School Socioeconomic Status Context and Social Adjustment in Children

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Code for this paper is available from OSF: https://osf.io/q26ej. Data is available from the Australian Data Archive; https://dataverse.ada.edu.au/dataverse/ada?q=LSAC.

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Abstract

Social adjustment is critical to educational and occupational attainment. Yet little research has considered how the school’s socioeconomic context is associated with social adjustment. In a longitudinal sample of Australian 4 to 8-year-olds (N=9369; 51% Boys), we tested the association between school average socioeconomic status and social skills (parent and teacher reported). Models controlled for age 4 social adjustment and additional covariates. Results showed that children from more advantaged schools are more likely to have better prosocial behavior and fewer peer and conduct problems. An interaction between family and school average SES status suggested that this association was only present for children from lower SES backgrounds.

Keywords: social adjustment; assimilation effects; socioeconomic status; school context

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There is growing recognition across the social sciences of the critical impact schools have on children’s social development (e.g., Espelage et al., 2003; Espelage & Swearer, 2003; Hong & Espelage, 2012). And there is increasing acknowledgment that early social development is crucial to a child’s life chances (Bradley & Corwyn, 2002; Entwisle & Alexander, 1993; e.g., Heckman, 2006; Jones et al., 2015). Through contact with school staff, peers, and school culture, the school context presents children with hundreds of interactions that re-enforce what social behavior is acceptable and not acceptable (Akerlof & Kranton, 2010). Thus, schools as developmentally significant contexts represent a vector by which advantage and disadvantage in social skills may be imparted to young people (Leventhal & Brooks-Gunn, 2000).

The aim of our study was to explore how school average socioeconomic status (SES) is related to children’s social adjustment at age 8 controlling for family SES and social adjustment at age 4. That is, we aimed to discover whether school context is associated with change in social adjustment after children enter school. We also explored if the association of school average SES and social adjustment varied by family SES. In this way, we explored whether the influence of school context is potentially heterogeneous for children from different SES backgrounds.

Social Adjustment

Social adjustment is a child’s ability to adjust to the social demands of society and its institutions. Social adjustment reflects a child’s deployment of social skills to promote positive relationships with peers and teachers (Sette et al., 2018). In children, prosocial behavior is a particularly important aspect of social adjustment (Sette et al., 2018) as is relationships with peers and conduct/behavioral adjustment (Navarro et al., 2019). It is a potentially powerful explanation for SES gaps in educational and occupational attainment for young people from lower socioeconomic status backgrounds (Gutman & Schoon, 2013;
Jones et al., 2015). Children from lower socioeconomic backgrounds appear to enter school with poorer social adjustment than their peers from higher socioeconomic backgrounds. This has been shown in the US (Bradley & Corwyn, 2002), the UK (Jerrim & Sims, 2019), and in Australia (E. Davis et al., 2010).

Research on 5 year-old Australian children suggests that children of parents with a lower income (<$41k AUD) were 1.6 times more likely to have ‘potentially concerning’ (as defined by Youth in Mind, 2016) levels of conduct problems and 1.8 times more likely to have ‘potentially concerning’ levels of peer problems than children whose parents had higher income (>=$41k AUD) (E. Davis et al., 2010). Similar effect sizes were present when considering other measures of SES like parental education (E. Davis et al., 2010).

**SES and Social Adjustment**

Of the skills that employers are looking for when hiring candidates, social skills are some of the most desirable (Rios et al., 2020). Social adjustment also seems to be a viable target for intervention, with a meta-analysis showing that social and emotional learning programs have moderate effects on improving key social adjustment variables like conduct problems, social-emotional learning, and antisocial behavior (Durlak et al., 2011). Social adjustment also appears to be a worthwhile target from a societal perspective given its relationship to academic achievement (Corcoran et al., 2018) and its role in predicting adult employment, criminal activity, use of public assistance, substance abuse, and mental health (Jones et al., 2015).

As noted above, there is an association between a child’s social background and their level of social adjustment such that higher family SES is associated with greater social adjustment in children (e.g., Bradley & Corwyn, 2002). Strong evidence exists that the relationship between a child’s social background and important developmental outcomes are, at least in part, due to the differences in the contexts that children from different SES
backgrounds inhabit (Conger & Donnellan, 2007; Duncan et al., 2017, 2010). Of course, not all children from lower socioeconomic backgrounds will have worse social adjustment. Indeed, evidence from Elder (2018) and Davis and colleagues (2020) suggests that economic hardship can breed resilience, useful skills, and may promote some forms of prosociality. As we argue below, part of the reason for this may be that children inhabit multiple context where some contexts may exacerbate or protect children against the link between family SES background and critical outcomes. Schools are one of the most critical contexts that influence children’s development.

There are several theories that aim to explain how family socioeconomic status is related to outcomes like social adjustment in young children. For example, the social causation model argues that inequality in outcomes like social adjustment is due to less access to resources and the pressure this can place on parenting and development (Conger & Donnellan, 2007). This is consistent with well established economics traditions that emphasize inequality as a function of differences in resources that can be applied to development where resources include both tangible (e.g., money for access to prestigious schools) but also intangible resources like parental time and information (Becker, 1976). In contrast, sociological theories based on the work of Bourdieu, often emphasis cultural differences that result in differing parenting styles for the rich and the poor that emphasis the development of different skills in children. Importantly, from this perspective, it is not that one style is inherently better but that the rich tend to define what in society is rewarded and they tend to reward the skills that their parenting styles help to develop (Lareau, 2011). While these theories differ fundamentally in the mechanism linking SES and child outcomes, both emphasis the role of parental school choice in child development.

School as a Context for Social Adjustment

There has been increasing recognition of the role that context plays in the development of children’s social adjustment (Leventhal & Brooks-Gunn, 2000).
Bronfenbrenner’s (1981) socio-ecological model guides much research focused on the contributions of the family, neighborhood, and school contexts (Brooks-Gunn et al., 1997). We use Bronfenbrenner’s model as a basis for our research for two main reasons. First, in later developments of the model, Bronfenbrenner stressed the importance of time as a critical context (Bronfenbrenner, 1995). This highlights the range of things children bring with them as they enter school including their prior social adjustment, past experiences, and influences from other social contexts. This means research on the influence of school context must account for pre-existing differences. Second, Bronfenbrenner’s model highlights the role of the school as a significant influence on child development but that this context exists in interaction with other contextual spheres. That is, one child’s experience in a school may differ from that of another in the same school if they inhabit different contextual spheres outside of school and this can lead to differences in how their social adjustment manifests (Bronfenbrenner, 1995). This latter point suggests the need to expect that school contextual effects will not be the same for all children and thus to look for important moderators. Before exploring this, we note there are many ways that school context can influence a child’s development. Here, we focus on one such mechanism central to educational and developmental research: the influence of assimilation.

