap slinks when comparing adolescents from affluent backgrounds in poor schools and neighborhoods to those from poor backgrounds in affluent school and neighborhood settings, 0.38 of whom have mismatched expectations as compared to 0.57.

Two exceptions stand out, both indicative of comparison processes in line with reference group theory. First, students in affluent families who attended high poverty schools are more confident of attaining their aspirations (81 percent) than their neighborhood friends at more affluent schools (75 percent). These results are unaffected by academic ability. Second, students from low-educated families who attended affluent schools, but lived in poor neighborhoods, are more likely to have matching expectations (60 percent) than their classmates from similar backgrounds who lived in affluent neighborhoods (43 percent) as well as their neighborhood friends who attended poor schools (38 percent). Controlling for academic ability increases the expectation gap between students from low-SES backgrounds who came from affluent schools or neighborhoods, on one side, and those who were a minority in both their school and neighborhoods, on the other: some 62 and 69 percent of the former have matched expectations, compared to only 49 percent of the latter.

Table 9. Logistic regression models for aspirations, expectations, and mismatch at age 16

	Aspirations Coef (s.e.)		Expectations Coef (s.e.)		Mismatched expectations Coef (s.e.)	
Intercept	2.42 (.11)***	.05 (.20)	1.24 (.08)***	-1.97 (.18)***	-1.36 (.08)***	1.10 (.17)***
Neighborhood deprivation (lagged)	-.06 (.02)**	-.04 (.02)	-.06 (.02)***	-.05 (.02)*	.04 (.02)*	.03 (.02)
School poverty (lagged)	-.01 (.01)*	-.01 (.01)	-.01 (.01)	.00 (.01)	.01 (.01)	-.00 (.01)
Low parental education (dummy)	-.26 (.04)***	-.13 (.04)***	-.47 (.04)***	-.36 (.04)***	.41 (.04)***	.30 (.04)***
Academic ability (age 7)		.21 (.02)***		.28 (.01)***		-.21 (.01)***
Pseudo R^2	.03	.10	.06	.17	.05	.11
N	3,208	3,208	3,038	3,038	3,030	3,030

Note. * p<.05; ** p<.01; *** p<.001. Source: ALSPAC.

4.2.3. Relative importance of contexts for adolescents' aspirations and expectations

In the preceding analysis we examined how the combined childhood context of family, school, and neighborhood affected adolescents' aspirations and expectations. To get a more precise view of the relative importance of these different contexts, we here report results from logistic regression models predicting adolescents' aspirations, expectations, and mismatched expectations (Table 9). We find that neighborhood poverty has a moderate-size negative effect on aspirations and expectations, and a positive effect on mismatched expectations, net of other contextual variables. However, after controlling for academic ability, only the effect on expectations remains statistically significant (p < .05). School poverty has a small and negative effect on aspirations, which is rendered non-significant by controlling for academic ability. Family background has a very large and significant effect on all three outcomes, net of the other contextual variables. These effects hold when controlling for academic ability, but the estimated effect size is reduced by about 50 percent, for aspirations, and about 25 percent, for expectations. This reflects a selection process whereby adolescents with high academic ability are more likely to attend affluent schools and live in affluent neighborhoods than their peers with lower academic ability.

5. Conclusions

In summary, we find a strong pattern of association between the social context of childhood and adolescents' educational hopes and realistic expectations. Ninety percent of young people from privileged socio-economic backgrounds, who grew up in affluent neighborhoods and attended affluent school aspire to go to university, as

compared to 58 percent of adolescents from lower socioeconomic backgrounds who grew up in poverty. The gap in realistic expectations for their educational future is larger even: whereas 76 percent of the former expects to go to university, only 23 percent of the latter thinks they will make it there. Comparing aspirations and expectations confirms this pattern: a full 81 percent of the former thinks they can accomplish what they set their mind to, as compared to 38 percent of the latter.

In comparison to the strong impact of school and neighborhood context on aspirations and expectations, we find more modest effects on students' academic performance. We find a negative effect of childhood neighborhood poverty, which is strongest for adolescents from low-SES backgrounds. For these adolescents, a ten percentage-point improvement in neighborhood context would positively affect their school performance by about 0.14 standard-deviations. Children from high-SES families are much less affected by neighborhood poverty. In contrast, school poverty most affects these adolescents from high-SES backgrounds, whose academic performance would be 0.20 standard-deviations higher, were they to have attended a ten percentage-point more affluent school. In other words, whereas affluent families manage to insulate their children from the negative impact of neighborhood poverty, they are unable to do the same with regard to school poverty. In sum, school context matters most for the children of high-SES families, whereas neighborhood context matters most for children of low-SES families.

