Equity and Institutions

Distributing Preschool Quality in New York City

Bruce Fuller, Talia Leibovitz, Declan Chin, Kaitlyn Du,
Naomi Garcia, Yoonjeon Kim – July 2020

Equity and Institutions – Distributing Preschool Quality in New York City

Bruce Fuller, Talia Leibovitz, Declan Chin, Kaitlyn Du, Naomi Garcia, Yoonjoon Kim
University of California, Berkeley

July 2020

Summary

The shutdown of child care and preschools will likely worsen gaps in children's early learning, just as the nation revisits racial disparities that persist in public institutions. Can robust pre-k programs – such as New York City's ambitious initiative – mitigate against inequities in child development? Or, do preschools display unfair variation in quality tied to the racial or economic features of neighborhoods? This report maps differing levels of quality observed among 1,610 pre-k sites with complete data over the 2016-2018 period. We find that preschools situated in economically secure neighborhoods or enrolling smaller shares of Black children host higher quality classrooms and teaching practices. Elements of one quality measure deployed by city monitors reveal these disparities, along with uneven learning activities gauged by a second yardstick of classroom quality. One-third of all children attend severely segregated pre-k sites. Programs hosted by city schools display lower quality than sites operated by community organizations. We discuss how to mitigate against forces that regressively distort well-intentioned entitlements like universal preschool.

Equity and Institutions – Distributing Preschool Quality in New York City

Overview

Many civic activists argue that free and universal preschool will narrow disparities in children's early growth and learning (for review, Zigler, Gilliam, & Barnett, 2011). Those who question unbridled entitlements, in contrast, point out that advantaged families often seek-out higher quality options, including better schools or health care. Influential local groups also nudge institutions to favor their communities. Better to focus public resources on poor families, the entitlement skeptics argue, helping disadvantaged children catch-up to middle-class peers (e.g., Carey & Crammond, 2014; Powell, Menendian, & Ake, 2019).

We weigh these competing arguments by mapping the distribution of quality observed among 1,610 pre-k sites in New York City, focusing on the 2016-2018 period. This metropolis is one of five major regions where policy leaders have committed to pre-k entitlements, free to all families no matter how rich or poor (including Boston, Washington, D.C. and the states of Georgia and Oklahoma). Running for mayor of New York in 2013, Bill de Blasio got behind universal pre-k, promising to relieve stretched family budgets and lift young children. Once elected, he delivered on his promise, more than tripling seats from 19,287 prior to the Pre-K for All (PKA) campaign, to 68,447 by 2014-15, presently serving about 70% of all 4-year-olds (Barnett et al., 2016).[1] The supply of pre-k seats had earlier spread in poorer neighborhoods, going back to Head Start and the Great Society.

This paper first reviews the debate between pro-entitlement and pro-targeting advocates, a centuries old conversation. We then describe New York City's pre-k entitlement, a bold case that landed in a complicated institutional terrain. Our analysis finds that observed quality in pre-k

sites falls *lower* in poor areas of the city, on average, and in programs serving higher shares of Black or Latino children, 2016-2018. The presence and magnitude of these differences vary between the two gauges of program quality observed by city officials. Disparities in pre-k quality appear between differing institutional hosts as well: sites located in city schools display significantly lower quality, compared with those run by community-based organizations (CBOs). The latter set of pre-k's tend to be more racially segregated, compared with city schools. Income-based disparities in pre-k quality narrow slightly when the most recently observed pre-k sites (2019) are included. Early gains in overall pre-k quality have leveled-off since 2017-18.

What's Fair?

A long-running debate over how to define *equity* informs the contemporary struggle over universal entitlements. Philosophers distinguish between *equality of resources* and *equality of welfare* (e.g., Dworkin, 1981). Policy makers accomplish the first when dividing resources equally across all beneficiaries: when governors, for example, push to equalize spending per pupil across all children attending public schools. Progressive policy, instead, may emphasize the second conception of equity, focusing public resources on disadvantaged citizens. Here the priority is to move toward equal *outcomes* for families, to go beyond simply making uniform institutional *inputs*. This targeted policy strategy underlies the logic of Head Start preschools. In addition, several states now allocate more dollars to K-12 pupils raised in poverty, relative to the average middle-class student, thereby seeking equality of welfare. It's impoverished families that require *greater* investment to clear state-mandated proficiency hurdles, the architects of progressive finance argue (Johnson, 2019; Odden & Picus, 2014).

One variant of this position comes from the late philosopher John Rawls (1971, 1), who argued that motivated or highly achieving members of society should be rewarded. But "those

better endowed are welcome to use their gifts to make themselves better off, so long as their doing so also contributes to the good of those less well endowed."[1] This stance bumps into contemporary notions of *entitlement*, since programs like social security or paid family leave pay-out benefits in direct proportion to what workers have paid into pooled reserves. Under these programs, more affluent citizens benefit most. In contrast, unemployment or health insurance socializes the cost of risk, human perils disproportionately suffered by low-income citizens. There's no single way to structure an entitlement, each is variably built to distribute private costs and shared benefits that flow to differing groups.

