



# Are the Benefits of Economic Resources for Socioemotional Functioning Shared across Racial/Ethnic Groups?

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## Abstract

Growth in economic disparities, economic segregation, and racial/ethnic diversity have occurred in tandem in the U.S., leading to essential questions concerning whether the benefits of economic resources are shared across diverse groups. Analyzing a sample of eighth grade early adolescents (age 14 years) drawn from the nationally representative Early Childhood Longitudinal Study, Kindergarten Class of 1998–1999 ( $N = 7625$ ; 59% White, 12% Black, 19% Hispanic, 7% Asian, 2% Native American, and 2% multiracial; 47% female), lagged regression models assessed links between family, neighborhood, and school income and adolescent emotional and behavioral functioning. The results found that family income was associated with heightened emotional and behavioral functioning, and school income with improved behavioral functioning for White adolescents, whereas no benefits emerged for Black or Hispanic youth. In contrast, mixed associations emerged between income and early adolescent functioning for Asian and American Indian youth, with predominantly negative links appearing for multiracial youth. These patterns highlight diversity in the potential benefits and costs of economic resources, and suggest the need to better specify mechanisms through which economic disparities affect youth from varied backgrounds.

**Keywords** Income inequality · Poverty · Neighborhoods · Schools · Socioemotional functioning

## Introduction

Extensive evidence documents growing levels of income inequality in the U.S. over recent decades. This growth in income inequality is apparent at the family level (Duncan and Murnane 2016) as well as at the neighborhood (Bischoff and Reardon 2014) and school (Owens et al. 2016) levels, with increasing proportions of children and adolescents living in neighborhoods and attending schools with high concentrations of low- or of high-income peers, and fewer in mixed or middle-income contexts. Exposure to increased economic inequality is even more pronounced for Black, Hispanic, and American Indian families, who are

more likely than their White and Asian peers to be poor as well as to live in economically segregated neighborhoods and attend economically segregated schools (Firebaugh and Acciai 2016). Black and Hispanic families are also more likely, at each strata of family income, to live in poorer communities than Whites and Asians with similar income levels (Firebaugh and Acciai 2016), with the economic contexts of multiracial families often between these extremes (Macartney et al. 2013).

Economic resources are important contributors to children's development, allowing families, and the communities and schools they select into, the ability to invest in children's development through provision of enriching materials and opportunities (Duncan and Murnane 2011) and through access to social capital supportive of achievement and rule-abiding behavior (Coleman 1988). Economic resources also help to limit children's exposure to stressors such as hunger, family instability, household structural deficiencies, violence, and environmental pollutants (Evans 2004), in turn promoting healthy development. As such, the growing dispersion in children's exposure to economic resources within family, neighborhood, and school contexts is a central concern. Yet beyond disparities in access to

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economic resources across racial/ethnic groups, evidence also suggests discrepancies in the protective power of those resources, with myriad mechanisms from discriminatory housing practices (Williams 2005), to lower wealth and more impoverished social networks (Alba and Logan 1993), to unequal economic returns of educational attainment (Day and Newburger 2002) diminishing the promotive and protective roles of economic resources for members of some racial/ethnic groups.

A substantial body of research has identified associations between children's development and economic resources at the family level (Dearing 2008) and the neighborhood level (Leventhal et al. 2015), with less attention paid to the clustering of economic advantage versus disadvantage at the school level (Sellström and Bremberg 2006). Far less research has tried to parse the relative importance of these three overlapping contexts (see Coley et al. 2018), a key limitation due both to the importance of each context and to the likelihood that unmeasured heterogeneity may inflate connections between each individual context and children's development if other correlated contextual factors are not accounted for. Moreover, limited research has sought to carefully assess how the relative importance of family, neighborhood, and school economic resources vary for children from different racial/ethnic backgrounds who may experience diverse benefits or risks from their economic contexts. These are the primary goals of the current study.

### Early Adolescent Development and the Role of Economic Resources

We focus on children in the middle school years of early adolescence, a key developmental phase in which biological and social changes converge to create new opportunities and risks for individual development, particularly within emotional and behavioral domains of development (Steinberg 2014). During early adolescence, pubertal development and enhanced cognitive capacities promote increased autonomy from parents and greater exposure to and influence from out-of-home experiences and peers within neighborhood and school contexts (Steinberg 2014). As such, theorists argue that school and neighborhood contexts may become more influential during this developmental period, although parents retain substantial connections with and influence over young teens (Leventhal et al. 2015). These shifts in developmental processes and contexts, in turn, lead to increased variability in early adolescents' self-perceptions, emotional challenges, and engagement in problem behaviors (Steinberg 2014). Early adolescence is thus a vital developmental period in which to assess the role of family, neighborhood, and school economic resources in supporting healthy socioemotional development, belied by the relative dearth of literature assessing the role of

economic resources in promoting development during this developmental stage, with most prior research focusing instead on early childhood due to heightened vulnerability to environmental factors (Duncan et al. 2017), or mid to late adolescence (Leventhal et al. 2015).

### Differing Effects of Economic Resources across Racial/Ethnic Subgroups: Theoretical and Empirical Perspectives

#### Family income

Extensive research documents positive connections between family income and children's and adolescents' functioning (Dearing 2008). Within the research on young adolescents, the most methodologically rigorous work reports strong links between family income and conduct problems (Akee et al. 2010) but weaker links with emotional problems (Costello et al. 2003) in quasi-experimental analyses of casino income in American Indian communities. Work with a nationally representative sample of early adolescents identified associations between family income and a combined measure of socioemotional functioning (Votruba-Drzal 2006). In contrast, much of the correlational research in this arena, including work with high school age adolescents, has used samples with limited racial/ethnic variability, often focusing on primarily White or Black samples (see Conger and Elder 1994), or less commonly studying samples of Asian youth (Kiang et al. 2013) or Hispanic youth (Eamon 2005). This has led to an inability to directly address the question of whether returns to family income vary between racial/ethnic groups of young adolescents. Even among multiethnic studies that demonstrate income effects across adolescents from diverse racial/ethnic backgrounds, attention is rarely paid to differential benefits between groups (e.g., Duncan et al. 2011). Yet there are several important reasons to consider the potential for such variation, including differences in patterns of family characteristics and wealth (Dimock et al. 2013), parenting behaviors (Ferguson 2007), residential segregation and discrimination (Firebaugh and Acciai 2016), unequal exposure to disadvantaged versus well-resourced neighborhoods (Logan 2011), and disparate access to safe, stable, and well-resourced school contexts with quality instruction (Scafidi et al. 2007).

Studies that have attended to the potential for racial/ethnic variation in the magnitude of family income effects show mixed results. Literature focused on children's academic success generally suggest stronger connections between family income and child outcomes among White families in comparison to other racial/ethnic groups (Sirin 2005). But in work focusing on the arena of socioemotional functioning, results are more equivocal, and most of the

extant research focuses on categorical measures of poverty rather than considering the full range of family income. For example, Bolger and colleagues (Bolger et al. 1995) found links between persistent poverty and behavior problems to be stronger among White than Black children, whereas the opposite pattern emerged in relation to emotional problems. Other research has found no significant differences in links between family poverty and socioemotional functioning for White and Black children (McLeod and Nonnemaker 2000) or adolescents (Wickrama et al. 2005) in models adjusting for family demographics. Little research has attended to variation in these links in other racial/ethnic groups, although a handful of studies suggest that socioeconomic resources exert effects similarly between Hispanic and Black families (e.g., Mistry et al. 2002) or Hispanic and White families (McLeod and Nonnemaker 2000). Less attention has been paid to comparisons among other subgroups such as American Indian, Asian, or multiracial youth, beyond the literature cited above finding similar benefits of moving out of poverty for American Indian and White children (Costello et al. 2003). It is interesting to note that the influx of income from casinos to American Indian families in this geographically clustered sample likely altered the average income in children's neighborhood and school contexts, as well, although effects were attributed to family income.

