



# Socioeconomic inequality at school entry: A cross-cohort comparison of families and schools

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## ABSTRACT

The widening income gap between the wealthy and the disadvantaged in the United States has been well documented and has coincided with a near doubling of the income-achievement gap among school-age children. Motivated by calls for approaches to research that enable comprehensive accounts of change in the social ecologies of children, we leverage recently released data from the National Center for Education Statistics (NCES) to compare two nationally representative samples of kindergartners. Using multiple indicators reflecting children's family and school ecologies, we document a substantial and widening divide between kindergartners from high- and low-income households. We show that kindergartners from families with low-income are more disadvantaged in 2010, following the Great Recession than they were in 1998 on a number of measures of well-being including higher levels of maternal unemployment and greater food insecurity. We also document a dramatic increase in the proportion of school administrators reporting a decline in school funding as well as increased student mobility in the latter time period. Our results raise concerns that schools may not be prepared to compensate for the widening gap between the rich and the poor.

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## 1. Introduction

Rapidly rising income inequality, radical changes to the structure of the social safety net, and important shifts in early childhood education have all been documented over the past two decades. Such trends have been described in isolation, potentially obscuring the extent to which the broad social ecologies, including both family and school domains, have changed for young school-age children. Researchers and practitioners have been urged to move beyond investigations of single domains (e.g., family income and home conditions, schools and school-related programming) to include comprehensive sets of indicators across these domains (Fiscella & Kitzman, 2009). This framing is aligned with theories that posit that children's development is a product of their interactions with and support from the family, school, and the wider social institutional contexts in which they live (Bronfenbrenner & Morris, 2006; Ungar, 2002). Generating new evidence across these domains also increases the potential for identifying promising policy levers—which likely occur at the intersection of education and social policy domains—to promote positive child development (Fiscella & Kitzman, 2009).

Rising wage and income inequality in the United States are well documented (Autor, Katz, & Kearney, 2008; Fisher, Johnson, & Smeeding, 2013) and have received considerable attention from the press (Applebaum, 2014), policy makers (Congressional Budget Office, 2014), and scholars (McCall & Percheski, 2010). Although increased income equality, in particular, has been noted since 1980, growth in the income gap appears to have accelerated since the Great Recession (Applebaum, 2014). Evidence indicates that the benefits accrued from post-recession economic recovery were largely experienced among the affluent. In fact, between 2010 and 2013, average income declined by 8% for families in the bottom 20% of the income distribution according to the Federal Reserve (Applebaum, 2014). Further, according to the Center on Budget and Policy Priorities, in 2016, nearly 3 million families are living in deep poverty, defined as below 50% of the Federal Poverty Line.<sup>1</sup>

These broad economic trends are even more troubling when considered in light of a body of research which provides evidence of robust links between family income and a variety of indicators of child well-being (Duncan & Brooks-Gunn, 1999; Pickett & Wilkinson, 2015; Shonkoff & Phillips, 2000). Thus, it is notable that rising levels of income inequality coincided with a near doubling of the income-achievement

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<sup>1</sup> <http://www.cbpp.org/research/family-income-support/chart-book-tanf-at-20>.

gap among children born between 1943 and 2001 (Reardon, 2011). This gap is now almost twice as large as the black-white achievement gap and is particularly worrisome given that educational performance is seen as a key indicator of individual and population well-being among children (Braveman, Egerter, & Williams, 2011). The growth in the income-achievement gap is potentially explained, in part, by increased investment in children's cognitive development by high-income parents (Reardon, 2011).

Rising levels of income inequality and the income-achievement gap coincide with substantial shifts in the goals, structure, and participation trends in the social welfare safety net and anti-poverty programs and policies in the United States. For example, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 ended cash assistance as an entitlement for low-income families with children. Key programs aimed at serving families with low income include Temporary Assistance to Needy Families (TANF), a joint federal and state program that couples time-limited cash assistance and services to encourage labor force participation; the Supplemental Nutrition Assistance Program (SNAP), and the Earned Income Tax Credit (EITC). TANF cash assistance caseloads fell precipitously between 1996 and 2011 and only rose slightly in response to unemployment associated with the Great Recession (Pavetti, Finch, & Schott, 2013). On the other hand, both spending on SNAP and SNAP receipt have risen over time; nearly one in seven U.S. residents received SNAP between 2011 and 2014. The number of families claiming the EITC has also risen over time (Ben-Shalom, Moffitt, & Scholz, 2011; Shafer & Edin, 2013; Ziliak, 2015).