Identity economics is a theoretical model that argues that school context mainly influences children via assimilation mechanisms. That is, children conform their beliefs, behaviors, and attitudes toward that of the school they are in (Akerlof & Kranton, 2010). These assimilative effects are the most important contextual mechanism at play in social institutions like schools (Akerlof & Kranton, 2010). When applied to educational contexts, identity economics suggests that a school’s social context possesses a gravity that attracts students’ behavior toward the prototypical behavior of the school (Akerlof & Kranton, 2002). This gravity is both explicit (e.g., statements of school values) and implicit (e.g., unspoken assumptions about ‘the way things are done around here’) and includes the whole school environment including school staff, parents, students, and the school ethos (Akerlof &
Kranton, 2010). The assimilative power of the school comes from the literally thousands of
interactions that students have with the institution, teachers, and peers that are “indicative
of approval, disapproval, or indifference to various kinds of behavior” (Akerlof & Kranton,
2010, p. 62). The extensive work of Espelage and colleagues (Espelage et al., 2003; Espelage
& Swearer, 2003; Hong & Espelage, 2012) shows that social adjustment behaviors like
aggression are influenced by school context in an assimilative manner. Children’s SES
backgrounds are also positively associated with social adjustment (e.g., E. Davis et al., 2010).
It is therefore possible that school average SES will affect social adjustment.

Children’s SES backgrounds are positively associated with social adjustment such
that high family SES is related to greater social adjustment (Bradley & Corwyn, 2002; A.
Davis et al., 2020; de Laat et al., 2016; Entwisle & Alexander, 1993; Garratt et al., 2017;
Jerrim & Sims, 2019; McMunn et al., 2001; Rajmil et al., 2014; Washbrook & Waldfogel,
2011). In addition, children of similar levels of SES are often schooled together in Australia
(the context of our research) (Parker et al., 2019). Children from different SES backgrounds
tend to also differ in their social adjustment upon entering school (E. Davis et al., 2010).
Thus, schools that are stratified by SES are also stratified by social adjustment. Thus school
average SES can be considered a proxy for the social adjustment context of the school which
identity economics expects to be transferred to students.

There is little research on the influence of school context on social adjustment
(although we highlight the extensive literature on the influence of school context on other
variables below). The closest research to the current paper is based on selective schools in
the UK (Jerrim & Sims, 2019). Jerrim and Sims (2019) investigated differences in social
adjustment outcomes between children who lived in areas where there were “selective” and
“non-selective” schools. They also investigated differences in social adjustment scores between
children who attended higher-achieving (selective) and lower-achieving (non-selective)
schools. This is relevant to our work as high-achieving schools have a very particular social
context, with high-achieving, socio-economically advantaged intakes. In both cases Jerrim and Sims found that the “selection process has limited impact upon young people’s socioemotional outcomes” (p. 1769). However, Jerrim and colleagues estimated the influence of school context as having consistent influences on students regardless of their social backgrounds—something we explicitly test in this research.

Counter Mechanism

Although there is little research on the influence of school context on social adjustment, considerable research on depression has found evidence in favor of the assimilative influence of the school context (Coley et al., 2017, 2019; E. Goodman et al., 2003). In contrast, research on associated constructs like conscientiousness, self-control, self-worth, and grit has found evidence that students tend to contrast against the school context (West et al., 2016). This inconsistency in results is not surprising. Early theory (Jencks & Mayer, 1990) noted that not all mechanisms relating the school context to student outcomes are assimilative in nature. Empirical research has indeed highlighted the importance of so-call ‘frog-pond’ effects (also known as the big-fish-little-pond effects) on psychosocial variables like self-worth (Crosnoe, 2009). They note that the school context can lead to students evaluating themselves and their abilities and beliefs in relation to their relative position in their local school context rather than against a more global or objective standard; a mechanism sometimes referred to as relative deprivation. Such mechanisms are very common in educational psychology. Indeed, research in multiple countries and across time (e.g., Parker et al., 2021) has consistently shown that children’s academic self-concept is formed in part by contrasting their ability against that of the school context they are in.

West (2016) notes that such mechanisms are most likely present when the outcome of interest is self-reported and can thus cloud the ‘real’ impact of school context. In this study we do not use self-reported social adjustment. However, we use teacher reports and it is reasonable to assume that, when considering students social adjustment, teachers evaluate
their students’ social adjustment with reference to the other students they teach rather than to a global or objective standard. This could lead, for example, to a negative relationship between school average SES and social adjustment rather than the assimilative association we expect in this study. Thus, research should consider information from multiple distinct reports (e.g., parents and teachers). Exploring multiple reports of a child’s social adjustment is even more important when considering that different report sources have experience with the child in different circumstances and under different conditions. Consistency or otherwise in results across reports thus speaks to whether the influence of school context is a general process.

Do School Context Effects Differ by Family SES

Not only is there controversy in the literature as to the influence and direction of school context for social adjustment, early theory suggested that these relationships may not be the same for all children. In Jencks and Mayer’s (1990) classic papers, they argue that research on the social context effects of SES on educational outcomes needs to consider the possibility that school context effects are heterogeneous. Nevertheless, little current research since this paper has considered if the influence of school context on children may differ by the child’s own SES background. This is surprising as it is likely that school context influences vary in strength for children with different SES levels because those children inhabit different contexts outside of school. And these non-school contexts likely also influence social adjustment. Thus, the assimilative power of school contexts may not be evenly spread across the socioeconomic distribution.

This is an important consideration that has not been extensively tested, though differential assimilation across the SES gradient has been theorized (Gradstein & Justman, 2005). There is a good reason to hypothesize that school context is particularly important for poorer than richer children. Children from wealthier backgrounds will typically come from a context that is rich in the resources that promote socially valued behaviors and skills (Lucas,
2001). For children from poorer backgrounds, schools may be one of the most critical places they can receive resources that can mitigate less access to resources in the family context.

Controlling for Selection Effects

One of the primary concerns with exploring school context effects is how best to control for selection effects (Dicke et al., 2018) or how to ensure we do not attribute to school context what is in fact due to other background variables (see Duncan et al., 2010). Selection effect refers to the extent to which participants differ before they enter school and the tendency for similar students to be selected into similar schools. Homogeneous schools can lead to the appearance of a school context effect where no such effect is present because pre-existing differences lead to a correlation between aggregated predictors and outcomes (Dicke et al., 2018). Two major controls we included in this study were: a) control for pre-school levels of social adjustment (from both the parent and pre-school teacher) and b) student level family SES. These two major controls account for a range of potential selection effect mechanisms. Controlling for these pre-existing differences provides strong controls for a range of selection effects because controlling for them allows for the comparison of children who are in schools of different levels of average SES but who have the same prior levels of social adjustment and who came from families with similar levels of SES.