Which brings us to policy enthusiasm over universal preschool. Stepping back, the notion of creating *kindergarten* sites to lift the early learning and socialization of all 5-year-old children arose in the mid-nineteenth century, originating in Massachusetts and New York (Beatty, 1995). Great Society initiatives, a century later, instead focused public investment on small-scale *preschools* that served children raised in low-income families. At the same time, pre-k enrollment rates would begin to surge across various families as maternal employment rates steadily climbed. Yet, participation in early-childhood programs climbed most sharply for African-American youngsters, due to steady expansion of Head Start and historically strong employment rates among Black mothers (Tienda & Glass, 1985).

We know that the "school readiness gap" – disparities between poor and middle-class children in early cognitive and social development – has narrowed discernibly over the past quarter-century (Reardon & Portilla, 2016). Whether this progress stems from focusing public resources on disadvantaged children remains unknown. Evidence does consistently show that quality pre-k experienced by 3 or 4-year-olds from low-income families significantly lifts early

---

[1] Paraphrased in the *Stanford Encyclopedia of Philosophy* (Rawls, 2017).

learning, stemming from cognitively challenging activities and the character of interaction between teachers and children inside classrooms (e.g., Fuller, Bein, Bridges, Kim, & Rabe-Hesketh, 2017; Yoshikawa et al., 2013). Incremental gains in quality – gauged by richer child-staff ratios or better organized classrooms – may further raise the magnitude of pre-k benefits (NICHD & Duncan, 2003; Weiland & Yoshikawa, 2013). By the early twenty-first century, rather than sustaining a focus on targeted investment, calls for universal preschool grew louder, often defined as a remedy for simultaneously elevating all children *and* narrowing disparities in early learning among social classes (de Blasio, 2015).

What Forces Shape the Distribution of Pre-K Quality?

Do universal entitlements – often unfolding in a complex institutional landscape – fairly distribute the quality of services among local programs? Free and universal preschool offers a provocative case, allowing us to trace the spread of small-scale organizations that presumably vary in classroom quality. The analytic task is two-fold. First, one must assess how program quality may vary among differing auspices, neighborhoods, or social groups. The long-running history of CBOs in urban centers, in contrast to the recent arrival of city schools to the pre-k sector, may reveal a certain path-dependence, for example how Mr. de Blasio and his Department of Education (DOE) implemented the PKA initiative.

Second, when analysts uncover variation in distributed quality among pre-k sites, can we empirically identify the forces that independently predict such variability? We investigate differing sources of disparities in quality, possibly tied to institutional hosts (CBOs or city schools), neighborhood economics, and demographic groups. Where quality is regressively distributed, tilting higher quality toward advantaged communities or families, entitlements may inadvertently reinforce, not reduce, gaps in the early growth of children. It's difficult to see how

a regressive, or even similar, distribution of pre-k quality between poor and better-off areas of the city would work to narrow disparities in child development.

Let's turn to how scholars have weighed the forces that may shape the distribution of preschool quality. A starting hypothesis is that economically better-off families will pay for or politically demand higher quality preschool. Yet, much turns on the capacity of government or professional groups to overcome the *a priori* influence of family wealth in shaping educational quality. The political-economy of metropolitan areas, like New York, is often characterized by residential and school segregation, defining geographic spaces in which parents can variably afford or demand higher-quality services. At the same time, the city enjoys a century-long tradition of focusing public dollars on lower-income families, creating a vast web of CBOs and local schools in hopes of equalizing children's opportunities.

Political-Economy and State Action

The question of which families gain access to quality preschool has preoccupied scholars and policy makers over the past half-century. Two lines of research inform this issue: How might differing families select into varying kinds of pre-k organizations that display unequal quality, and can government or professional associations enter local markets of providers to fairly distribute well-prepared teachers, pedagogical know-how, and related elements of pre-k quality? The efficacy of civic actors to equitably distribute quality among social groups and neighborhoods likely affects whether pre-k operates to reduce, preserve, or worsen disparities in children's early growth.

Initial research found that pre-k (or child-care) quality was linearly associated with the family's social-class position (e.g., Holloway & Reichhart-Erikson, 1988). More recent work similarly reveals that observed qualities of preschool classrooms may drift lower in preschools

that serve low-income families, even in universal pre-k sites as found in Georgia (Bassok & Galdo, 2016). Similarly, Nores and Barnett (2014) report that less than three-fifths of pre-k centers in poor areas of the U.S. display high quality (on one observational measure), compared with three-fourths in affluent communities. Nations such as Mexico, attempting to finance pre-k for all, may discover wide disparities in structural features of quality, including mean class size, child-teacher ratios, and uneven fees charged to parents (Martínez, Cuéllar, & Cabrero, 2013).