Over the same time period, many education policy makers and researchers have turned their attention to early childhood education, including preschool and kindergarten, with the goal of reducing or eliminating achievement gaps through the expansion of public preschool programming and curricular changes. A growing body of evidence finds that early childhood educational experiences changed substantially in recent years, suggesting that the first years of formal schooling have become more academic in focus. For example, preschool attendance rose substantially over the past several decades (Barnett & Yarosz, 2007) and states reported record levels of enrollment and spending on public preschool during the 2014–2015 school year (Barnett et al., 2016). Recent studies also find a slight narrowing of the income-related achievement gap in school readiness between 1998 and 2010 (Bassok & Latham, 2014; Reardon & Portilla, 2015). These recent studies suggest that the widening in the income-achievement gap that was observed throughout the second half of the 20th century may have stabilized. It is unclear whether this is the result of increased public investment in early childhood education or other factors.

As students' school-entry academic competencies have risen, so too have kindergarten teachers' expectations. Results from cross cohort comparisons of nationally representative samples of kindergarteners indicate that in recent years teachers report spending more time on academic subjects, having higher expectations regarding what students need to learn during the first year of school, and placing more emphasis on advanced academic content (Bassok, Latham, & Rorem, 2016; Engel, Claessens, Watts, & Farkas, 2016).

Taken together, the confluence of broad economic trends, shifts in social welfare policy, and changes in schooling suggest that the social ecologies of many young school-age children are in flux. The current study, thus, provides a first examination of how the social ecologies of kindergarteners both at home and in school have changed between 1998 and 2010. Kindergarten is an important year for many children, marking the transition into elementary school and formal schooling. Understanding the changing social ecologies of kindergarteners has important implications for a wide audience including policy makers, practitioners, teachers, and parents.

Responding to calls for research that is informative across social-ecological domains and at the intersection of social welfare and education policy (Fiscella & Kitzman, 2009; Ungar, 2002), we leverage data from the National Center for Education Statistics (NCES) to compare two

nationally representative samples of kindergarteners; the Early Childhood Longitudinal Studies Kindergarten Cohort (ECLS-K) and the ECLS-K:2011. We choose key indicators previously identified as salient within family, school, and social institutional domains. These indicators include (1) family socio-economic status, maternal characteristics (e.g., age, education), and home conditions including home language and number of books in the home (Duncan, Brooks-Gunn, & Klebanov, 1994; Fryer & Levitt, 2006); (2) family participation in poverty reduction programs such as family use of Food Stamps and TANF (Ben-Shalom et al., 2011); and (3) school-level compositional, structural, and funding characteristics (Baker, 2016; Konstantopoulos, 2005). Specifically, we address the following questions:

- How have indicators of socioeconomic status and home conditions changed, on average, for children who entered school in 1998–99 compared with 2010–11?
- How have school-level indicators of socioeconomic well-being changed during this time?
- How have these indicators changed for children whose families are at the bottom and the top of the income distribution?

## 2. Methods

Information regarding the participants, data collection procedures, and sampling schemes for both cohorts of the ECLS-K has been widely reported, and details regarding the datasets can be found in published NCES data documentation (Tourangeau et al., 2009; Tourangeau et al., 2015). For the current study, a few characteristics of these datasets are particularly salient. First, for each cohort NCES drew a nationally representative sample of students who were in kindergarten in the fall (of 1998 or 2010, respectively). Thus, our results are representative of and reflect changes among families with children in kindergarten during these periods, but may not be representative of all families in the U.S. at these points in time.

Second, NCES collected data directly from kindergarten students and also interviewed students' parents, teachers, and school administrators. Our study draws on information collected from all of these sources. In order to account for non-response across the various surveys, NCES created sampling weights. In the analyses that follow, we used all available data for each measure investigated, and we used the NCES sampling weights to account for both the sampling design and non-response.

We use restricted data from the baseline year for each cohort. In accordance with regulations for using restricted data, all sample sizes reported are rounded to the nearest 10. The descriptive statistics we report for each cohort were weighted using the appropriate weight for each variable. We used the "svyset" commands in Stata 13.0 (StataCorp, 2013) and use the specific kindergarten year weights designed for either teacher, parent, or school administrator responses in both the 1998–1999 and 2010–2011 cohorts, respectively.<sup>2</sup> The weights are designed to produce nationally representative estimates.