Research on bias in school context effects recommends controlling for background demographics as proxies for mechanisms that lead to pre-existing differences (Dicke et al., 2018). We controlled for gender because girls tend to have higher levels of social adjustment than boys (Mieloo et al., 2012). We controlled for geography (rural vs urban) because families in rural setting have less access, or at least more complicated access, to school choice (Duncan et al., 2014). We also controlled for school sector (private vs public) given that private schools are typically religious in Australia and may differ in their emphasis on aspects of social development in comparison to government schools. Finally, because our data included two cohorts of children (see methods below) we controlled for cohort in case
there were any cohort or period effects like a change in school enrollment polices or practices.

**Current Study**

Australia is the context of our research and is a useful focus because Australia’s Programme for International Student Assessment (PISA) index of social inclusion score is approximately equal to the international average (OECD, 2015). This means that Australian schools are moderately socially stratified by international standards (Parker et al., 2018; Parker et al., 2019). That is, children are not purely assigned to schools on the basis of SES but, on average, children of similar SES levels tend to be schooled together. Our major confirmatory hypothesis is that school average SES will have an assimilation association with social adjustment at Year 3 (age 8), controlling for incoming social adjustment (age 4), family SES (age 4) and other demographic and ability controls We also explored the possibility of differential associations of school average SES on social adjustment across the SES gradient.

We expected the assimilation effects to occur in the context of children from lower SES backgrounds entering school with poorer social adjustment (de Laat et al., 2016; Garratt et al., 2017; McMunn et al., 2001; Rajmil et al., 2014). Given that Australian schools are socially stratified (OECD, 2015; Parker et al., 2018), we expected children from lower SES backgrounds to attend more disadvantaged schools on average.

**Method**

**Participants and Study Design**

We used data from children, their parents, and their teachers from the B-Cohort and K-Cohort of the Longitudinal Study of Australian Children (LSAC). LSAC is a government-run study of a sample of Australian children who were zero-one (B-cohort) or four-five (K-Cohort) years of age in 2003-2004. The study aimed to draw data from urban and rural locations and all states and territories in Australia with the aim of advancing research and informing social policy, particularly in relation to early childhood interventions.
Data are collected on the child from their parents, carers, and teachers. Both cohorts of children have been followed every two years (AIFS, 2015). We used government-collected data on school average SES. In total, the data contained information on 3296 unique schools. Because LSAC is a publicly available government dataset (Department of Social Services, 2020), the ethics committee at the Australian Catholic University declared this study exempt from ethics review. This study was not preregistered. Source code is available (Parker, 2022).

Many children in the sample were the only child in their school surveyed (16.57%) or were one of two children surveyed (15.43%) in their school. We made no exclusions in the data and instead imputed administrative data for participants were there were no matching records. Together, our total sample was 9369 children (51.09% boys) aged 8. In the vast majority of cases (98%), parent data came from mothers. Approximately 95% of the sample was in some form of formal preschool education at age 4.

LSAC originally contacted the families of 18,800 children, with initial response rates of 54%. From this initial wave of data, response rates listed by the Department of Social Services for LSAC are estimated at 91% (wave 2) and 84% per wave (wave 5). This meant that, in the latest wave of the sample, attrition resulted in 79.7% of the sample being retained.

Measures

Social adjustment at age 4 and 8

Social adjustment was estimated using the peer problems, conduct problems, and prosocial behavior component scores from the Strengths and Difficulties Questionnaire [SDQ; R. Goodman (1997)]. We explored social adjustment at ages 4-5 (for prior social adjustment; parent report and pre-school teacher report) and ages 8-9 (as primary outcomes) as reported by the child’s parent and the child’s school teacher. The SDQ asks respondents to rate a child’s adjustment in the last six months on a 3-point scale (not true, somewhat true, and
certainly true). Questions ask about the child’s peer problems (e.g., “Rather solitary, tends to play alone”), conduct problems (e.g., “Often fights with other children or bullies them”), and prosociality (e.g., “Is kind to younger children”). Peer and conduct problems scores of 3 or greater and prosocial scores of 7 or lower place children beyond the ‘close to average’ group and may thus be a potential concern (Youth in Mind, 2016). The current sample compared to general and Australian specific norms are presented in supplementary materials.

The greatest lower bound estimates of reliability (Sijtsma, 2008) were all greater than .95 (Schmitt, 2011) and parallel analysis (Horn, 1965) suggested that items from each construct could be explained by a single component. Parallel analysis is a method of determining the number of latent factors underlying a set of data by comparing the observed data to randomly generated parallel data (i.e., having a similar structure, see Çokluk & Koçak, 2016). Based on this evidence, we used the total scores for these scales as developed by the LSAC administrators. Scores ranged from 0 to 10 (see supplementary materials for variable distributions). These scores were heavily left-censored for peer and conduct problems, with a preponderance of students being scored as a zero by their parent or teacher. Prosocial behaviors were heavily right-censored. Censoring can be viewed as a special type of missing data where scores on $y^*$ (the hypothesized true latent distribution of the variable) below or above the bounds are curtailed to fit within the bounds resulting in the observed scores $y$ (Gelman et al., 2020). Models accounting for this censoring were used in all cases, with results on the latent variable’s scale $y^*$ believed to underlie the censored variable (hence negative predicted scores or scores over 10 were possible).

Parents and teachers had moderate agreement for children at age 8 with correlations ranging from $r = 0.42$ 95% CI[0.4, 0.44] for peer and $r = 0.42$ 95% CI[0.4, 0.44] for conduct problems to $r = 0.32$ 95% CI[0.3, 0.34] for prosocial behavior.
**Socioeconomic Status**

_Family SES_ was measured using the Socioeconomic Position (SEP) index constructed by the LSAC survey organizers (Baker et al., 2017). The SEP index is constructed from parent-reported standardized weekly income, years of education, and ANU4 occupational prestige derived from the Australian Standard Classification of Occupations. These values were used to create an index for single and two-parent families before being integrated into a single index for all families that was standardized (Baker et al., 2017). The SEP has a mean of zero and a standard deviation of one and is collected at each time wave. Thus, we averaged the SEP from age 4, 6 and 8 to get a more reliable measure of persistent SES. This average was z-scored in the analysis.