The National Child Care Staffing Study, an early survey of child-care providers in the U.S., instead discovered a curvilinear relationship between family demographics and preschool quality (Whitebook, Howes, & Phillips, 1989). Middle-class parents selected the lowest quality centers, families that did not qualify for public subsidies, but able only to afford poorly resourced pre-k's, staffed by ill-prepared and underpaid teachers. A second study found fewer preschools operating in poor and working-class communities nationwide, relative to the count of family child-care homes and individual caregivers that served young children (Fuller & Strath, 2001).

Over time, however, the progressive targeting of public dollars and organizing efforts inside lower-income neighborhoods have advanced the equitable distribution of high-quality teachers and classroom resources. One study found that states historically spending more on child-care options per capita host a higher share of pre-k centers, relative to the presence of less-formal providers, in poor neighborhoods (Fuller, Loeb, Strath, & Carrol, 2004). Similarly, pre-k sites funded and regulated by state governments since the Great Society display stronger effects on children's early growth, compared with average effect sizes stemming from the nation's wider mixed market of preschools (Fuller et al,, 2017; Wong, Cook, Barnett, & Jung, 2008). But little is known about the capacity of state or municipal authorities to equalize *quality* across auspices, social groups or neighborhoods when preschool becomes universally available.

Pre-K Quality and Segregation

Racially segregated patterns of housing or schools reflect the political-economy of many

urban areas. The geographic separation of racial or social-class groups may result in differing

levels of family demand for preschool or varying levels of pressure for high quality. Disparities

in political influence, arranged along racial or social-class lines, may further shape the

distribution of teachers, inputs, and facets of pre-k quality. As the DOE created new pre-k sites

across New York City, for instance, at least 10,000 families with a 4-year-old, residing in low-

income census tracts, still failed to participate, families that may rely on other forms of child care

or draw vouchers to support informal caregivers (Fuller, 2015).[2]

Racially segregated preschools may also shape the migration of better qualified or more

experienced teachers to programs seen as hosting less challenging working conditions or cultural

consonance (Reid & Kagan, 2015). Children often attend racially isolated preschools in New

York City, programs dominated by a single racial or ethnic group. Potter (2019) earlier found

that about half of all youngsters attend CBO pre-k sites in which between 71% and 90% of all

children belonged to a single ethnic group; the corresponding share in school-based pre-k's

equaled 32% of enrollees. This likely stems from the historical roots of CBOs, many founded as

charitable organizations within settlement houses, others sprouting inside anti-poverty programs

of the 1960s. In contrast, public schools and their pre-k classrooms may be spread more evenly

across New York communities, rich, middle-class, or poor. Nationwide, more than one-third of

---

[2] At least 19,000 children, 4 years-of-age, were not enrolled in any known preschool center in 2014-15 (Fuller, 2015). In Boston's near-universal pre-k effort, parents who did not apply were disproportionately nonwhite, a bit poorer, and spoke more than one language, compared with parents who did apply for the program (Shapiro, Martin, Weiland, & Unterman, 2019). See Hill (2017) for analysis of why many low-income parents do not search out a preschool, even when availability is ensured.

all preschoolers attended highly segregated school-based pre-k's nationwide in 2015-16, where less than 10%, or over 90%, of children enrolled were non-white (Piazza & Frankenberg, 2019).[3]

Initial evidence suggests that integrated mixes of children, including across economic groups, yield positive outcomes for children in cognitive and social domains (e.g., Miller, Votruba-Drzal, McQuiggan, & Shaw, 2017; Reid & Ready, 2013). In this light, the racial composition of pre-k's can be considered one element of quality. The structured segregation of children, tied to specific funding streams, lends credence to a universal entitlement, which may help integrate children from subsidized and fee-paying families. City pre-k's will now be required to integrate classrooms earlier separated by different funding streams, except for those funded by Head Start, given this program's federal restrictions.

CBO-based preschools, beginning in 2021, will be encouraged to attract diverse blends of children and families under new contracts with the city. One of six core priorities of the mayor's evolving PFA initiative: "Promote socioeconomic integration in early childhood… with the goal of creating socioeconomically and racially diverse classrooms" (DOE, 2019a:7). The education department made additional strides by merging the old Early Learn program, run by the Administration for Children's Services (ACS), into de Blasio's overarching program, then moving to integrate poor and middle-class children, previously inhibited by separate funding streams and family eligibility rules.[4]

---

[3] Reid and Ready (2013) examine the relationship between racial and economic integration and child outcomes, yielding results that suggest positive peer effects in less segregated pre-k classrooms (also, Miller, Votruba-Drzal, McQuiggan and Shaw, 2017).