### Neighborhood income

Indeed, beyond clarifying divergence—or the lack thereof—in patterns of family income effects across racial/ethnic groups, there is also a need for research to carefully delineate how socioeconomic resources across neighborhoods and schools shape developmental outcomes across racial/ethnic groups. Similar to work on family income, a large expanse of research has linked neighborhood economic resources, delineated as the average income of neighbors or proportion of high or low income neighbors, with children's emotional and behavioral development above and beyond links with family income, although effects on functioning during early adolescence are more mixed within the most rigorous experimental and quasi-experimental research (see Leventhal et al. 2015 for overview). Recent research has suggested that neighborhood contexts in childhood and early adolescence may be particularly important for behavioral outcomes (Anderson et al. 2014). Little work in this arena has addressed other aspects of socioemotional functioning such as self concept, despite being a key protective factor in adolescence (McCullough et al. 2000), or emotional distress, despite the ramifications of emotional problems on a host of early adolescent processes including peer acceptance (Oberle et al. 2010).

Moreover, very limited research has addressed the potential for neighborhood economic resources to function differentially across racial/ethnic groups. Evidence has emerged of weaker associations between neighborhood resources and educational attainment among Black youth compared to their White peers (Owens 2010), whereas a study assessing emotional distress failed to find race differences (Wickrama et al. 2005). This omission is notable given other work which finds that racial/ethnic minority families in middle class neighborhoods are more likely than their White counterparts to be exposed to environmental stressors such as housing discrimination and nearby crime and pollution (see Pattillo 2013 for an excellent discussion of these issues in relation to Black middle class families), suggesting that neighborhood income may be more protective for White adolescents than youth of color.

### School income

The issue of concentrated advantage or disadvantage in schools, a third key proximal context for early adolescent development, has received limited attention. Research in this arena suggests attendance at schools with higher income schoolmates or a lower percentage of poor schoolmates is associated with lower levels of depressive (Goodman et al. 2003) and anxiety symptoms (Coley et al. 2018), but also with a higher likelihood of some types of conduct problems (Coley et al. 2018), although these studies focused on high school-age rather than early adolescent populations.

We are not aware of research addressing how associations with emotional and behavioral functioning at the school level may vary across racial/ethnic subgroups (although see Rumberger and Palardy 2005 for an example of this question in relation to academic outcomes). The potential for variation in links between school income and socioemotional development across racial/ethnic groups remains to be addressed.

### Cross-Contextual Effects

Finally, little research has simultaneously considered resources at multiple levels across racial/ethnic groups, despite the potential for contextual resources to differentially interact across groups. Theoretical frameworks offer divergent arguments concerning whether and how economic resources across key contexts of children's lives will function interactively. Status arguments, for example, suggest that negative effects of family poverty may be exacerbated in contexts of relative advantage due to status anxiety (Heberle and Carter 2015) and social comparisons (Odgers et al. 2015). In contrast, cumulative disadvantage models suggest that poverty in different proximal contexts

may function additively, with stress from limited resources accumulating across contexts (Bauman et al. 2006). Both patterns may be exacerbated for youth of color who face added stress from race-based discrimination.

The existing literature provides inconsistent evidence with respect to these competing hypotheses, and few analyses have systematically considered racial/ethnic differences in how they play out. In line with the status argument, recent work considering internalizing and externalizing problems among adolescents found heightened levels of problems among adolescents with lower relative income status, operationalized as a comparison of family income to the median family income of their census block (Sorhagen and Wurster 2017). Though not designed to test interactive effects per se, much of the experimental and quasi-experimental work on neighborhood income effects bolsters status arguments of cross-contextual income effects. Within programs moving poor, primarily Black and Hispanic families to lower poverty neighborhoods, for example, youth in the Yonkers Project showed worsening behavioral functioning post-relocation compared to children who did not move (Fauth et al. 2007), although in the Moving to Opportunity experiment negative effects emerged only for boys, whereas positive emotional and behavioral outcomes were found among girls (Kling et al. 2007).

In contrast, some research has provided evidence for the additive disadvantage model, with one study finding that detrimental links between low family economic resources and delinquency were amplified in conditions of concentrated disadvantage for a national sample of adolescents (Hay et al. 2006), and another demonstrating that neighborhood poverty strengthened the association between family poverty and emotional problems for Black youth, but conferred risk for *nonpoor* White youth (Wickrama et al. 2005). This highlights the potential not only for differential effects of economic resources among racially/ethnically diverse youth, but also for divergent interactive effects between various economic contexts.

## The Current Study

A limited amount of research has carefully attended to the unique and interactive associations between economic resources derived from family, neighborhood, and school contexts and early adolescents' socioemotional functioning. Even less prior work has systematically assessed whether such associations vary across racial/ethnic subgroups, a key concern in our increasingly diverse and economically segregated nation. Addressing these questions in a large, nationally representative sample of young adolescents will provide further insights into the relative role of different

economic contexts, and will help to delineate consistencies and divergences in patterns of youth functioning across contexts and between racially/ethnically diverse youth.

Our first research question is purely descriptive, seeking to delineate the economic contexts of early adolescents from diverse racial/ethnic groups. Secondly, we seek to delineate the relative contribution of family, neighborhood, and school income to early adolescent socioemotional functioning. Based upon prior research, we expect family income to be a stronger correlate of functioning than neighborhood or school income, and for economic resources to be more strongly associated with behavioral than with emotional arenas of functioning during early adolescence. Our third research question seeks to assess how these associations vary across racial/ethnic groups. We expect these associations will be stronger for White adolescents than for those of Black and Hispanic backgrounds. Limited research on Asians, American Indians, and multiracial youth inhibit development of firm expectations for these groups. Moreover, conflicting evidence of the potential intersection between family, neighborhood, and school economic resources limit hypotheses regarding interactive links with early adolescent functioning, the topic of our fourth research question.

## Methods

### Participants

Data were drawn from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–1999 (ECLS-K), which employed a multistage probability sample design to select a nationally representative sample of kindergarten children in 1998 ( $N = 21,260$ ) who were followed through seven rounds of data collection culminating when most children were in the eighth grade. Data were collected from child, parent, teacher, and administrator surveys and assessments. Response rates hovered around 75–80% for each wave, leading to a continually declining sample size. Response rates were 74% for schools, 88% for children, and 84% for parents in the base year of data collection, and 77%, 78%, and 73% at the eighth grade wave of data collection (Tourangeau et al. 2009).

To select our analytic sample, we began with children who remained in the sample through eighth grade with valid child weights (C7CW0) ( $n = 9358$ ); we then dropped children who attended private schools ( $n = 1640$ ) because private schools do not participate in the free/reduced lunch program which we used as our indicator of school income, along with children who did not have a valid census tract ( $n = 93$ ) which we used to assess neighborhood income. This led to a final analytic sample of 7625 early adolescents

in 2250 schools. Compared to all children in the original kindergarten sample, the subset who remained in the analytic sample had older parents and lived in higher income neighborhoods; were more likely to come from married parent families and less likely to come from previously or never married parents; more likely to have parents with a college degree but less likely to have parents with a graduate degree or less than high school education; more likely to be White, Hispanic, or Native American, and less likely to be Black, Asian, or multiracial; more likely to live in the Midwest and less likely to live in the West; and more likely to live in a rural community and less likely in an urban area. It is essential to note that the proper use of survey weights and corresponding strata and PSU variables in all analyses delineated below adjust for the complex and clustered sampling design of the ECLS-K study as well as for differential participation and attrition over time, properly estimating standard errors and yielding nationally representative estimates.

## Measures

### Adolescent self concept

Early adolescent socioemotional functioning was assessed in eighth grade through both self and parent reports. Adolescents rated their feelings of self-worth using the self concept scale from the National Education Longitudinal Study of 1988 (NELS:88), in which they indicated how much they agreed (1 *strongly disagree* to 4 *strongly agree*) with seven statements about their self-worth (e.g., “on the whole I am satisfied with myself”). Items were averaged, with higher scores indicating higher self concept ( $\alpha = 0.81$ ).