_School average SES_ was measured using the _school_ Index of Community Socioeconomic Advantage (ICSEA) that the Australian government uses to assess the relative advantage of schools for the purpose of funding allocation and policy. This measure was taken from government administration records and is a composite consisting of income and education level of the parents with students in the school. ICSEA has a mean of 1000 and a standard deviation of 100. We z-scored this variable for analysis. Because this data were taken from administrative records it represents the average SES of the _entire_ school. By using administrative records, we gain school average SES based on the child’s _whole_ school from a high-quality source, thus avoiding the sampling bias that is present in much school context research. Put simply, the use of administrative data means we have information on child’s school context based on all students in their school rather than a subset of children.

**Addiitonal Covariates**

Cohort membership was included as a covariate in all models as were measures of rural status and gender—all measured at age 4 to ensure they were exogenous to the school context. The school’s sector (government or non-government) was also included as a covariate.
Analysis

The missing data were treated consistent with a missing at random mechanism. Missing data were generally moderate with the largest missing data proportion for teacher-reported social adjustment at age 8 (16%), and pre-school teacher reported social adjustment at 25-29%. All other variables had ~6% missing data or less. Missing data pattern graphs are presented in supplementary materials. To account for missing data in our models, we constructed 30 imputed datasets using a bootstrapped expectation-maximization procedure from the Amelia II package (Honaker et al., 2011). These imputations were used in all analyses. All analyses were conducted using Bayes via the BRMS package in R (Bürkner, 2017). Models estimating the association between school average SES and social adjustment were run once for each imputation and then the resulting posterior samples were pooled before estimates and their uncertainties were extracted. Our inference criterion was that 95% credibility intervals do not include zero.

To test the association between school average SES and social adjustment, we used a Bayes Tobit regression model with weakly informative priors. A Tobit model was selected because the distribution of the social adjustment variables implied their was censoring. That is, participants would have recorded higher or lower scores than the survey responses allowed had that option been made available. Tobit models can be used when seeking to model outcome variables that are censored on the left, right, or both tails (see Kleiber & Zeileis, 2008). As scores on the social adjustment variables had both a floor of zero and a ceiling of 10, we included censoring on both the left and the right in all models.

To test if the association between school average SES varied across the SES gradient, we included an interaction term between school average SES and family SES in a subsequent set of models. To account for the multilevel nature of the data (children nested within schools) we included a random intercept for schools in all models. Tables and figures clearly label the metric of the predictor variables.
For effect size estimates, the skew in the outcome variables meant traditional standardized beta coefficients could be difficult to interpret with respect to the distribution of the social adjustment variables. Hence, we provided effects sizes in the results section in relation to the interquartile range (IQR) for the social adjustment outcomes. Although unusual, we believe this provides a readily interpretable metric for readers that is faithful to the underlying distribution of the data. Thus, the effect size formula is:

\[ \beta = B \times \frac{SD_x}{IQR_y} \]

For continuous predictors like family or school average SES this effect size gives the difference in social adjustment in IQR units for a standard deviation change in the predictor. This is the same as beta standardization except the standard deviation of the outcome variable was replaced with the IQR of the outcome variable.

The main models were fit using the following formula:

\[ y_i^* \sim N(\alpha_j[i] + X_i \beta, \sigma^2_y), \text{for } i = 1, ..., n \]
\[ \alpha_j \sim N(U_j \gamma, \sigma^2_\alpha), \text{for } j = 1, ...k \]

Here \( X \) is a matrix of student level predictors for student \( i \) including family SES, prior social adjustment, gender, cohort, geographic location, and verbal ability. Prior social adjustment is particularly critical as this provides strong controls for selection effects. \( U \) is a matrix of school level predictors for school \( j \) including school sector and the aforementioned critical variable \textit{school SES}. Note that we predict \( y_i^* \) which is the latent continuous variable underlying the observed variables, which are defined as:
When there were significant interactions between school average SES and family SES they were investigated via conditional means plots and regions of significance plots. Uncertainty estimates in both types of plots were taken from the 2.5 and 97.5 quartiles of the posterior draws from the respective models (Gelman et al., 2020).

All scripts used to produce these results can be found in the OSF project, https://osf.io/q26ej, associated with this paper. Data can be applied for from the Australian Data Archive Dataverse website, https://dataverse.ada.edu.au/dataverse/ada?q=LSAC.

Results

Descriptives

Table 1 provides the descriptive information about the sample. This includes descriptives broken down by schools below and above the median for school average SES (descriptives for the total sample are in supplementary materials). We can see here that there were significant differences in all social adjustment variables between children in poorer and wealthier schools. But there were also significant differences in many of the control variables. Thus, our models below aim to determine if this is representative of a school context association or merely the influence of selection effects.

In order to provide a context for the main analyses, we aimed to show that: a) children from advantaged backgrounds enter school with better social adjustment (as measured by their parents); and b) children in Australia tend to be schooled in socially stratified schools. Student SES is slightly correlated with prior prosocial behavior ($r = 0.073$)
95% CI[0.052, 0.094]) but more strongly and negatively correlated with prior conduct problems \((r = -0.18\ 95\%\ CI[-0.21, -0.16])\) and peer problems \((r = -0.18\ 95\%\ CI[-0.2, -0.16])\). Children from lower SES backgrounds also tended to enter schools with children from similar backgrounds \((r = 0.5\ 95\%\ CI[0.48, 0.52])\). Put simply, disadvantaged children enter school with lower social adjustment on average and the school they enter tends to have lower-average levels of SES. Figure 1 shows the relationship between family and school SES with red lines indicating average scores. Although there is a strong relationship between family and school SES, a number of children from lower SES attend schools with a higher-average SES; although the reverse is not as frequent. This is important to keep in mind when interpreting latter results as it shows that there are a significant number of children from lower SES backgrounds who attend wealthier schools; while the reverse is not as often true.

**School-Average SES Predicts Social Adjustment Controlling for Age 4 SES and Social Adjustment**

We next predicted social adjustment with school average SES controlling for family SES, a range of demographic covariates and academic performance measures, and social adjustment at age 4. We present results for school average SES in Tables 2-4. School average SES negatively predicted conduct problems and positively predicted prosocial behavior for both parent and teacher-reported social adjustment. School average SES also negatively predicted peer problems. Results from either teacher or parent provided fairly consistent evidence of the influence of school SES context on social adjustment (or, more specifically, change in social adjustment from age 4 to age 8). Interestingly, the association of school average SES with social adjustment was similar in strength to the association of family SES with social adjustment (see supplementary materials for full results). Overall, and consistent with Jerrim and Sim (2019), the effects sizes were small (all \(\beta < .20\)) indicating that school context had a minor potential influence on social adjustment.
School Average SES Predicts Social Adjustment Mainly in Children from Lower SES Backgrounds

The predictive association of school average SES on social adjustment was not consistent across the SES gradient (see Tables 2-4). School average SES by student SES background interactions were significant for peer problems and conduct problems for both teacher and parent reports and for teacher-reported prosocial behavior. Although, the interaction between family and school average SES was not significant in predicting parent-reported prosocial behaviour, the significant interaction for teacher-reported prosocial behavior was not substantially larger ($\Delta \beta = 0.02 \ [0.00, 0.04]$).