We used all of the non-missing cases for each variable to calculate means and standard deviations and use casewise deletion. While this method may result in a loss of power compared with multiple imputation methods, it requires the same assumptions as multiple imputation, and it performs comparably with regard to possible bias (Accock, 2012; Allison, 2001). In order to account for missing data on each item, we relied on the NCES sampling weights, which were designed to account for non-response (Tourangeau et al., 2009). Thus, our approach to missing data follows NCES recommendations, as we adjust each specific variable for non-response in order to recover nationally representative estimates.

<sup>2</sup> We used the following weights: teacher variables (1998: B1TW0; 2010: W12T0), parent variables (1998: C1PW0; 2010: W12P0), and school administrator variables (1998: S2SAQ0; 2010: W2SCH0).

We examine variables that describe the socioeconomic status and well-being of students, families, and schools and that reflect the policy salient domains of family socio-economic background and home conditions, family social welfare program participation, and school compositional and funding characteristics. It is important to note that our array of indicators is constrained by the comparative nature of our research questions. We include only variables that were measured in the same manner for both cohorts, thus providing important information about the social ecologies of these two cohorts of kindergarteners.

*Child and family characteristics.* In the fall of kindergarten, for each cohort, parents reported on their demographics and program usage. For this study, we use several different measures including maternal age, employment, education, and whether the child's mother was born in the United States. We examine indicators for whether the parent reports receiving Food Stamps or TANF. In addition, we include indicators of whether reported family income is below the Federal Poverty Line (FPL), whether the parent reports being food insecure, and whether she perceives financial problems. We also include measures of home and health contexts including whether the child lives in a single parent household, the number of books in the home, and whether the primary home language is not English.

*School characteristics.* In the fall of kindergarten both teachers and school administrators completed surveys about school and classroom contexts. For these indicators, we include a measure of full-day kindergarten, whether the child attends a private school, kindergarten class size, and the percent of children eligible for free- and reduce-priced lunch (FRPL). We also include administrator responses to questions about changes to the school in the past three years in terms of funding decreases, family income decreases, increases in student mobility, and reductions to the teaching staff. Finally, we use a measure of whether the school received Title I funds in the survey year.

In order to compare characteristics and contexts of families with high- and low-income across the two ECLS-K cohorts, we categorized families as having high or low income using self-reported income information for each cohort. Our analyses compare families whose self-reported income fell within either the top or the bottom quintile of the income distribution for each cohort. The NCES income variable reports annual income in ranges (e.g., \$20,000–\$25,000). Thus, our results approximate averages for groups at or below the 20th and at or above the 80th percentiles. We converted 1998 income into 2010 dollars using the Consumer Price Index (CPI), and thus compare income in constant dollars.

We use the income variables, based on parent reports in the fall of kindergarten provided by NCES.<sup>3</sup> These variables report income in imputed categories. Thus, rather than reporting exact dollar amounts, the family income variable reports the range within which a family's reported income falls (e.g., \$5001 to \$10,000). We transformed the categorical variable into an estimate of average income by calculating the middle income value for each category, which created variables that approximate a continuous income distribution. For example, if the income range for a given category was "\$50,001 to \$75,000," then we assigned a value of "\$62,500." Because the income variable in these data sets is inexact and is also constrained at the high end of the income distribution, we do not report values for changes in average family income. Instead, we use the reported income values to estimate information regarding family socioeconomic status and well-being and school information for families whose reported income places them, roughly, in the bottom or top quintiles of the income distribution.<sup>4</sup>

<sup>3</sup> The income variables are W11NCCAT (1998–1999 cohort) and X21NCCAT\_I (2010–2011 cohort).

<sup>4</sup> In constructing the "high income" variable for the 1998–1999 cohort, we found 48 children in the high-income group who were also labeled as falling below the Federal Poverty Line. In the analyses that follow, we did not include these 48 children or their families. However, when we ran analyses including these 48 children, results were nearly identical. We exclude them from results presented here because we are unable to determine whether the incongruity across measures is due to error or to changing familial circumstances.