### Adolescent school anxiety

Adolescents also self-reported on internalizing problems using the Self Description Questionnaire (SDQ) II, in which they reported how true statements about feelings of sadness, loneliness, and anxiety were for them (1 *not at all true* to 4 *very true*). Nearly all anxiety items pertained specifically to school, and a factor analysis identified a school anxiety dimension, with five items (e.g., “I worry about doing well in school”) averaged, and higher scores signifying greater school anxiety ( $\alpha = 0.72$ ).

### Adolescent emotional problems

Two additional measures of socioemotional functioning were drawn from parent reports on the Strengths and Difficulties Questionnaire, a well-validated measure of children’s emotional and behavioral functioning (Goodman and Scott 1999). The emotion problems subscale comprises five

items in which parents reported on their child’s level of unhappiness and anxiety (e.g., “child is often unhappy or depressed:”  $\alpha = 0.66$ ).

### Adolescent conduct problems

Parents also reported on adolescent conduct problems. The conduct problems subscale includes five items measuring the child’s temper, obedience, and tendency towards acting out (e.g., “child often fights with other youth or bullies them”;  $\alpha = 0.61$ ). Parents reported the degree to which statements were true for their children (0 *not at all true* to 2 *certainly true*).

### Family income

Measures of income were drawn from parent and school administrator questionnaires and Census data. Parents reported total prior year family income in U.S. dollars for all household members, reported as one of 13 categorical clusters (\$5000 or less; \$5001–\$10,000; ... \$100,001–\$200,000; \$200,001 or more). Because this was not a linear scale, responses were coded to the midpoint of each category to create a continuous variable of total income in the prior year, expressed in \$10,000 increments.

### Neighborhood income

Neighborhood income, operationalized as median household income at the census tract level, was derived from the 2000 Decennial Census linked to individual addresses. Neighborhood income was also expressed in \$10,000 units.

### School income

School administrators reported on school income, operationalized as the proportion of students eligible for free lunch. (Unlike other research using samples such as Add Health (e.g., Coley et al. 2018), the ECLS-K did not have adequate numbers of students clustered in schools ( $M = 3.43$ ,  $SD = 4.83$ ) to create a school income variable from aggregated individual child measures, and hence we relied on administrator reports of school lunch eligibility as a proxy for school income, as is common in prior research (Caldas and Bankston 1997; Nicholson et al. 2014)).

### Youth race/ethnicity

Parents identified their children as White; African American or Black; Hispanic (of any race); Asian; Native Hawaiian or Pacific Islander; American Indian or Alaskan Native; or more than one race (with the largest subgroups being children identified as White and Asian). Because there were so

few youth in the Native Hawaiian/Pacific Islander group ( $n \approx 100$ ) it was not possible to retain this category independently and it was collapsed with the Asian category according to U.S. Census guidelines (Grieco and Cassidy 2001), leading to six race/ethnicity groups, termed, for the sake of simplicity, as White, Black, Hispanic, Asian, American Indian, and multiracial.

### Covariates

In order to help isolate unique associations between family, neighborhood, and school income and early adolescent functioning, we adjusted analytic models for a host of covariates at the child, family, neighborhood, and school levels, selecting covariates due to prior evidence of their association with income and child functioning. At the child level, controls included age in months, gender, and grade-level (which varied from fourth to tenth grade, although 89% of adolescents were in eighth grade). Family covariates included primary parent age in years, the number of children under 18 years old in the household, whether either parent was an immigrant, parental marital status (married; separated, divorced, or widowed; never married), and the highest level of education of either parent in the household (less than high school; high school or equivalent; some college education; college degree; graduate degree). School and neighborhood covariates included school size (i.e., total number of students enrolled), region of the country (Northeast; Midwest; West; or South), and urbanicity (large/mid-sized city; large/mid-sized suburb/large town; or small town/rural). Importantly, we also included covariates tapping into parental preferences regarding their neighborhood and school contexts, assessed through parent reports concerning the reason they moved to their current residence, with dummy variables indicating (1) whether they moved for a safer neighborhood, and (2) whether they moved for a better school.

In addition to child, family, neighborhood and school covariates, we also adjusted for earlier measures of child functioning, a key mechanism to address unmeasured heterogeneity bias by adjusting for unmeasured individual and contextual factors that have a consistent effect on child functioning, thus helping to better isolate the unique role of family, neighborhood, and school contexts on early adolescent outcomes. These lagged measures were assessed at the fifth grade wave. Due to the developmental appropriateness of different measures, we were not able to access exactly parallel measures for socioemotional functioning in fifth grade. We therefore used measures matched conceptually, which still showed strong continued validity in distinguishing individual differences in functioning. Specifically, we included the internalizing subscale from the child report SDQ (8 items;  $\alpha = 0.79$ ) as a lag for the eighth-grade

school anxiety, self concept, and emotional problems outcomes. We further drew on the fifth grade SDQ Anger/Distractibility scale (6 items;  $\alpha = 0.79$ ) as a lag for the eighth-grade conduct problems models.

### Analytic Approach

Models were estimated using lagged OLS regression models. To properly adjust for the complex and clustered sampling design of the ECLS-K and to correctly estimate standard errors and yield nationally representative estimates, all analyses were conducted using the Taylor series linearization approach incorporating the eighth grade child or parent survey weight (C7CW0/ C7PW0) and corresponding strata (C7TCWSTR/ C7TPWSTR) and PSU (C7TCWPSU/ C7TPWPSU) for models predicting child-reported or parent-reported measures of adolescent functioning, respectively. The first set of models assessed associations between family, neighborhood, and school income and each measure of early adolescent functioning in eighth grade, adjusting for the full range of child, family, neighborhood and school covariates as well as the appropriate lagged measure of child functioning. In response to research which has suggested that income has nonlinear associations with children's functioning (Duncan et al. 2017), we tested for nonlinear income effects at the family, neighborhood, and school level by including both linear and quadratic income terms (created by squaring the linear measures of family, neighborhood, and school income). Non-significant quadratic terms were cut from models for the sake of parsimony. After estimating these models for the full sample, we estimated them separately by racial/ethnic group in our second set of regression analyses (using the *subpop* command in STATA to properly weight and estimate variances). The third set of models included interactions between contexts (family  $\times$  neighborhood, family  $\times$  school, neighborhood  $\times$  school), including interactions for nonlinear income terms only for those that emerged in the main effects models to better control for spurious effects. These models were estimated both on the total analytic sample and on the separate racial/ethnic subgroups. All continuous variables were standardized prior to analyses to ease concerns over multicollinearity and simplify interpretation of the results; as such, coefficients represent standard deviation units. Missing data (ranging from 0 to 25.4%) were addressed using multiple imputation in R to create 30 datasets. All analyses were run in Stata MP 15.0.