Figures 2-4 provide the regions of significance for the association of school average SES and social adjustment for different levels of family SES. The interaction plots suggest that school context associations were particularly potent for children from lower SES backgrounds but that school context had minimal association with social adjustment for children from advantaged backgrounds. Indeed, the effect sizes for children from disadvantaged backgrounds were practically significant. For example, predicted scores for two children one standard deviation below the mean on family SES but who went to a school either one standard deviation above or below the mean on school average SES differed on conduct problems by $\Delta \beta \approx 0.50$ for parent reported and $\Delta \beta \approx 1$ for teacher reported. The plots suggest that for the very poorest schools in our sample, a student from a lower SES background would have levels of peer problems greater than the threshold for ‘close to average’ scores that may signal a need for intervention (Youth in Mind, 2016). This result can be compared to a child with similar characteristics who attended a school with average levels of SES, who would be predicted by our model to be well within the ‘close to average’ band. Referring to Figure 1, it is important to note that there were a considerable number of students from lower SES backgrounds who may benefit from attending a higher SES school in the sample. There is some evidence that higher school average SES may be detrimental to
children from higher SES backgrounds. However, the regions of significance plots show that this was generally only relevant for a small portion of the SES gradient where the result is based on interpolation from a sparse number of data points. Thus, readers should be skeptical about how robust this result is given there were relatively few children with SES backgrounds greater than two to two and a half standard deviations above the mean where this result applies (see Figure 1).

Discussion

Research on social adjustment has repeatedly shown that there is a SES gradient to social adjustment (e.g., Datta Gupta & Simonsen, 2010; Gutman & Schoon, 2013; Jerrim & Sims, 2019). Yet little research in this area has considered the potential influence of school context on social adjustment, despite a history of research noting the importance of context to healthy child development (Leventhal & Brooks-Gunn, 2000). Our research filled this gap by examining the association between school socioeconomic context and social adjustment in early elementary school. Like previous research on aggression (Espelage et al., 2003; Espelage & Swearer, 2003; Hong & Espelage, 2012), we find that, at least for children from lower SES backgrounds, higher-average school SES is positively associated with social adjustment; although lower-average school SES may be associated with lower levels of social adjustment. These results replicated across parent and teacher reports of social adjustment despite the relatively modest agreement between these two report sources. Conditioning on prior social adjustment, as well as family SES and other demographic variables, meant that coefficients for school average SES predicted social adjustment at age 8; controlling for at least some selection effects of interest.

For both teacher and parent reports, we found that the association of school context with social adjustment depended on the child’s socioeconomic background. This was the case for all outcomes except for parent-reported prosocial behavior. Children with the lower SES experienced the largest benefit from a wealthy social-economic context. Regions of
significance plots showed that significant school context associations were almost exclusively present among students from lower SES backgrounds. Interestingly, although present at the extreme of Family SES (>2SD above the mean) where only few children were present, there was some evidence that going to a high SES school has a negative association with social adjustment.

**School Context Theory**

A greater focus on factors other than cognitive development, such as social adjustment, may help to explain socioeconomic gaps in educational attainment and provides an important step forward in inequality research (see Heckman, 2006). Now that research has illuminated the importance of such variables, future research needs to consider the conditions under which they develop. Previous economic theory has emphasized the role that schools play as a context for developing non-academic factors like social adjustment (Akerlof & Kranton, 2010) and claimed this as one of the ways intergenerational inequality is transmitted and maintained (Bowles & Gintis, 1976). In contrast, sociology has tended to emphasize the role of contagion like effect but also differences in resource allocation (Lucas, 2001). Likewise, psychology research has emphasized assimilation to frames-of-reference, with particular significance given to the role of a child’s peers as providing a standard against which a child might assimilate to (Mussweiler et al., 2004). Our research could not distinguish between these mechanisms. Instead we focused on their collective influence. The hypothesis we tested was that school average SES would have a positive association with social adjustment but we did not specify the relative contribution of different mechanisms to this association. We also note that, school SES is used as a proxy for the school social adjustment context as noted in the introduction.

Likewise, our research could not disentangle school context from other enmeshed contexts. For example, other adults in and around the school community are also part of the neighborhood community. Thus, at least part of the potential role of school context is the
associated neighborhood context. Further, better school resourcing leading to better funded programs or facilities may also be associated with increases in social adjustment. Although Australia has an, in principle, free education system, there is a significant proportion of children who attend fee based private school. Even in government schools there are significant differences in the money that schools in more advantaged locations are able to attract from private financing (Rowe & Perry, 2019). Future research that can disentangle these mechanisms is likely to be vital in developing more precise interventions and more nuanced policy in the future.

School Context and Assimilation Associations

For children with a SES status below the mean, school socioeconomic context had statistically significant associations with social adjustment at age 8 (controlling for social adjustment at age 4; i.e., incoming social adjustment). As with previous research on aggression (Espelage et al., 2003; Espelage & Swearer, 2003; Hong & Espelage, 2012) and depression (Coley et al., 2017, 2019; E. Goodman et al., 2003), school context associations (i.e, the significant influence of school average SES in Model 1), were consistent with assimilation rather than with contrast-like mechanisms. That is, the social adjustment in children from lower SES backgrounds tended to increase in high-average school SES and decrease in low-average school SES. This is in contrast to research on self-worth were the opposite findings were observed (Crosnoe, 2009). But the strength of this association depended on a child’s SES background.

Our results suggest that a child from a lower SES background, who is enrolled in an advantaged school, would be predicted to have similar social adjustment levels compared to their higher SES background peers. Children from higher SES backgrounds tend to come from families rich in the resources needed for healthy social development. In contrast, children from lower SES backgrounds tend to arrive at school having grown up in contexts with less access to such resources. Thus, by increasing access to those resources, school may
be pivotal to these children’s future attainment. Yet children from lower SES backgrounds, in countries like Australia, are considerably less likely to be enrolled in advantaged schools where such resources are prevalent. As we noted in the introduction, Australia has average levels of social inclusion as measured by PISA (OECD, 2015). This means that Australian schools tend to be moderately homogenous in terms of their student population (see Parker et al., 2019).