The reported income categories were changed across the two cohorts, with fewer categories reported in the 1998–1999 data; 13 compared with 18 for 2010–2011. Despite including more categories, however, the 2010 data used the same ceiling – "\$200,001 or more" – as was used in 2010. As a result, although we see a larger proportion of the sample in this category in 2010 than in 1998 (4.4 versus 2.8%, respectively), once converted to 2010 dollars, the dollar amount reported for the top category for 1998 is \$276,381. Because of these cross-cohort differences, the results we report are conservative, providing a lower-bound estimate of the gap between high- and low-income families. We focus on income-related gaps, as opposed to gaps by race/ethnicity because recent research documents the dramatic rise in the income achievement gap over the past 50 years (Reardon, 2011) and also because the timing of data collection allow us to compare these indicators before and shortly after the Great Recession.

For each variable of interest, we explore whether the gap between high- and low-income families changed between 1998–1999 and 2010–2011. In order to test whether gap changes were statistically significant, we pooled the two ECLS-K data sets and estimated a series of regressions. For each variable of interest (e.g., unemployment), we estimated a regression predicting that variable as the outcome, including a dummy variable indicating cohort (ECLS-K:2011, with the original ECLS-K used as the omitted comparison), a dummy variable indicating whether the family was low-income, and an interaction term for these two variables (e.g., ECLS-K:2011\*low-income). In order to create a pooled dataset including both cohorts we constructed "ratio-weight" variables in which each observation's value for a given weight was divided by the average value for that weight. This allowed us to create weights for use with the pooled data that replicated the weights designed for each individual data set. Thus, the regressions are weighted using the appropriate weight (depending on whether the variable was taken from the parent, teacher, or administrator survey in 1998–1999 or 2010–2011). Standard errors for parent, family, and classroom-level variables are clustered to account for non-independence.

We report the *p*-value for the coefficient on the interaction term for each variable of interest in Table 1. Thus, *p*-values smaller than 0.05 indicate that changes in the gap between high- and low-income families across the two cohorts reach traditional levels of statistical significance. We also show *p*-values that are corrected for the number of comparisons we make using Bonferroni's method. This is among the most conservative means for adjusting *p*-values to account for multiple comparisons.

### 3. Results

Table 1 shows descriptive statistics for family indicators of well-being for the earlier and later ECLS-K samples. We see little change on a number of variables and several positive changes, on average. Rates of maternal education improved substantially. In 1998, 24% of mothers reported having a Bachelor's degree or higher, compared with 35% in 2010. Further, the proportion of kindergarteners living in single parent households declined from 23 to 20%.

At the same time, we see negative trends for a number of variables of interest. Food stamp receipt rose from 20 to 26%. In contrast, reported receipt of Temporary Assistance to Needy Families (TANF) was cut in half, dropping from 12% in 1998 to 6% in 2010, likely reflecting the program's restrictions on length of receipt of benefits. Maternal reports indicate a 15% increase in unemployment; rising from 33 to 38%, on average. Further, the proportion of kindergarteners whose families were living below the Federal Poverty Level rose by approximately 9%, from 22 to 24%.

Turning to school context, Table 2 shows that the proportion of children attending full-day kindergarten programs increased by over 40%, rising from 61% in 1998–99 to 87% in 2010–11. In contrast, average class size remained largely unchanged between 1998 and 2010,

**Table 1**  
Family characteristics for high- and low-income students sampled in the ECLS-K 1998–1999 and 2010–2011 cohorts.