Given relatively high correlations between race/ethnicity and particular covariates (e.g., region), we ran variance inflation factors (VIFs) for each model to test for multicollinearity. The only analyses that presented higher-than-normal VIFs (i.e., above five) were the American Indian youth models. For these models, issues emerged around two

**Table 1** Weighted descriptive data on adolescent well-being and income variables

	Full Sample <i>N</i> = 7625 Mean (SD)	White <i>n</i> = 4472 (59%) Mean (SD)	Black <i>n</i> = 877 (12%) Mean (SD)	Hispanic <i>n</i> = 1413 (19%) Mean (SD)	Asian <i>n</i> = 529 (7%) Mean (SD)	American Indian <i>n</i> = 154 (2%) Mean (SD)	Multiracial <i>n</i> = 172 (2%) Mean (SD)
Self concept	3.22 (0.53)	3.23 (0.52) <i>w</i> > <i>h</i>	3.31 (0.53) <i>b</i> > <i>w</i> , <i>h</i> , <i>a</i> , <i>ai</i>	3.14 (0.52)	3.18 (0.49)	3.10 (0.51)	3.36 (0.52) <i>m</i> > <i>w</i> , <i>h</i> , <i>a</i> , <i>ai</i>
School anxiety	2.38 (0.67)	2.36 (0.64)	2.37 (0.73)	2.47 (0.70) <i>h</i> > <i>w</i> , <i>b</i> , <i>m</i>	2.44 (0.63) <i>a</i> > <i>m</i>	2.33 (0.64)	2.24 (0.65)
Emotion problems	0.32 (0.36)	0.33 (0.36) <i>w</i> > <i>b</i> , <i>a</i>	0.29 (0.34)	0.33 (0.38) <i>h</i> > <i>a</i>	0.25 (0.34)	0.32 (0.34)	0.36 (0.39)
Conduct problems	0.40 (0.25)	0.39 (0.25) <i>w</i> > <i>a</i>	0.44 (0.28) <i>b</i> > <i>w</i> , <i>a</i>	0.41 (0.25) <i>h</i> > <i>a</i>	0.35 (0.24)	0.39 (0.28)	0.41 (0.24) <i>m</i> > <i>a</i>
Family income (\$10,000)	6.77 (6.83)	8.51 (7.65) <i>w</i> > <i>b</i> , <i>h</i> , <i>a</i> , <i>ai</i>	3.92 (4.20)	4.42 (4.13)	7.19 (6.78) <i>a</i> > <i>b</i> , <i>h</i> , <i>ai</i>	4.26 (4.73)	8.24 (7.67) <i>m</i> > <i>b</i> , <i>h</i> , <i>ai</i>
Neighborhood median income (\$10,000)	4.69 (2.06)	5.17 (2.12) <i>w</i> > <i>b</i> , <i>h</i>	3.56 (1.49)	4.24 (1.75) <i>h</i> > <i>a</i>	5.33 (2.13) <i>a</i> > <i>b</i> , <i>h</i> , <i>ai</i>	3.54 (2.32)	5.18 (2.11) <i>m</i> > <i>b</i> , <i>h</i>
School % eligible free lunch	34.00 (22.12)	24.93 (17.24)	50.89 (23.11) <i>b</i> > <i>w</i> , <i>h</i> , <i>a</i> , <i>m</i>	43.69 (24.37) <i>h</i> > <i>w</i> , <i>a</i> , <i>m</i>	32.07 (22.17) <i>a</i> > <i>w</i>	53.29 (32.92) <i>ai</i> > <i>w</i> , <i>b</i> , <i>m</i>	27.63 (17.72)

Differences between race groups assessed for primary variables of interest at a significance level of 0.05

*w* White, *b* Black or African American, *h* Hispanic or Latino, *a* Asian, Hawaiian, or Pacific Islander, *ai* American Indian or Alaska Native, *m* multiracial

covariates: region and urbanicity. Further exploration of these indicators revealed that the vast majority of American Indian youth in this sample were living in rural settings in the Midwest. We elected to remove these two covariates for American Indian youth given their reduced variance, which effectively resolved the multicollinearity issues and allowed for more accurate modeling.

## Results

### Descriptive Results

Weighted descriptive statistics on economic resources and child functioning in eighth grade are presented in Table 1. Notable subgroup differences in economic resources emerged, with White, Asian, and multiracial adolescents having higher levels of family income, neighborhood income, and school income (i.e., lower levels of free lunch) than their Black, Hispanic, and American Indian peers. Family incomes were approximately twice as high in White, Asian, and multiracial families as in other families of color, while average neighborhood incomes were about 50% higher for the former groups. Similar patterns emerged in relation to the proportion of students eligible for free lunch, which averaged over 50% for Black and American Indian youth, but less than 25% for White students. We also considered correlations among family, neighborhood, and school income variables, which were moderate for the sample as a whole ( $r = 0.41$ – $0.61$ ), highlighting the fact that family economic resources help families to access neighborhood and school contexts with greater economic resources, and that schools often draw from contiguous

neighborhoods. Nonetheless, the moderate level of these correlations highlight the feasibility of treating these three contexts as distinct. Cross-contextual income correlations showed slightly more variability across racial/ethnic groups, ranging from  $r = 0.30$  to  $r = 0.67$ , with no discernible pattern of consistently higher or lower correlations within one group versus others.

Descriptive results also highlight significant differences in child functioning across racial/ethnic groups. Specifically, multiracial and Black adolescents reported the highest levels of self concept, which were significantly higher than all other subgroups (Whites, Hispanics, Asians, American Indians). Similarly, multiracial, Black, and White adolescents reported lower levels of school anxiety than their Hispanic peers. Few differences emerged in relation to parent-reported emotion and conduct problems, with the primary pattern indicating lower levels of problems among Asian adolescents. Weighted descriptives on sample characteristics, presented in Table 2, indicate that the analytic sample was 47% female and averaged 14 years old. About two-thirds lived in married-parent families, with just over one-fifth living with an immigrant parent.

### Family, Neighborhood, and School Income Associations with Early Adolescent Well-being

Table 3 presents the results from OLS regression models predicting early adolescent functioning from family, neighborhood, and school income for the full sample, adjusting for all covariates and earlier adolescent functioning. The results indicate that family, neighborhood, and school income were all uniquely and significantly associated with early adolescent well-being, with predominantly

**Table 2** Weighted descriptive data on covariates

	Full Sample	White	Black	Hispanic	Asian	American Indian	Multiracial
	<i>N</i> = 7625	<i>n</i> = 4472 (59%)	<i>n</i> = 877 (12%)	<i>n</i> = 1413 (19%)	<i>n</i> = 529 (7%)	<i>n</i> = 154 (2%)	<i>n</i> = 172 (2%)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Internalizing lag	2.08 (0.65)	1.97 (0.60)	2.23 (0.70)	2.27 (0.65)	2.07 (0.61)	2.16 (0.64)	1.89 (0.58)
Externalizing lag	1.89 (0.68)	1.78 (0.63)	2.14 (0.73)	1.95 (0.70)	1.75 (0.64)	2.18 (0.70)	1.80 (0.63)
Age in months	171.52 (4.73)	171.87 (4.72)	171.23 (4.65)	170.99 (4.66)	170.07 (4.39)	172.42 (4.68)	170.89 (3.79)
Grade level	7.85 (0.38)	7.88 (0.35)	7.71 (0.50)	7.88 (0.34)	7.95 (0.26)	7.67 (0.53)	7.86 (0.35)
Caregiver age	40.95 (6.92)	41.66 (6.17)	39.91 (8.46)	39.49 (6.85)	42.78 (6.40)	41.73 (8.76)	40.47 (7.66)
# children in HH	2.40 (1.14)	2.25 (1.01)	2.57 (1.29)	2.61 (1.20)	2.43 (1.25)	3.09 (1.57)	2.35 (1.04)
School enrollment	739.81 (321.57)	720.22 (314.59)	698.86 (321.54)	839.61 (315.17)	819.56 (360.38)	415.4 (344.24)	749.92 (295.22)
	Proportion	Proportion	Proportion	Proportion	Proportion	Proportion	Proportion
Child female	47.40%	46.92%	45.14%	49.86%	54.70%	46.97%	48.81%
Caregiver married	67.87%	76.16%	42.09%	66.45%	86.25%	54.47%	73.54%
Previously married	21.61%	20.63%	23.97%	23.02%	9.67%	29.68%	16.92%
Single, never married	10.53%	3.21%	33.95%	10.52%	4.08%	15.85%	9.54%
Immigrant family	22.20%	7.69%	9.44%	67.02%	79.33%	7.64%	18.74%
Caregiver < HS	8.60%	3.40%	6.63%	25.72%	10.80%	7.94%	2.24%
HS or equivalent	20.91%	16.62%	32.53%	23.76%	17.52%	29.74%	9.82%
Some college	36.45%	34.83%	44.19%	33.06%	28.16%	44.32%	50.29%
College degree	20.97%	26.48%	12.65%	12.30%	24.11%	16.24%	23.00%
Graduate degree	13.08%	18.67%	4.01%	5.16%	19.39%	1.76%	14.65%
Moved for school	5.25%	4.53%	7.75%	4.58%	4.35%	2.85%	6.96%
Moved for safety	3.64%	2.40%	4.45%	6.60%	4.25%	3.58%	1.78%
Northeast	17.34%	21.33%	13.41%	10.77%	18.78%	2.41%	16.75%
Midwest	22.48%	29.29%	12.29%	10.31%	17.00%	61.87%	28.54%
South	40.18%	36.08%	68.65%	32.20%	20.30%	11.52%	27.57%
West	20.01%	13.31%	5.65%	46.73%	43.93%	24.20%	27.15%
Large/medium city	31.74%	21.04%	46.75%	47.65%	32.10%	16.70%	49.25%
Suburb/large town	42.80%	48.12%	31.90%	40.18%	44.09%	15.24%	32.74%
Rural	25.46%	30.84%	21.35%	12.18%	23.81%	68.06%	18.01%