Our results indicate that children from lower SES backgrounds attend more disadvantaged schools on average and their social adjustment is predicted to be lower than we would expect it to be in a higher-SES school. This association appears to be of practical significance in size, particularly for children from lower SES backgrounds. The net effect of a system where lower SES children are, on average, enrolled in lower-average SES schools is that these children will tend to have their—already lower on average—social adjustment levels depressed by the school climate they are most likely to find themselves in.

But this also suggests that increasing access to higher SES schools for children from lower SES backgrounds could have meaningful positive effects. Of course, identity economics argues that there is nothing inherent in higher SES schools themselves that provides an environment conducive to social adjustment. The important factor is instead the degree to which there is a clear and consistent positive school ethos shared by the school leadership, teachers, and fellow students alike (Akerlof & Kranton, 2010). There is danger here too. If a school ethos is strong but not broad and inclusive enough so that all students can feel included, those students on the fringes may be rejected by the ethos, potentially leading to poorer overall outcomes for these students despite the strong ethos (Akerlof & Kranton, 2010). Thus, in order for children from lower SES backgrounds to benefit from their school context, there is a need for both local and jurisdictional policy makers and institutions to ensure that the school ethos is not only clear but inviting to all students (Parker et al., 2022).

Our results suggest that school choice, in which children from lower SES backgrounds
receive vouchers or similar, and programs such as Movement to Opportunity, where poorer families receive vouchers to move to new neighborhoods, may be beneficial (Entwisle & Alexander, 1993; Friedman, 1962; Leventhal & Brooks-Gunn, 2000; Souza Briggs et al., 2010). Strategies like these could be a powerful policy lever to overcome socioeconomic gaps in social adjustment. This approach tackles the problem of contextual influences via market-based systems. Yet this policy requires there to be few barriers, whether psychological or otherwise, to parents using vouchers to select the best school or move to neighbourhoods that match their child’s needs. Such barriers do exist (Gradstein & Justman, 2005; Souza Briggs et al., 2010). Indeed, empirical evidence suggests that school choice tends to exacerbate inequality (e.g., Saporito, 2003).

Research shows that greater school choice at the country level is related to poorer average ability levels, lower aspirations, and paradoxical effects on psychological factors like motivation and self-concept. These negative outcomes appear to be relevant to most of the student population (Parker et al., 2021, 2016, 2018; Parker et al., 2019). This research suggests school selection policies should maximize within-school heterogeneity and minimize between-school heterogeneity such as the school system found in Finland. Not only does this approach help standardize the school context, it is also likely to lead to more equitable resource allocation across schools. More resources, and more equitable distribution of those resources, is more efficient, removes hindrances to learning, and appears to be associated with greater levels of achievement at the country level (OECD, 2019).

Altering school selection policies to create heterogeneous classrooms would require considerable state intervention to achieve and may thus impose unreasonable restrictions on parents’ rights to choose. However, it is worth noting that our results predict children from higher SES backgrounds would not have lower social adjustment by being enrolled in a more disadvantaged school. There are strong arguments and good empirical support on both sides of this debate, suggesting that we are far from a settled position on the matter. At least for
the current context in Australia, where social stratification is moderately high and where the
school system seems to ensure that school choice is more clearly an option for the rich than
the poor (Parker et al., 2019), our results are troubling. It is important to acknowledge that
our focus has been on between school stratification. However, within-school stratification
may pose as much of a risk to children’s social development as between-school stratification
(Perry & Weinstein, 1998).

Limitations

There are several strengths to this study. Most notably, longitudinal data allowed us
to control for incoming social adjustment and government administrative data that provided
access to complete and high-quality data for school’s average SES at the school level.
Further, the use of LSAC data meant that we were able to control for a number of potential
confounding variables drawn from a sample of Australian children. Our aim was to try to
build a model from high-quality data that could assist us in making as close to an all else
being equal comparisons as possible by including a range of pertinent control variables
(Angrist & Pischke, 2008).

Nevertheless, there are also limitations. This includes an inability to control for all
differences present prior to school enrollment. This included an inability to average across
multiple waves of data for some key variables to get potentially more reliable estimates (e.g.,
school average SES). The reader should interpret results of this research with respect to
causation with skepticism. Finally, we were not able to identify and compare the relative
impact of different mechanisms that may explain the influence of school average SES on
social adjustment. Assimilation effects can result from peer effects but also the socialization
influence of teachers and educational structures as well as the inherent resource advantages
of wealthier parents and schools (Bowles et al., 2001). Identifying and comparing these
mechanisms is an important future direction for research. Finally, our use of Bayesian
multilevel models precluded our ability to use population weights in this analysis.
Conclusion

The influence of school average SES on social adjustment represents the triple disadvantage that children from lower SES backgrounds can face in socially stratified school systems. First, children from lower SES backgrounds are more likely to start school with lower social adjustment than their higher SES background peers. Second, because the school system is stratified by SES, children from lower SES backgrounds are likely to enroll in more disadvantaged schools, which can have negative associations with social development. Third, assimilative associations suggest that children from lower SES backgrounds are more affected by their school context than children from middle to high SES backgrounds. Taken together, our results support the call for policy that aims to a) decrease country-level variance in social stratification, b) decrease between-school heterogeneity in social status, and, in combination with (a), c) encourage school selection practices that maximize within school heterogeneity in social status while improving equitable resource allocation across schools.
References


Department of Social Services. (2020). *Growing up in australia: Longitudinal study of australian children (LSAC) release 6 (waves 1-6) [Data set].* ADA Dataverse. https://doi.org/10.26193/JOZW2U


Youth in Mind. (2016). *Scoring the strengths and difficulties questionnaire for age 4-17 or 18+.* https://www.ehcp.co.uk/content/sites/ehcap/uploads/NewsDocuments/236/SDQEnglishUK4-17scoring-1.PDF
Table 1