|                                | 1998        |            |             |        | 2010        |            |             |        | Gap difference test |                 |
|--------------------------------|-------------|------------|-------------|--------|-------------|------------|-------------|--------|---------------------|-----------------|
|                                | Full sample | Low income | High income | Gap    | Full sample | Low income | High income | Gap    | Low vs high         |                 |
|                                |             |            |             |        |             |            |             |        | p-Value             | Bonf. corrected |
| Percent of sample              |             | 20.56      | 22.02       |        |             | 22.18      | 21.03       |        |                     |                 |
| Child and home characteristics |             |            |             |        |             |            |             |        |                     |                 |
| Below federal poverty level    | 0.22        | 0.69       | 0.00        | 0.69   | 0.24        | 0.95       | 0.00        | 0.95   | 0.000               | 0.000           |
| Food insecure                  | 0.09        | 0.21       | 0.01        | 0.20   | 0.10        | 0.25       | 0.01        | 0.24   | 0.021               | 0.546           |
| Program participation          |             |            |             |        |             |            |             |        |                     |                 |
| Receives TANF                  | 0.12        | 0.33       | 0.01        | 0.32   | 0.06        | 0.19       | 0.01        | 0.18   | 0.000               | 0.000           |
| Receives food stamps           | 0.20        | 0.57       | 0.01        | 0.56   | 0.26        | 0.74       | 0.03        | 0.71   | 0.000               | 0.000           |
| Perceives financial problems   | 0.25        | 0.37       | 0.06        | 0.31   | 0.27        | 0.45       | 0.08        | 0.37   | 0.005               | 0.134           |
| Single parent                  | 0.23        | 0.49       | 0.05        | 0.44   | 0.20        | 0.50       | 0.03        | 0.47   | 0.053               | 1.381           |
| Number of books in home        | 71.35       | 40.64      | 105.43      | −64.79 | 89.62       | 47.28      | 127.19      | −79.91 | 0.001               | 0.028           |
| Home language not English      | 0.11        | 0.24       | 0.03        | 0.21   | 0.14        | 0.29       | 0.06        | 0.23   | 0.090               | 2.334           |
| Child body mass index          | 16.29       | 16.48      | 16.05       | 0.43   | 16.43       | 16.79      | 16.01       | 0.78   | 0.000               | 0.010           |
| Mother characteristics         |             |            |             |        |             |            |             |        |                     |                 |
| Age                            | 32.95       | 31.31      | 36.44       | −5.13  | 34.31       | 31.51      | 37.40       | −5.89  | 0.013               | 0.333           |
| Unemployed                     | 0.33        | 0.46       | 0.31        | 0.15   | 0.38        | 0.56       | 0.30        | 0.26   | 0.000               | 0.000           |
| Born in United States          | 0.83        | 0.72       | 0.90        | −0.18  | 0.80        | 0.68       | 0.86        | −0.18  | 0.869               | 22.594          |
| Education                      |             |            |             |        |             |            |             |        |                     |                 |
| Not high school graduate       | 0.14        | 0.36       | 0.01        | 0.35   | 0.12        | 0.31       | 0.01        | 0.30   | 0.005               | 0.121           |
| High school graduate           | 0.29        | 0.36       | 0.12        | 0.24   | 0.20        | 0.32       | 0.06        | 0.26   | 0.148               | 3.837           |
| Some college                   | 0.33        | 0.25       | 0.29        | −0.04  | 0.33        | 0.31       | 0.19        | 0.12   | 0.000               | 0.000           |
| BA/advanced degree             | 0.24        | 0.03       | 0.58        | −0.55  | 0.35        | 0.05       | 0.74        | −0.69  | 0.000               | 0.000           |

Note. The gap-columns display the difference in each variable between high- and low-income families within both cohorts. Gap-difference-test *p*-values were generated via regressions from pooled models in which each listed variable was regressed on a variable indicating cohort, whether high- or low-income, and the interaction of cohort status with high- or low-income status. The *p*-values presented represent the level of significance for the cohort and income-status interaction coefficient. In these regressions, robust standard errors were adjusted for school-level clustering. Bonferroni *p*-values were adjusted for 26 comparisons between the two tables. Within each cohort, child and home characteristics were weighted with the weight designed for the fall parent survey, and school characteristics were weighted with the spring administrator weight.

hovering around 20. Private school attendance dropped from 15% in 1998 to 11% in 2010.

Principal reports on a number of school-level indicators of both student and family well-being and the fiscal health of their schools changed dramatically. In 1998, only 12% of principals reported having experienced a drop in school funding in the past three years, compared with 61% in 2010. Similarly, principals' reports of a decline in family income among the population served by their schools grew from 7% to 48% over the 12-year period. Principals were also much more likely to report increases in student mobility and reductions in their teaching staff. Finally, the percentage of principals who reported receiving Title 1 funds rose from 52% in 1998 to 75% in 2010.

Comparing socioeconomic indicators and family characteristics for children in our high- and low-income groups in 1998 and 2010, respectively, Table 1 shows that average differences for the full samples mask a widening gap between kindergarteners whose family income places them in the bottom or the top quintile of the income distribution.