These findings come with two caveats. First, our robustness checks indicate that the neighborhood and school effects we describe are driven both by selection-effects and, to a lesser degree, by treatment-effects. Early academic ability is strongly associated with neighborhood and school context, which, in turn, impact adolescents' academic performance as well as their aspirations and expectations. Second, the patterns with regard to aspirations and expectations are especially pronounced for adolescents who fall in either the lowest or highest SES categories. For adolescents from families in the middle, family background is by far the most formative factor, not the school or neighborhood context.

With regard to the two theoretical perspectives that informed our study, the overall empirical pattern supports the expectations of the cultural resource perspective (cf. Lareau 2011; Lareau and Goyette 2014; Owens 2016). Adolescents who, by virtue of their family, school and neighborhood settings, had access to more socioeconomic resources tend to 1) do better in school, 2) hold higher educational aspirations, and 3) expect more from their future. These patterns decrease in size, but hold when we control for students' academic ability, indicating that adolescents' school performance, aspirations and expectations are driven both by a selection and treatment effect of family, school and neighborhood context.

However, looking more closely at the various configurations of neighborhood, school and family context, we also find evidence of reference group processes (cf. Destin et al. 2012; Thijs, Verkuyten, and Helmond 2010; Merolla 2017; Nieuwenhuis et al. 2017). Adolescents hold the lowest aspirations not when they are in universally poor

environments, but when they come from a low-SES background, grew up in a poor neighborhood, but attended an affluent school. These reference group processes are more pronounced when we consider students' realistic expectation to go to university. We find that expectations are highest for adolescents from high-SES families when they attended low-SES schools, and for students from low-SES backgrounds when they enrolled in affluent schools but lived in poor neighborhoods.

These statistical patterns hold after controlling for academic ability. In fact, we find the strongest mismatch between students' expectations and their aspirations, net of academic ability, among adolescents from low-SES backgrounds who attended affluent schools and lived in affluent neighborhoods: more than half of these students have educational aspirations that exceed their realistic expectations. In sum, based on our longitudinal sample of British adolescents we conclude that cultural resources trump reference group processes, but the latter have a meaningful negative impact on adolescents from low-SES background, while bolstering the educational expectations and aspirations of their peers from high-SES backgrounds.

These theoretical discussions have high stakes; while social scientists debate the issue, governments on both sides of the Atlantic are designing policy interventions. Government initiatives like Moving to Opportunities in the United States and a variety of similarly motivated policies and practices in European countries, such as the Netherlands, Germany, Sweden and Denmark set out from the premise that providing equality of opportunity requires intervening in children's neighborhood context and providing pathways to non-neighborhood schools (Andersson and Musterd 2005; Friedrichs et al. 2003).

Our findings give reason to temper expectations for such policy interventions, on two grounds. First, our study of British adolescents suggests that family is the driving force behind much of their educational performance, aspirations and expectations. Giving access to resources families cannot currently provide, e.g. through subsidized preschool and early education, may have a greater impact than interventions in neighborhood context. Second, helping children from poor backgrounds move to affluent neighborhoods and schools may also depress their educational aspirations and expectations through negative reference group processes.

By describing the impact of different contexts of poverty on adolescents' future trajectories we hope to contribute to better informed policymaking and help identify how best to design interventions. Open questions for future research include: at what developmental stage are children most affected by the availability or absence of cultural resources in their family, neighborhood and schools (cf. Hicks et al. 2018), and how are they best protected from (negative) reference group processes?

In conclusion, it bears emphasis that context impacts adolescents' futures by shaping their dreams and realistic expectations for the future, over and beyond their academic performance. Based on their different outlook, similarly performing students may take dramatically different decisions about their future education and employment. Half of the story is lost when we exclusively focus on academic performance.

References

Alvarado, Steven Elías. 2016. "Delayed Disadvantage: Neighborhood Context and Child Development." *Social Forces* 94(4):1847–77.