Descriptive Statistics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Above Median School Avg.</th>
<th>Below Median School Avg.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
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<td>SES, N = 3,934</td>
<td>SES, N = 4,212</td>
<td></td>
</tr>
<tr>
<td>Family SES</td>
<td>0.44 (0.91)</td>
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<td>276</td>
<td></td>
</tr>
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<td>&lt;0.001</td>
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<td></td>
</tr>
<tr>
<td>Urban</td>
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<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>rural</td>
<td>843 (21%)</td>
<td>2,048 (49%)</td>
<td></td>
</tr>
<tr>
<td>urban</td>
<td>3,089 (79%)</td>
<td>2,156 (51%)</td>
<td></td>
</tr>
<tr>
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<td>2</td>
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</tr>
<tr>
<td>Gender</td>
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<td></td>
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</tr>
<tr>
<td>boy</td>
<td>2,003 (51%)</td>
<td>2,179 (52%)</td>
<td></td>
</tr>
<tr>
<td>girl</td>
<td>1,931 (49%)</td>
<td>2,033 (48%)</td>
<td></td>
</tr>
<tr>
<td>LOTE</td>
<td></td>
<td></td>
<td>0.009</td>
</tr>
<tr>
<td>eng</td>
<td>3,390 (86%)</td>
<td>3,712 (88%)</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td>544 (14%)</td>
<td>500 (12%)</td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
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<tr>
<td>indig</td>
<td>28 (0.7%)</td>
<td>166 (4.2%)</td>
<td></td>
</tr>
<tr>
<td>nonIndig</td>
<td>3,823 (99%)</td>
<td>3,827 (96%)</td>
<td></td>
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<tr>
<td>Unknown</td>
<td>83</td>
<td>219</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Grade 1</td>
<td>1 (&lt;0.1%)</td>
<td>1 (&lt;0.1%)</td>
<td></td>
</tr>
<tr>
<td>Grade 2</td>
<td>212 (5.5%)</td>
<td>175 (4.3%)</td>
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<td>Grade 3</td>
<td>3,000 (78%)</td>
<td>2,883 (71%)</td>
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<td>Grade 4</td>
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<tr>
<td>Unknown</td>
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<td>294</td>
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</table>

(Continued on Next Page...)
Table 1
*Descriptive Statistics. (continued)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Above Median School Avg.</th>
<th>Below Median School Avg.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SES, N = 3,934</td>
<td>SES, N = 4,212</td>
<td></td>
</tr>
<tr>
<td>School Sector</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Government</td>
<td>2,190 (56%)</td>
<td>3,226 (77%)</td>
<td></td>
</tr>
<tr>
<td>Non-Government</td>
<td>1,744 (44%)</td>
<td>986 (23%)</td>
<td></td>
</tr>
<tr>
<td>Cohort</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>B</td>
<td>2,065 (52%)</td>
<td>1,915 (45%)</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>1,869 (48%)</td>
<td>2,297 (55%)</td>
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<tr>
<td>Prosociality (Parent Report Age 4)</td>
<td>7.83 (1.74)</td>
<td>7.67 (1.76)</td>
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<tr>
<td>Unknown</td>
<td>211</td>
<td>244</td>
<td></td>
</tr>
<tr>
<td>Conduct Problems (Parent Report Age 4)</td>
<td>2.05 (1.80)</td>
<td>2.53 (1.95)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>212</td>
<td>246</td>
<td></td>
</tr>
<tr>
<td>Peer Problems (Parent Report Age 4)</td>
<td>1.31 (1.42)</td>
<td>1.64 (1.52)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>213</td>
<td>246</td>
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<tr>
<td>Prosociality (Teacher Report Age 4)</td>
<td>7.26 (2.31)</td>
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<tr>
<td>Unknown</td>
<td>950</td>
<td>1,306</td>
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</tr>
<tr>
<td>Conduct Problems (Teacher Report Age 4)</td>
<td>0.99 (1.65)</td>
<td>1.08 (1.79)</td>
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<td>(Teacher Report Age 4)</td>
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<tr>
<td>Unknown</td>
<td>948</td>
<td>1,307</td>
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<tr>
<td>Peer Problems (Teacher Report Age 4)</td>
<td>1.32 (1.65)</td>
<td>1.49 (1.71)</td>
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<tr>
<td>Unknown</td>
<td>948</td>
<td>1,306</td>
<td></td>
</tr>
</tbody>
</table>

*(Continued on Next Page...)*
Table 1

Descriptive Statistics. (continued)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Above Median School Avg.</th>
<th>Below Median School Avg.</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SES, N = 3,934</td>
<td>SES, N = 4,212</td>
<td></td>
</tr>
<tr>
<td>Prosociality (Age 8: Teacher)</td>
<td>7.91 (2.14)</td>
<td>7.53 (2.32)</td>
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</tr>
<tr>
<td>Unknown</td>
<td>638</td>
<td>825</td>
<td></td>
</tr>
<tr>
<td>Conduct Problems (Age 8: Teacher)</td>
<td>0.67 (1.35)</td>
<td>0.97 (1.73)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>635</td>
<td>823</td>
<td></td>
</tr>
<tr>
<td>Peer Problems (Age 8: Teacher)</td>
<td>1.16 (1.59)</td>
<td>1.45 (1.82)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>636</td>
<td>825</td>
<td></td>
</tr>
<tr>
<td>Prosociality (Age 8: Parent)</td>
<td>8.48 (1.63)</td>
<td>8.26 (1.74)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>321</td>
<td>490</td>
<td></td>
</tr>
<tr>
<td>Conduct Problems (Age 8: Parent)</td>
<td>1.10 (1.33)</td>
<td>1.48 (1.59)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>321</td>
<td>489</td>
<td></td>
</tr>
<tr>
<td>Peer Problems (Age 8: Parent)</td>
<td>1.23 (1.49)</td>
<td>1.62 (1.66)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unknown</td>
<td>322</td>
<td>489</td>
<td></td>
</tr>
</tbody>
</table>

1 Continuous variables: Mean (SD); Categorical variables: n (%)

2 Continuous variables: t-test p-value; Categorical variables: Fisher’s exact test p-value
Table 2

Association of School Average SES by Student SES with Conduct Problems.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Teacher Report</th>
<th>Parent Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Intercept (Units: Censored 0-10)</td>
<td>-0.78 (-0.97, -0.59)*</td>
<td>-0.84 (-1.03, -0.66)*</td>
</tr>
<tr>
<td>School Average SES (Units: SD)</td>
<td>-0.18 (-0.26, -0.1)*</td>
<td>-0.18 (-0.26, -0.1)*</td>
</tr>
<tr>
<td>Family SES (Units: SD)</td>
<td>-0.29 (-0.37, -0.21)*</td>
<td>-0.31 (-0.4, -0.23)*</td>
</tr>
<tr>
<td>Prior (Parent Report) conduct (Units: 0-10)</td>
<td>0.2 (0.17, 0.24)*</td>
<td>0.2 (0.17, 0.23)*</td>
</tr>
<tr>
<td>Prior (Teacher Report) conduct (Units: 0-10)</td>
<td>0.38 (0.35, 0.43)*</td>
<td>0.38 (0.34, 0.42)*</td>
</tr>
<tr>
<td>Cohort K</td>
<td>-0.18 (-0.31, -0.05)*</td>
<td>-0.17 (-0.3, -0.05)*</td>
</tr>
<tr>
<td>Girl</td>
<td>-0.99 (-1.12, -0.86)*</td>
<td>-0.99 (-1.12, -0.86)*</td>
</tr>
<tr>
<td>Urban</td>
<td>0.13 (-0.02, 0.27)</td>
<td>0.11 (-0.04, 0.25)</td>
</tr>
<tr>
<td>Peabody Picture Vocabulary</td>
<td>-0.11 (-0.18, -0.05)*</td>
<td>-0.11 (-0.17, -0.04)*</td>
</tr>
<tr>
<td>Non-government School</td>
<td>0.2 (0.06, 0.35)*</td>
<td>0.23 (0.08, 0.38)*</td>
</tr>
<tr>
<td>Random Intercept (Units: SD)</td>
<td>0.57 (0.4, 0.7)*</td>
<td>0.55 (0.37, 0.69)*</td>
</tr>
<tr>
<td>School Average SES by Student SES</td>
<td>0.17 (0.1, 0.24)*</td>
<td>0.17 (0.1, 0.24)*</td>
</tr>
</tbody>
</table>