The percentage of families with low-income – defined here as those in the bottom fifth of the income distribution – whose income placed them below the Federal Poverty Level rose from 69 to 95%. Unemployment among mothers in this group rose from 46 to 56%, despite increases in maternal education. Educational attainment for mothers of children in the low income group increased substantially. The percentage of mothers reporting having attended some college increased by six percentage points, from 25 to 31%, and the percentage of mothers

**Table 2**  
School characteristics for high- and low-income students sampled in the ECLS-K: 1998–1999 and 2010–2011 cohorts.

|   | ECLS-K:1998–1999 |            |             |       | ECLS-K:2010–2011 |            |             |       | Gap difference test |                 |
|---|------------------|------------|-------------|-------|------------------|------------|-------------|-------|---------------------|-----------------|
|   | Full Sample      | Low Income | High Income | Gap   | Full Sample      | Low Income | High Income | Gap   | Low vs high         |                 |
|   |                  |            |             |       |                  |            |             |       | p-Value             | Bonf. corrected |
| Percent of sample                             |                  | 20.56      | 22.02       |       |                  | 22.18      | 21.03       |       |                     |                 |
| School characteristics                        |                  |            |             |       |                  |            |             |       |                     |                 |
| Full day kindergarten                         | 0.61             | 0.64       | 0.54        | 0.10  | 0.87             | 0.90       | 0.77        | 0.13  | 0.206               | 5.033           |
| Private school                                | 0.15             | 0.03       | 0.28        | −0.25 | 0.11             | 0.03       | 0.23        | −0.20 | 0.015               | 0.452           |
| Kindergarten class size                       | 19.51            | 19.36      | 19.39       | 0.58  | 20.16            | 20.51      | 20.07       | 0.44  | 0.856               | 22.937          |
| FRPL eligible (%)                             | 44.48            | 34.29      | 34.75       | 15.44 | 44.35            | 56.07      | 34.88       | 21.19 | 0.004               | 0.096           |
| In the past three years...                    |                  |            |             |       |                  |            |             |       |                     |                 |
| Funding decreased                             | 0.12             | 0.10       | 0.11        | 0.02  | 0.61             | 0.66       | 0.59        | 0.07  | 0.000               | 0.005           |
| Family income decreased                       | 0.07             | 0.06       | 0.07        | 0.03  | 0.48             | 0.54       | 0.47        | 0.07  | 0.004               | 0.105           |
| Student mobility increased                    | 0.18             | 0.17       | 0.17        | 0.04  | 0.32             | 0.39       | 0.29        | 0.10  | 0.027               | 0.780           |
| Teaching staff reduced                        | 0.14             | 0.12       | 0.12        | 0.03  | 0.31             | 0.35       | 0.29        | 0.06  | 0.036               | 0.941           |
| Received Title 1 funds in current school year | 0.52             | 0.46       | 0.47        | 0.22  | 0.75             | 0.81       | 0.67        | 0.14  | 0.012               | 0.334           |

Note. The gap-columns display the difference in each variable between high- and low-income families within each cohort. Gap-difference-test *p*-values were generated via regressions from pooled models in which each listed variable was regressed on a variable indicating cohort, whether high- or low-income, and the interaction of cohort status with high- or low-income status. The *p*-values presented represent the level of significance for the cohort and income-status interaction coefficient. In these regressions, robust standard errors were adjusted for school-level clustering. Bonferroni *p*-values were adjusted for the 26 comparisons made across the two tables. Within each cohort, child and home characteristics were weighted with the weight designed for the fall parent survey, and school characteristics were weighted with the spring administrator weight. However, full day kindergarten and kindergarten class size were measured via the fall teacher survey, and were weighted using the fall teacher weights. The private school measure was collected via administrative data, and was weighted at the child level.

with low income reporting having obtained a Bachelor's degree or higher rose from 3 to 5%.

A number of the indicators that changed dramatically among families with children in the bottom fifth of the income distribution remained at or near zero, as would be expected, among families reporting high income. These include food insecurity, receipt of food stamps, and receipt of TANF. Further, while unemployment among mothers in the low-income group increased by over 20%, unemployment remained essentially unchanged among mothers with high-income, dropping from 31% in 1998 to 30% in 2010. Finally, while educational attainment grew for mothers at both ends of the income distribution, fully 74% of mothers with high income had a bachelor's degree or higher in 2010, compared with 58% in 1998.