Andersson, Roger, and Sako Musterd. 2005. "Area-based Policies: A Critical Appraisal." *Tijdschrift voor Economische en Sociale Geografie* 96(4):377–389.

Bourdieu, Pierre, and Jean-Claude Passeron. 1977. *Reproduction in Education, Society and Culture*. Thousand Oaks, CA: Sage.

Boyd, Andy, Jean Golding, John Macleod, Debbie A. Lawlor, Abigail Fraser, John Henderson, Lynn Molloy, Andy Ness, Susan Ring, and George Davey Smith. 2013. "Cohort Profile: The 'Children of the 90s'; the Index Offspring of The Avon Longitudinal Study of Parents and Children (ALSPAC)." *International Journal of Epidemiology* 42:111–127.

Bronfenbrenner, Urie. 1979. *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.

Brzinsky-Fay, Christian. 2007. "Lost in Transition? Labour Market Entry Sequences of School Leavers in Europe." *European Sociological Review* 23(4):409–22.

Buchmann, Marlis C., and Irene Kriesi. 2011. "Transition to Adulthood in Europe." *Annual Review of Sociology* 37:481–503.

Buchmann, Claudia, and Hyunjoon Park. 2009. "Stratification and the Formation of Expectations in Highly Differentiated Educational Systems." *Research in Social Stratification and Mobility* 27(4):245–67.

Buchmann, Marlis C., and Heike Solga. 2016. "School-to-Work Transitions across Time and Place—Introduction and Summary." *Research in Social Stratification and Mobility* 46, Part A:1–2.

Calarco, Jessica McCrory. 2014. "Coached for the Classroom Parents' Cultural Transmission and Children's Reproduction of Educational Inequalities." *American Sociological Review* 79(5):1015–37.

Calarco, Jessica McCrory. 2018. *Negotiating Opportunities: How the Middle Class Secures Advantages in School*. New York: Oxford University Press.

Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz. 2016. "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment." *American Economic Review* 106(4):855–902.

Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. 2014. "Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." *The Quarterly Journal of Economics* 129(4):1553–1623.

Chmielewski, Anna K., Hanna Dumont, and Ulrich Trautwein. 2013. "Tracking Effects Depend on Tracking Type. An International Comparison of Students' Mathematics Self-Concept." *American Educational Research Journal* 50(5):925–57.

Destin, Mesmin, Scott Richman, Fatima Varner, and Jelani Mandara. 2012. "'Feeling' Hierarchy: The Pathway from Subjective Social Status to Achievement." *Journal of Adolescence* 35(6):1571–79.

Duncan, Greg J. and Richard J. Murnane. 2011. *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*. New York: Russell Sage Foundation.

Fiel, Jeremy. 2015. "Closing Ranks: Closure, Status Competition, and School Segregation." *American Journal of Sociology* 121(1):126–70.

Fraser, Abigail, Corrie Macdonald-Wallis, Kate Tilling, Andy Boyd, Jean Golding, George Davey Smith, John Henderson, John Macleod, Lynn Molloy, Andy Ness, Susan Ring, Scott M. Nelson, and Debbie A. Lawlor. 2013. "Cohort Profile: The Avon Longitudinal Study of Parents and Children: ALSPAC Mothers Cohort." *International Journal of Epidemiology* 42:97–110.

Friedrichs, Jurgen, George Galster, and Sako Musterd. 2003. "Neighbourhood Effects on Social Opportunities: The European and American Research and Policy Context." *Housing Studies* 18(6):797–806.

Gorard, Stephen. 2012. "Who is Eligible For Free School Meals? Characterising Free School Meals as a Measure of Disadvantage in England." *British Educational Research Journal* 38(6):1003–1017.

Karraker, Amelia. 2014. "'Feeling Poor': Perceived Economic Position and Environmental Mastery Among Older Americans." *Journal of Aging and Health* 26(3):474–94.

Hicks, Andrew L., Mark S. Handcock, Narayan Sastry, and Anne R. Pebley. 2018. "Sequential Neighborhood Effects: The Effect of Long-Term Exposure to Concentrated Disadvantage on Children's Reading and Math Test Scores." *Demography* 55(1):1–31.

Khattab, Nabil, Ron Johnston, Ibrahim Sirkeci, and Tariq Modood. 2012. "Returns on Education amongst Men in England and Wales: The Impact of Residential Segregation and Ethno-Religious Background." *Research in Social Stratification and Mobility* 30(3):296–309.