Note. Results are in unit changes on a 1-10 (Censored) scale for social adjustment variables for a standard deviation increase in school SES. Full results in supplementary materials. * = Credibility Intervals do not include zero.
Table 3

Association of School Average SES by Student SES with Peer Problems.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Teacher Report</th>
<th>Parent Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Intercept (Units: Censored 0-10)</td>
<td>0.12 (0.04, 0.2)*</td>
<td>0.1 (0.02, 0.18)*</td>
</tr>
<tr>
<td>School Average SES (Units: SD)</td>
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<td>-0.06 (-0.1, -0.03)*</td>
</tr>
<tr>
<td>Family SES (Units: SD)</td>
<td>-0.09 (-0.12, -0.05)*</td>
<td>-0.1 (-0.13, -0.06)*</td>
</tr>
<tr>
<td>Prior (Parent Report) peer (Units: 0-10)</td>
<td>0.08 (0.06, 0.1)*</td>
<td>0.08 (0.06, 0.1)*</td>
</tr>
<tr>
<td>Prior (Teacher Report) peer (Units: 0-10)</td>
<td>0.14 (0.12, 0.16)*</td>
<td>0.14 (0.12, 0.16)*</td>
</tr>
<tr>
<td>Cohort K</td>
<td>-0.02 (-0.08, 0.03)</td>
<td>-0.02 (-0.08, 0.04)</td>
</tr>
<tr>
<td>Girl</td>
<td>-0.11 (-0.17, -0.05)*</td>
<td>-0.11 (-0.16, -0.05)*</td>
</tr>
<tr>
<td>Urban</td>
<td>0.02 (-0.04, 0.08)</td>
<td>0.02 (-0.05, 0.08)</td>
</tr>
<tr>
<td>Peabody Picture Vocabulary</td>
<td>-0.04 (-0.07, -0.02)*</td>
<td>-0.04 (-0.07, -0.01)*</td>
</tr>
<tr>
<td>Non-government School</td>
<td>0.03 (-0.03, 0.1)</td>
<td>0.04 (-0.02, 0.1)</td>
</tr>
<tr>
<td>Random Intercept (Units: SD)</td>
<td>0.23 (0.16, 0.3)*</td>
<td>0.23 (0.14, 0.29)*</td>
</tr>
<tr>
<td>School Average SES by Student SES</td>
<td>0.06 (0.03, 0.08)*</td>
<td>0.06 (0.03, 0.08)*</td>
</tr>
</tbody>
</table>

*Note.* Results are in unit changes on a 1-10 (Censored) scale for social adjustment variables for a standard deviation increase in school SES. Full results in supplementary materials. * = Credibility Intervals do not include zero.
Table 4

Association of School Average SES by Student SES with Prosocial Behaviour.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Teacher Report</th>
<th>Parent Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Intercept (Units: Censored 0-10)</td>
<td>1.1 (1.02, 1.18)*</td>
<td>1.11 (1.04, 1.19)*</td>
</tr>
<tr>
<td>School Average SES (Units: SD)</td>
<td>0.03 (0.01, 0.05)*</td>
<td>0.03 (0.01, 0.05)*</td>
</tr>
<tr>
<td>Family SES (Units: SD)</td>
<td>0.05 (0.04, 0.07)*</td>
<td>0.06 (0.04, 0.08)*</td>
</tr>
<tr>
<td>Prior (Parent Report) social (Units: 0-10)</td>
<td>0.04 (0.03, 0.05)*</td>
<td>0.04 (0.03, 0.05)*</td>
</tr>
<tr>
<td>Prior (Teacher Report) social (Units: 0-10)</td>
<td>0.06 (0.05, 0.06)*</td>
<td>0.06 (0.05, 0.06)*</td>
</tr>
<tr>
<td>Cohort K</td>
<td>-0.02 (-0.05, 0)</td>
<td>-0.03 (-0.05, 0)</td>
</tr>
<tr>
<td>Girl</td>
<td>0.33 (0.3, 0.36)*</td>
<td>0.33 (0.3, 0.36)*</td>
</tr>
<tr>
<td>Urban</td>
<td>0 (-0.03, 0.04)</td>
<td>0 (-0.03, 0.04)</td>
</tr>
<tr>
<td>Peadbody Picture Vocabulary</td>
<td>0.02 (0, 0.03)</td>
<td>0.02 (0, 0.03)</td>
</tr>
<tr>
<td>Non-government School</td>
<td>-0.03 (-0.06, 0.01)</td>
<td>-0.03 (-0.06, 0)</td>
</tr>
<tr>
<td>Random Intercept (Units: SD)</td>
<td>0.13 (0.09, 0.16)*</td>
<td>0.13 (0.09, 0.16)*</td>
</tr>
<tr>
<td>School Average SES by Student SES</td>
<td>-0.03 (-0.04, -0.01)*</td>
<td>-0.03 (-0.04, -0.01)*</td>
</tr>
</tbody>
</table>

Note. Results are in unit changes on a 1-10 (Censored) scale for social adjustment variables for a standard deviation increase in school SES. Full results in supplementary materials.* = Credability Intervals do not include zero.
Figure 1

Relationship between family and school SES.
**Figure 2**

*School average SES by Student SES on Peer Problems. Includes 95% CIs. The line represents the size of the coefficient for school average SES at different values of family SES.*
Figure 3

School average SES by Student SES on Conduct Problems. Includes 95% CIs. The line represents the size of the coefficient for school average SES at different values of family SES.
Figure 4

School average SES by Student SES on Prosociality. Includes 95% CIs. The line represents the size of the coefficient for school average SES at different values of family SES.