protective and predominantly linear patterns of associations. Specifically, family income was consistently associated with more positive functioning, including with heightened self concept, although this link weakened at upper levels of the income distribution, and with lower emotion problems and conduct problems, with all showing small effect sizes of less than 0.15 SD shifts in well-being for each 1.00 SD shift in family income. School income was less consistently associated with small increments of improved functioning: levels of conduct problems were lower for early adolescents in higher income schools (i.e., higher proportion of students not eligible for free lunch).

Patterns for neighborhood income were somewhat more mixed. Neighborhood income showed nonlinear links with self concept, indicating that adolescents' self concept

declined as neighborhood income moved from concentrated poverty to just above the sample mean, then rose as neighborhood income moved into higher ranges. In contrast, greater neighborhood income was associated with lowered levels of school anxiety, although this association flattened in higher income neighborhoods (those 1 SD greater than the mean).

### Income Associations with Early Adolescent Well-being Across Racial/Ethnic Subgroups

As hypothesized, the patterns of associations between economic resources and early adolescent well-being differed notably across adolescents from diverse racial/ethnic backgrounds, as shown in Table 4. Specifically, patterns for



**Table 3** OLS regressions predicting adolescent well-being from family, neighborhood, and school income, full sample

	Self concept coefficient (SE)	School anxiety coefficient (SE)	Emotion problems coefficient (SE)	Conduct problems coefficient (SE)
Family income	0.14 (0.04)**	0.04 (0.03)	−0.05 (0.02)**	−0.06 (0.02)**
Squared	−0.03 (0.01)*	–	–	–
Neighborhood median income	−0.02 (0.03)	−0.08 (0.03)*	−0.04 (0.03)	0.03 (0.03)
Squared	0.02 (0.01)*	0.03 (0.01)*	–	–
School % NOT free lunch	−0.01 (0.03)	0.02 (0.03)	0.05 (0.03)	−0.07 (0.03)*
Squared	–	–	–	–
Lag	−0.22 (0.02)**	0.32 (0.02)**	0.14 (0.02)**	0.23 (0.03)**
Child age	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)
Caregiver age	0.00 (0.02)	0.03 (0.02)	0.04 (0.02) <sup>+</sup>	0.02 (0.02)
# children in HH	0.02 (0.02)	−0.01 (0.02)	−0.01 (0.02)	0.04 (0.02) <sup>+</sup>
Child grade level	0.07 (0.02)**	−0.02 (0.02)	−0.05 (0.02)*	−0.04 (0.02)*
School enrollment	0.02 (0.02)	0.01 (0.02)	−0.06 (0.02)*	−0.03 (0.02)
Female	−0.10 (0.04)*	0.23 (0.04)**	0.10 (0.04)*	−0.07 (0.04)
African American	0.34 (0.07)**	−0.11 (0.06) <sup>+</sup>	−0.23 (0.06)**	−0.06 (0.09)
Hispanic or Latino	0.05 (0.07)	−0.05 (0.07)	0.03 (0.08)	−0.05 (0.07)
Asian	0.00 (0.07)	0.00 (0.09)	−0.08 (0.10)	−0.08 (0.09)
American Indian/ Alaska Native	−0.03 (0.11)	−0.17 (0.11)	−0.18 (0.09)*	−0.36 (0.10)**
Multiracial	0.25 (0.09)**	−0.15 (0.11)	0.15 (0.20)	0.11 (0.13)
Immigrant family	−0.08 (0.06)	0.09 (0.06)	−0.15 (0.06)*	−0.08 (0.07)
Previously married	−0.07 (0.06)	0.01 (0.05)	0.14 (0.05)**	0.12 (0.06)*
Single, never married	0.01 (0.07)	−0.01 (0.08)	0.03 (0.10)	0.09 (0.10)
Less than HS	−0.05 (0.08)	0.03 (0.09)	0.05 (0.11)	0.13 (0.11)
HS or equivalent	−0.03 (0.06)	0.05 (0.05)	−0.02 (0.07)	0.04 (0.07)
College degree	0.08 (0.05)	0.04 (0.05)	−0.07 (0.06)	−0.05 (0.05)
Graduate degree	0.12 (0.07) <sup>+</sup>	−0.01 (0.06)	0.00 (0.07)	−0.07 (0.06)
Moved for better school	0.13 (0.09)	−0.04 (0.10)	−0.11 (0.14)	−0.19 (0.11) <sup>+</sup>
Moved for safety	0.01 (0.11)	−0.03 (0.11)	0.27 (0.14) <sup>+</sup>	−0.01 (0.13)
Northeast	0.05 (0.06)	0.06 (0.05)	−0.08 (0.07)	−0.01 (0.06)
Midwest	−0.02 (0.05)	0.07 (0.04) <sup>+</sup>	−0.03 (0.06)	0.06 (0.06)
West	−0.04 (0.06)	0.10 (0.05)*	−0.12 (0.06) <sup>+</sup>	0.03 (0.05)
Large/medium city	0.09 (0.05) <sup>+</sup>	0.01 (0.04)	−0.04 (0.05)	−0.09 (0.06)
Rural	0.00 (0.05)	−0.04 (0.05)	−0.06 (0.06)	−0.08 (0.06)

<sup>+</sup> $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$

White adolescents largely mimicked those of the sample as a whole, with greater economic resources consistently associated with more positive functioning. Protective links emerged between family income and White adolescents' greater self concept (which flattened at the highest levels of income) and lower emotion problems and conduct problems, all showing small effect sizes. School income was less consistently protective for White adolescents, showing links with lower conduct problems, with no significant associations emerging for neighborhood income.

In contrast, across all subgroups of adolescents of color, we see more mixed or nonsignificant links between economic resources and adolescent well-being. Specifically, the results indicate *no* protective effects of family income for Black or Hispanic adolescents. Turning to other groups, the results indicate a handful of mixed effects of family income for Asian adolescents, with family income associated with heightened youth-reported school anxiety but also with lower parent-reported emotion problems, with both associations flattening at the upper end of the income

**Table 4** OLS regressions predicting adolescent well-being from family, neighborhood, and school income, by racial/ethnic subgroups