Kling, Jeffrey R., Nathaniel Hendren, and Lawrence F. Katz. 2005. "Neighborhood Effects on Crime for Female and Male Youth: Evidence from a Randomized Housing Voucher Experiment." *Quarterly Journal of Economics* 120(1):87–130.

Lamont, Michele and Annette Lareau. 1988. "Cultural Capital: Allusions, Gaps and Glissandos in Recent Theoretical Developments." *Sociological Theory* 6(2):153–68.

Lareau, Annette. 2011. *Unequal Childhoods: Class, Race, and Family Life* (Second Edition). Berkeley, CA: University of California Press.

Lareau, Annette, Shani Adia Evans, and April Yee. 2016. "The Rules of the Game and the Uncertain Transmission of Advantage Middle-Class Parents' Search for an Urban Kindergarten." *Sociology of Education* 89(4):279–99.

Lareau, Annette and Kimberly Goyette. 2014. *Choosing Homes, Choosing Schools*. New York: Russell Sage Foundation.

Little, Todd D. 2013. *Longitudinal Structural Equation Modelling*. New York, NY: The Guilford Press.

Marsh, Herbert W. 1987. "The Big-Fish-Little-Pond Effect on Academic Self-Concept." *Journal of Educational Psychology* 79(3):280–95.

Marsh, Herbert W. and Kit-Tai Hau. 2003. "Big-Fish--Little-Pond Effect on Academic Self-Concept: A Cross-Cultural (26-Country) Test of the Negative Effects of Academically Selective Schools." *American Psychologist* 58(5):364–76.

Merolla, David M. 2017. "Self-Efficacy and Academic Achievement: The Role of Neighborhood Cultural Context." *Sociological Perspectives* 60(2):378–93.

Moeller, Julia. 2015. "A Word on Standardization in Longitudinal Studies: Don't." *Frontiers in Psychology* 6:1389.

Nieuwenhuis, Jaap et al. 2017. "Being Poorer Than the Rest of the Neighborhood: Relative Deprivation and Problem Behavior of Youth." *Journal of Youth and Adolescence* 46(9):1891–1904.

Nieuwenhuis, Jaap and Pieter Hooimeijer. 2016. "The Association between Neighbourhoods and Educational Achievement, a Systematic Review and Meta-Analysis." *Journal of Housing and the Built Environment* 31(2):321–47.

Owens, Ann. 2016. "Inequality in Children's Contexts Income Segregation of Households with and without Children." *American Sociological Review* 81(3):549–74.

Paulle, Bowen. 2013. *Toxic Schools: High-Poverty Education in New York and Amsterdam*. Chicago, IL: University of Chicago Press.

Payne, Rupert A. and Gary A. Abel. 2012. "UK Indices of Multiple Deprivation - a Way to Make Comparisons across Constituent Countries Easier." Pp. 1–16 in *Health Statistics Quarterly 53*. London: Office for National Statistics.

Schoon, Ingrid and Mark Lyons-Amos. 2016. "Diverse Pathways in Becoming an Adult: The Role of Structure, Agency and Context." *Research in Social Stratification and Mobility* 46, Part A:11–20.

Shonkoff, Jack P., and Deborah A. Phillips (Eds). 2000. *From Neurons to Neighborhoods. The Science of Early Childhood Development.* Washington, D.C.: National Academy Press.

Singh-Manoux, Archana, Nancy E. Adler, and Michael G. Marmot. 2003. "Subjective Social Status: Its Determinants and Its Association with Measures of Ill-Health in the Whitehall II Study." *Social Science & Medicine* 56(6):1321–33

Stouffer, Samuel A. 1949. *The American Soldier: Combat and Its Aftermath*. Princeton, NJ: Princeton University Press.

Thijs, Jochem, Maykel Verkuyten, and Petra Helmond. 2010. "A Further Examination of the Big-Fish–Little-Pond Effect Perceived Position in Class, Class Size, and Gender Comparisons." *Sociology of Education* 83(4):333–45.

Zangger, Christoph. 2018. "Bringing Space into the Equation: Modelling the Social and Spatial Interdependence of Neighborhood Effects on Educational Outcomes." *Research in Social Stratification and Mobility* 55:63–74.