When comparing differences between the two cohorts on school indicators, Table 2 shows that children from both high- and low-income families were much more likely to attend full-day kindergarten in 2010 compared with 1998. Principals in schools serving both high- and low-income students were also substantially more likely to report declines in funding and family income in 2010. However, in 1998–1999, children whose family income placed them in the bottom fifth of the income distribution attended schools where, on average, half of their peers were eligible for free and reduced-price lunch. This increased by 12% in 2010–2011 to 56%. Children from families with high income experienced no change on this measure, on average, remaining between 34 and 35%.

#### 4. Discussion

Motivated by recent calls to generate evidence that cross-cuts social-ecological domains and that can inform intersections between familial, educational, and social welfare policy domains, we provide a snapshot of changes on indicators of family socioeconomic well-being and school-level fiscal health for kindergarteners across this 12-year period. We show that average changes obfuscate substantial increases in inequality between kindergarteners living in families whose incomes fell within the bottom versus the top quintiles of the income distribution. Although unemployment, food insecurity, and poverty (as measured by whether family income was below the Federal Poverty Level) rose, on average, our findings suggest that families in the bottom quintile of the income distribution suffered the most. For example, maternal unemployment rose by about 20% among mothers of kindergarteners from low-income families despite increases in maternal educational attainment among this group. Educational attainment increased substantially among high income mothers as well, while their reported levels of unemployment remained essentially unchanged.

Recent evidence indicates that this rising inequality coincides with a widening gap in the amount of money that parents invest in their children. Although all families have increased expenditures on their children, spending among wealthy families has increased at a higher rate relative to those with lower incomes (Duncan & Murnane, 2011). This gap is also documented among school-supporting nonprofits such as parent teacher organizations (Nelson & Gazley, 2014). Other evidence suggests an increase in children's school readiness skills (Bassok & Latham, 2014), as well as a slight narrowing in the school readiness gap by income over this time period (Reardon & Portilla, 2015).

Despite recent research showing gains in terms of children's readiness for school at kindergarten entry (Bassok & Latham, 2014; Reardon & Portilla, 2015), our results suggest that children who were in kindergarten in 2010 attended schools that faced substantially larger resource constraints than children who were in kindergarten in 1998. The increasingly resource-constrained school contexts that we document raise concerns that schools may not be prepared to compensate for the substantial and widening socioeconomic gap between kindergarteners from high- and low-income families. This is particularly concerning, given that school expenditures (reported in constant dollars), which rose consistently between 1989–1990 through 2009–

2010, declined precipitously between 2009–2010 and 2013–2014. While expenditures have risen since the 2013–2014 school year, they remain below expenditures from the 2009–2010 school year.<sup>5</sup>

This is important for both youth service providers inside or outside of educational settings as well as child welfare and well-being service providers more generally with regard to policy and practice, given that kindergarten is a key transition year to formal schooling. These early experiences are important for later school success and life outcomes. Many schools are likely ill-equipped to compensate for the worsening of family economic conditions among their most vulnerable students.

Our analyses leverage NCES data to document changes across indicators that capture young children's home conditions and school environments. These indicators reflect familial, educational, and social policy domains. An important limitation to our analysis relates to the availability and measurement of these indicators. Future research should extend these analyses across a richer set of child well-being, home, and school ecological indicators. Given that our data were generated from cross-sectional snapshots, a key next step would be to conduct similar analyses of longitudinal studies that unfolded before, during, and after this general time period. Future studies that combine findings generated from both cross-sectional and longitudinal sources, in the tradition of life course research, have the potential to further illuminate differential opportunities for prevention and intervention, particularly among young children (Halfon & Hochstein, 2002).

#### 5. Conclusions

The aim of the current study was to begin to explore the extent to which the social ecologies of young children changed between 1998 and 2010. Our findings are heterogeneous; we document both positive and negative changes, depending on the indicator. For example, average levels of maternal education increased while unemployment levels and receipt of food stamps rose as well. We document substantial growth in the gap between families in the bottom and top quintiles of the income distribution on many indicators of well-being. Our findings illustrate the utility of measuring and reporting on diverse sets of policy relevant indicators in research. We show that the widening gap on measures of family well-being that we document coincided with school-level declines on indicators of fiscal health and stability. These findings have implications regarding likely limitations on the part of schools with regard to compensating for the rising levels of inequality we document among children as they begin kindergarten.

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<sup>5</sup> [http://nces.ed.gov/programs/digest/d15/tables/dt15\\_236.15.asp](http://nces.ed.gov/programs/digest/d15/tables/dt15_236.15.asp).

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