	Self concept coefficient (SE)	School anxiety coefficient (SE)	Emotion problems coefficient (SE)	Conduct problems coefficient (SE)
<i>White youth</i>				
Family income	0.17 (0.06)**	0.05 (0.03) <sup>+</sup>	−0.06 (0.02)*	−0.06 (0.02)**
Squared	−0.04 (0.02)*	–	–	–
Neighborhood income	0.04 (0.03)	−0.03 (0.03)	−0.02 (0.03)	0.03 (0.03)
School % NOT free lunch	−0.05 (0.04)	0.02 (0.05)	0.02 (0.05)	−0.12 (0.05)*
<i>Black youth</i>				
Family income	0.13 (0.08)	−0.06 (0.09)	−0.04 (0.07)	−0.05 (0.09)
Squared	–	–	–	–
Neighborhood income	−0.15 (0.09) <sup>+</sup>	−0.11 (0.10)	−0.04 (0.08)	0.06 (0.13)
School % NOT free lunch	0.03 (0.07)	0.04 (0.07)	0.02 (0.06)	−0.09 (0.08)
<i>Hispanic or Latino youth</i>				
Family income	0.10 (0.07)	0.00 (0.07)	−0.02 (0.06)	−0.06 (0.06)
Neighborhood income	0.02 (0.06)	−0.03 (0.06)	−0.08 (0.07)	0.05 (0.07)
School % NOT free lunch	0.00 (0.05)	−0.01 (0.04)	0.04 (0.06)	−0.06 (0.06)
<i>Asian youth</i>				
Family income	0.06 (0.07)	0.22 (0.09)*	−0.36 (0.13)**	−0.05 (0.05)
Squared	–	−0.06 (0.02)*	0.07 (0.03)*	–
Neighborhood income	−0.01 (0.09)	−0.07 (0.07)	0.08 (0.06)	0.08 (0.06)
School % NOT free lunch	−0.09 (0.08)	−0.01 (0.08)	0.08 (0.09)	0.01 (0.09)
<i>American Indian/Alaska Native youth</i>				
Family income	0.02 (0.12)	0.39 (0.14)**	0.05 (0.09)	−0.66 (0.18)**
Squared	–	–	–	0.15 (0.06)**
Neighborhood income	0.03 (0.14)	−0.32 (0.12)*	−0.22 (0.13)	−0.03 (0.18)
Squared	–	0.28 (0.08)**	0.17 (0.06)**	–
School % NOT free lunch	0.04 (0.10)	0.13 (0.08)	0.19 (0.11) <sup>+</sup>	0.17 (0.13)
<i>Multiracial youth</i>				
Family income	−0.06 (0.09)	0.64 (0.20)**	0.28 (0.15) <sup>+</sup>	0.44 (0.21)*
Squared	–	−0.14 (0.05)**	−0.09 (0.04)*	−0.11 (0.05)*
Neighborhood income	0.17 (0.11)	−0.16 (0.10)	−0.08 (0.12)	0.29 (0.16) <sup>+</sup>
Squared	–	–	–	−0.14 (0.06)*
School % NOT free lunch	−0.10 (0.13)	−0.24 (0.14) <sup>+</sup>	0.14 (0.18)	−0.29 (0.16) <sup>+</sup>

<sup>+</sup> $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$

All models included the set of covariates shown in Table 3

distribution. The results also were mixed for American Indian adolescents: family income was associated with greater school anxiety, with a moderate effect size, but also with substantially lower conduct problems, an association which tempered slightly at higher family incomes. Finally,

for multiracial adolescents, family income was more consistently linked with *poorer* functioning for young adolescents, with increments in family income associated with heightened levels of school anxiety, emotion problems, and conduct problems with moderate effect sizes, with all

**Table 5** OLS regressions assessing income interactions, full and subsamples

	Self concept coefficient (SE)	School anxiety coefficient (SE)	Emotion problems coefficient (SE)	Conduct problems coefficient (SE)
<i>Full sample</i>				
Family income	0.10 (0.03)**	0.04 (0.03)	−0.06 (0.03)*	−0.09 (0.03)**
Neighborhood income	0.01 (0.03)	−0.08 (0.03)*	−0.03 (0.04)	0.07 (0.04) <sup>+</sup>
School % NOT free lunch	−0.02 (0.03)	0.02 (0.03)	0.03 (0.04)	−0.09 (0.04)*
Fam × Sch	−0.05 (0.03)	−0.04 (0.04)	−0.04 (0.04)	0.06 (0.03) <sup>+</sup>
Fam × Nhd	−0.01 (0.02)	0.02 (0.02)	0.04 (0.02)*	0.00 (0.02)
Sch × Nhd	0.03 (0.02)	0.05 (0.03) <sup>+</sup>	−0.03 (0.03)	−0.07 (0.03)*
<i>White youth</i>				
Family income	0.11 (0.04)**	0.07 (0.05)	−0.07 (0.04)	−0.11 (0.04)**
Neighborhood income	0.05 (0.05)	−0.10 (0.05)*	0.00 (0.05)	0.09 (0.06)
School % NOT free lunch	−0.05 (0.04)	0.03 (0.05)	0.02 (0.05)	−0.13 (0.05)*
Fam × Sch	−0.04 (0.05)	−0.08 (0.06)	−0.02 (0.05)	0.07 (0.05)
Fam × Nhd	−0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	−0.01 (0.02)
Sch × Nhd	0.03 (0.04)	0.07 (0.04)	−0.04 (0.04)	−0.07 (0.05)
<i>African American youth</i>				
Family income	0.11 (0.09)	−0.05 (0.10)	0.03 (0.11)	−0.02 (0.11)
Neighborhood income	−0.13 (0.09)	−0.12 (0.10)	−0.09 (0.06)	−0.03 (0.13)
School % NOT free lunch	−0.07 (0.09)	0.05 (0.09)	−0.05 (0.07)	−0.07 (0.11)
Fam × Sch	−0.12 (0.09)	−0.01 (0.10)	−0.05 (0.12)	0.20 (0.11) <sup>+</sup>
Fam × Nhd	0.12 (0.08)	−0.07 (0.10)	−0.04 (0.07)	−0.09 (0.10)
Sch × Nhd	−0.06 (0.06)	0.04 (0.07)	−0.06 (0.08)	−0.13 (0.08)
<i>Hispanic or Latino youth</i>				
Family income	0.10 (0.08)	−0.02 (0.07)	−0.06 (0.07)	−0.07 (0.07)
Neighborhood income	0.01 (0.06)	−0.02 (0.06)	−0.07 (0.07)	0.04 (0.06)
School % NOT free lunch	0.02 (0.06)	−0.02 (0.05)	0.02 (0.07)	−0.05 (0.07)
Fam × Sch	−0.02 (0.08)	−0.07 (0.07)	−0.02 (0.07)	0.06 (0.09)
Fam × Nhd	−0.01 (0.06)	0.06 (0.05)	0.07 (0.05)	0.00 (0.05)
Sch × Nhd	0.04 (0.05)	0.03 (0.05)	−0.04 (0.06)	−0.05 (0.06)
<i>Asian youth</i>				
Family income	0.12 (0.09)	0.13 (0.07) <sup>+</sup>	−0.28 (0.10)**	−0.13 (0.09)
Neighborhood income	0.06 (0.08)	−0.07 (0.08)	0.07 (0.07)	0.03 (0.07)
School % NOT free lunch	−0.13 (0.08)	0.02 (0.08)	0.08 (0.09)	0.03 (0.09)
Fam × Sch	−0.09 (0.09)	0.10 (0.09)	−0.02 (0.10)	0.03 (0.09)
Fam × Nhd	−0.03 (0.06)	−0.10 (0.06) <sup>+</sup>	0.10 (0.07)	0.04 (0.06)
Sch × Nhd	0.11 (0.07)	0.05 (0.07)	−0.04 (0.07)	0.07 (0.07)
<i>American Indian/Alaska Native youth</i>				
Family income	−0.01 (0.14)	0.36 (0.17)*	−0.12 (0.16)	−0.60 (0.30)
Neighborhood income	−0.05 (0.20)	−0.40 (0.17)*	−0.11 (0.15)	0.27 (0.24)
Squared	–	0.19 (0.23)	–	–
School % NOT free lunch	0.13 (0.23)	−0.13 (0.23)	0.16 (0.19)	−0.37 (0.27)
Fam × Sch	−0.11 (0.23)	−0.14 (0.24)	−0.40 (0.22) <sup>+</sup>	−0.58 (0.39)
Fam × Nhd	−0.04 (0.20)	0.03 (0.23)	0.19 (0.20)	0.41 (0.37)

**Table 5** (continued)

	Self concept coefficient (SE)	School anxiety coefficient (SE)	Emotion problems coefficient (SE)	Conduct problems coefficient (SE)
Fam × Nhd Squared	–	–0.03 (0.09)	–	–
Sch × Nhd	0.13 (0.09)	0.05 (0.26)	0.22 (0.07)**	–0.12 (0.10)
Sch × Nhd Squared	–	0.13 (0.07)*	–	–
<i>Multiracial youth</i>				
Family income	0.09 (0.19)	0.53 (0.20)**	0.23 (0.15)	0.56 (0.22)*
Squared	–	–	–	–0.06 (0.16)
Neighborhood income	0.05 (0.18)	–0.10 (0.15)	–0.17 (0.17)	0.35 (0.18) <sub>+</sub>
Squared	–	–	–	–0.31 (0.15)*
School % NOT free lunch	–0.06 (0.14)	–0.26 (0.15) <sup>+</sup>	0.16 (0.18)	–0.36 (0.20) <sup>+</sup>
Fam × Sch	–0.14 (0.19)	0.08 (0.18)	–0.39 (0.20)*	–0.33 (0.38)
Fam Squared × Sch	–	–	–	0.06 (0.09)
Fam × Nhd	–0.03 (0.08)	–0.26 (0.08)**	0.04 (0.10)	0.45 (0.29)
Fam Squared × Nhd	–	–	–	–0.19 (0.12)
Fam × Nhd Squared	–	–	–	–0.20 (0.13)
Fam Squared × Nhd Squared	–	–	–	0.07 (0.03)*
Sch × Nhd	0.19 (0.15)	0.02 (0.12)	0.13 (0.16)	0.07 (0.29)
Sch × Nhd Squared	–	–	–	0.12 (0.14)

*Fam* family income, *Nhd* neighborhood income, *Sch* school income

<sub>+</sub>  $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$

All models included the set of covariates shown in Table 3

associations flattening for families at the top end of the income distribution at about 1 SD above the mean.

Very few significant links emerged between neighborhood or school income and the emotional and behavioral functioning of youth of color, with no significant associations for Black, Hispanic, or Asian adolescents. Among American Indians, neighborhood income was predictive of lower school anxiety and emotion problems in poorer and average-income neighborhoods, but with rising school anxiety and emotion problems among adolescents in the most well-off neighborhoods. In contrast, neighborhood income was linked with heightened conduct problems among multiracial adolescents, a link which reversed for the highest income neighborhoods. No significant results for school income emerged across any of the youth of color subgroups.

### Interactions between Family, Neighborhood, and School Income

The results from the third set of models testing bivariate interactions between family, neighborhood, and school income (presented in Table 5) show a pattern of non-significant interactions, suggesting that family, neighborhood, and school income were associated with adolescent

well-being in an independent manner. For the sample as a whole, two of twelve interactions were significant, with no consistent pattern. Specifically, a significant interaction between family and neighborhood income suggested that family income was associated with lowered emotional problems only among adolescents in lower-income neighborhoods. In contrast, an interaction between school and neighborhood income suggested that school income was protective for conduct problems only in combination with higher income neighborhoods.

No significant interactions emerged across contexts for White, Black, Hispanic, or Asian youth. For American Indians, interactions between neighborhood and school income were associated with both measures of internalizing, with patterns showing some support for the argument that higher levels of neighborhood income were associated with lower school anxiety and emotional problems only among adolescents in low income schools. For multiracial adolescents a small number of significant interactions emerged as well, although no consistent patterns emerged, with heightened family income associated with higher internalizing in lower income schools (for emotion problems) and lower income neighborhoods (for school anxiety), but also associated with lower conduct problems in lower income neighborhoods.

## Sensitivity Analyses

Sensitivity analyses were run to check the robustness of the results. Additional models included all quadratic income variables (rather than cutting nonsignificant quadratics); used the proportion of free or reduced price lunch as the measure of school income (rather than just free lunch); and excluded (rather than included) adolescents with missing data on eighth grade socioemotional functioning variables (results not shown). The results across all of these sensitivity analyses did not vary substantively from those reported in tables.

## Discussion

Although the U.S. economy has been strong and growing for a decade, increasing levels of economic inequality and economic segregation in the U.S. threaten to limit the opportunities and well-being of large proportions of American children (Duncan and Murnane 2016). The prevalence of inequality has been growing not only at the family level, but also across other primary contexts in which children are raised, including neighborhoods (Bischoff and Reardon 2014) and schools (Owens et al. 2016), and remain more unequal for Black, Hispanic, and American Indian children in comparison to their White and Asian counterparts (Firebaugh and Acciai 2016). As such, it is essential for research to consider how such unequal access to economic resources from family, neighborhood, and school contexts are associated with children's healthy development.

The primary objectives of this research were twofold: first, to identify the key proximal economic contexts that young adolescents of different racial/ethnic backgrounds occupy; and second, to examine associations between economic resources and eighth graders' socioemotional functioning across racial/ethnic groups. The availability of a rich array of reliable measures of adolescent functioning across a nationally representative and diverse sample of early adolescents allowed us to add to the sparse research base concerning the relative returns to economic resources across key subgroups of American youth. This study is the first of which we are aware to parse out racial/ethnic differences in links between family, neighborhood, and school economic contexts and early adolescents' well-being across multiple domains.

The results confirm that youth of different racial/ethnic backgrounds experience vastly different economic contexts. White, Asian, and multiracial youth consistently occupied more economically advantaged family, neighborhood, and school contexts than their Black, Hispanic, and American Indian peers. Although it is important to acknowledge the

substantial variation that emerged within subgroups as well, differences between groups highlight the inequitable distribution of economic resources in the U.S. as experienced in the proximal, daily contexts in which young adolescents develop.

In addition to highlighting notable differences in context, the results further revealed differences in the developmental returns of economic resources across racial/ethnic subgroups of early adolescents. One primary pattern identified family income as the most consistent correlate of early adolescent socioemotional well-being compared to neighborhood and school income, which aligns with a large body of research that underscores the importance of the family context for youth (see Devenish et al. 2017 for review). Perhaps even more notable, however, are the patterns showing first, a *complete lack* of significant links between family income and early adolescent functioning for Black and Hispanic youth; second, *mixed* associations between family income and early adolescent functioning for Asian and American Indian young adolescents; and third, predominantly *negative* links for early adolescents of multi-racial backgrounds. Interestingly, the beneficial patterns linking family income with heightened youth self concept, lower emotion problems, and lower conduct problems that emerged in the full sample were driven primarily by White youth, who comprised the largest portion of the sample (roughly 60%). The failure of this pattern to replicate across diverse youth of color highlights the risks of ignoring subgroup differences and underscores the troubling potential to wash out meaningful differences when conducting research with largely White samples, including nationally representative samples.

## Potential Explanation for Differential Returns to Economic Resources

The overarching pattern of results replicates limited prior research, which has hypothesized but found mixed evidence for stronger links between economic resources and children's socioemotional functioning among White families in contrast to Black and Hispanic families (e.g., Bolger et al. 1995). The present research extends this pattern across a range of other racial/ethnic populations, and adds to prior critical analyses of the literature which have argued that connections between family income and both academic (Sirin 2005) and mental health (Samaan 2000) outcomes are weaker among families of color.

There are several potential explanations for these findings. First, a practical explanation may be linked to the more limited variability in family income across some subgroups of youth (Black, Hispanic, and American Indian groups) and smaller cell sizes, which limit statistical power. Indeed, the standard errors for family income coefficients

were often larger among the subgroups with smaller cell sizes, but so were the point estimates - the latter of which showed mixed directionality with adolescent functioning. Other potential explanations focus on conceptual arguments concerning how potential benefits of economic resources and buffers against poverty may vary across racial/ethnic subgroups in the U.S. For example, some evidence suggests that young adolescents of color may be buffered against negative effects of economic deprivation by strong social networks (Denner et al. 2001), familism (Gonzales et al. 2011), and other forms of resiliency and resistance which have been highlighted primarily in research on Black and Hispanic families (Samaan 2000). On the other hand, adolescents of color may face greater barriers to realizing the benefits of high family income due to experiences of discrimination (Chavous et al. 2008), more limited reserves of wealth (Dimock et al. 2013), and greater demands on family resources (Ferguson 2007), all of which may limit access to supportive and enriching resources (Henry et al. 2018). Rather than family income, measures of home resources and accumulated wealth may better capture variation in socioeconomic status for families of color (Sirin 2005), a possibility that should be assessed in future research.

Other scholars have argued that the restricted returns to economic resources among families of color are in response to ongoing racial segregation and systematic exclusion from contexts of opportunity at the neighborhood level (Pattillo 2013), and more limited access to quality educational opportunities (Reardon et al. 2018). Ongoing segregation and racism, in turn, increase families' of color exposure to stressors such as poverty and crime, and decrease their exposure to health, educational, and social resources at every level of the income distribution (Firebaugh and Acciai 2016). Importantly, by including measures of neighborhood and school economic resources in our models, we helped to adjust for these potential mechanisms, suggesting that the limited protective power of family income is restricted for adolescents of color above and beyond these confounds.

### High Income is not Always Advantageous

As noted above, another key pattern of results indicated that while advantaged economic contexts were linked to positive functioning for White adolescents, affluence was not consistently beneficial across other subgroups. For Asian, American Indian, and multiracial youth, higher family income was linked to higher self reports of school anxiety; similarly, family income was associated with heightened emotional and conduct problems among multiracial youth (the largest proportion of which identified as both Asian and White). These findings, among Asian youth in particular, may be linked to a heightened sense of academic pressure

(Saw et al. 2012) and parental academic expectations (Yamamoto and Holloway 2010) which have been identified in research with Asian American youth. This pattern of results also falls into line with work by Luthar and colleagues, who have argued that affluence may pose risks to young adolescents. This work found heightened levels of depression and anxiety symptoms among predominantly White middle schoolers in a highly affluent community, citing stressors related to achievement pressures and limited parental support and oversight (Luthar and Becker 2002). Another set of studies seeking to delineate the source of affluence effects found evidence of heightened socio-emotional problems associated with higher income *schools* (Coley et al. 2018), and more affluent *neighborhoods* (Lund and Dearing 2013). Important to note is that none of these studies investigated racial/ethnic differences, samples were predominantly White, and most were focused on high-school-age youth. Our results highlight the more complex associations between family income and early adolescent functioning across diverse subgroups of youth, supporting the need for more nuanced research on how early adolescents are supported and hindered by the economic resources and related investments, stressors, and cultural norms that accompany them.

### The More Limited Role of Neighborhood and School Economic Contexts

Another key set of results identified in this work relates to the more limited role of neighborhood and school economic contexts. Particularly notable were the results for schools: while attending a school with a lower proportion of schoolmates receiving free lunch was associated with lower conduct problems among the entire sample, this pattern was replicated only within the subgroup of White adolescents, whereas links between school income and all arenas of functioning were consistently null for other racial/ethnic groups. These results reiterate the pattern in which the benefits of increased economic resources are concentrated among White adolescents, yet they fail to replicate risks of highly affluent schools that have been identified in relation to the emotional and behavioral functioning of older youth in the U.S. (Coley et al. 2018) and Norway (Lund et al. 2017). This may suggest that risks associated with heightened achievement and peer pressures become more salient in high school as youth become more autonomous and peer-focused and the repercussions of academic success grow (Smetana et al. 2006). The absence of findings related to school economic resources identified in this work could also derive in part from our limited measure of school income. While free lunch eligibility is a reasonable proxy, it may have failed to capture the full

scope of variability in school income, particularly at the upper end of the spectrum. The use of this measure also limited our sample to early adolescents attending public schools, which may have downwardly biased the range in school income in the sample by excluding wealthy private schools.

### Patterns of Results for American Indians

In addition, it is important to note the distinct patterns that emerged within the small sample of American Indian youth. Very few studies have adequate representation of this population to identify unique patterns of functioning, highlighting the importance of these results while at the same time acknowledging the need for caution due both to the small sample size (154 adolescents) and the geographic clustering in Midwest and rural communities. Within this sample we found the most robust pattern of associations between neighborhood income and adolescent functioning, with u-shaped nonlinear patterns suggesting that in low-to-moderate income neighborhoods, heightened neighborhood economic resources are linked to lower psychological problems as reported by both adolescents (school anxiety) and parents (emotional problems), whereas heightened neighborhood income was associated with more problematic functioning in higher income neighborhoods. The limited extant research on American Indian adolescents leaves open questions of interpretation, although it is interesting to note the disconnect between this pattern and results from the casino studies, which found that payments to low-income American Indian families—which in turn likely increased neighborhood income—were associated with improvements in behavioral outcomes, but not with improved emotional functioning (Costello et al. 2003).

### No Evidence of Context Interactions

As a final note, we highlight the lack of significant interactions between the multiple economic contexts under investigation. The lack of a consistent pattern in intersections between family, neighborhood, and school income as such support neither a cumulative disadvantage framework, which suggests that youth exposed to poverty in multiple settings would be worse off than their peers with access to at least one advantaged environment (Bauman et al. 2006), nor status anxiety (Heberle and Carter 2015) and subjective social status models (Odgers et al. 2015), which argue that family poverty may be more salient for youth who are surrounded by more advantaged peers. Interpreted within the context of the existing literature, our lack of consistent results in this large, nationally representative sample suggests that perhaps both processes are at play at different levels, counteracting one another.

### Limitations and Future Directions

In considering these results, it is essential to acknowledge limitations of this work in addition to the above-mentioned omission of early adolescents attending private schools. In particular, it is important to highlight that despite our best attempts to categorize salient racial/ethnic identities of youth, we could not capture the full complexities therein with the given data. For example, we focused on panethnic groups of Hispanic and Asian adolescents, rather than considering more specific and culturally-bound subgroups. This research would therefore be complemented by in-depth explorations of how youth across more specifically delineated racial/ethnic identities experience and operate within their economic contexts. Moreover, it is important to note the correlational nature of this research; although models adjusted for economic resources from multiple contexts; for an array of associated characteristics of adolescents, families, neighborhoods and schools including parental preferences regarding neighborhood and school locations; and for earlier adolescent functioning, the results remain descriptive with the primary strength of identifying patterns in functioning across economic strata for diverse groups of young adolescents. In addition, while models properly adjusted for the clustered nature of the sampling of the ECLS-K, this study did not take a multilevel nor a mediational approach. Although the consistent family income effects emerged even while controlling for the potential mediating processes of families' neighborhood and school selections, future work may seek to directly model how family income selects families into more advantaged neighborhood and school contexts (e.g., see Coley 2017), or may select a multilevel analytic framework, which would allow, for example, consideration of the role of family income both within and between neighborhoods and schools. Finally, in an effort to focus in-depth on racial/ethnic differences in adolescent functioning, we did not attend to potential differences by gender, another important focus for future work.

### Conclusion

The overarching goal of this study was to clarify the role of multiple economic contexts in the emotional and behavioral functioning of racially/ethnically diverse young adolescents. Findings revealed both parallel and divergent patterns, with an overarching pattern indicating that the potential benefits of economic resources, particularly at the family and school level, are greater for White early adolescents than for youth of color. These diverse patterns highlight the need for more careful comparative research. A critical next step for research in this area is to test the various pathways through

which economic resources are translated into adolescent functioning, and to consider the unique factors that moderate links between income and adolescent functioning for youth of different racial/ethnic backgrounds. Future work may also wish to assess how these associations change over time as adolescents progress through development. This will bring us closer to understanding the varied challenges and supports that youth of different racial/ethnic backgrounds experience as well as their unique strengths, and in turn, to improving practices and policies which promote the benefits of economic resources for all youth.

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**Data Sharing and Declaration** The data analyzed in the current study were drawn from the Early Childhood Longitudinal Study-Kindergarten Class of 1998–1999 (ECLS-K) study public-use files which can be accessed from the National Center for Education Statistics.

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## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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