[4] The city's 2019 request for pre-k funding proposals expresses mixed signals on the economic integration front. After encouraging the idea, the department then says, "The DOE expects that effectively and seamlessly combining Birth-to-Five services with Head Start/Early Head Start services may come with significant programmatic complexity, additional costs, administrative and reporting requirements, and complex cost allocation requirements."

Policy Levers and Institutional History

Policy makers tug on various levers to improve pre-k quality: regulating class size or staffing ratios, elevating teacher qualifications, splitting funding between programs based in CBOs or public schools, banking on which subsector may deliver stronger results. Regulatory devices, spending per child, and teacher credentialing offer related tools for lifting pre-k quality. Some studies find that pre-k teachers in poor neighborhoods possess weaker credentials on paper, or prefer certain forms of classroom organization, compared with peers in middle-class settings (for review, Reid & Ready, 2013). Boosting teacher credentials will help to enrich classroom quality and child-level effects, say certain advocates. But debate persists over what forms of preservice training empirically lift young children (for review, Early et al., 2007).

Overall, policy makers may exert limited influence as they enter diversified markets of pre-k organizations. Even New York-style entitlements cannot regulate the migration of, say, more caring and effective teachers to differing neighborhoods or types of preschools. In New York, city officials quickly discovered a certain path dependence in the attributes and aspirations of teachers embedded in CBO versus school-based programs. De Blasio immediately confronted in 2014 the fact that teachers in community-based pre-k's earned 40% less than teachers working in city schools, despite CBO staff working longer hours per day, laboring in programs typically open more weeks each year (Parrott, 2020).

Policy makers in many states alternate between favoring CBO or school-based pre-k's, based on claims related to comparative quality or responding to political pressures (of late pressed by organized labor in public schools). Henry, Gordon and Rickman (2006) found stronger learning gains among children attending CBO centers within Georgia's universal pre-k effort, relative to school-based programs. The underlying mechanisms that accounted for this difference remained

hidden. Both CBO and school-based preschools in Tulsa have demonstrated significant short-term benefits and persisting achievement effects through elementary school for boys (Phillips, Gormley, & Anderson, 2016).

Some advocates argue that expanding pre-k within schools will ensure higher salaries, durable infrastructure, and tight alignment with the curriculum (and testing) found in elementary schools. Others counter that neighborhood-rooted sites via CBOs are firmly tied to expertise in child development, bolstered by networks and associations that have long fostered age-appropriate classroom practices, developmental sensitivities, and pedagogies (institutionally grounded in Head Start, for example) – key elements at times weakly present in conventional schools (Zigler, Gilliam, & Barnett, 2011). This research suggests a certain path-dependence for quality improvement strategies, pre-k efforts planted in differing institutional soil.

New York City – Distributing Preschool Quality

Differing Aims of Universal Preschool

Bill de Blasio is not the first mayor to advance early education in New York City. In the late nineteenth century, municipal leaders began funding child care, kindergarten classrooms, and health initiatives inside more than two dozen settlement houses (Cole, 1908). Later, Great Society initiatives in the 1960s would spur a variety of community action efforts, including the creation of Head Start preschools. In 1985, Mayor Ed Koch put forward *Project Giant Step*, promising pre-k for the city's 4-year-olds, an effort derailed by his successor. Michael K. Bloomberg applied new federal dollars in 2012 to improve the quality of pre-k slots situated in CBOs via the Early Learn initiative, while deciding against a significant expansion of seats for children from low-income families.

More ambitious, de Blasio's Pre-K for All (PKA) effort nearly tripled the count of fully subsidized slots for the city's 4-year-olds, creating almost 49,000 new places in his first year as mayor (Barnett et al., 2016). He soon realized that to expand rapidly the city's vast network of CBOs must be embraced, beyond creating pre-k classrooms in public schools. By 2019, de Blasio consolidated preschools earlier managed by ACS, under the Early Learn program, into his initiative led by the Department of Education.[5] The mayor began extending pre-k slots to 3-year-old children in 2017, focusing on poor communities.

Mr. de Blasio articulated various goals for his PKA initiative, alternating between economic relief for stressed middle-class families and the purported power of preschool to reduce disparities in children's early growth. "If we don't address the needs of children early, we are not addressing the disadvantages that some children bring with them," de Blasio said during his 2013 campaign. Universal pre-k was to exercise a "huge, huge impact… we will change the future of this city," he said (Colvin, 2013). The pre-k entitlement was to address the city's "inequality crisis," that "tale of two cities," to which de Blasio referred (Packer, 2013).

At other times, de Blasio has accented how the pre-k entitlement will "lift all boats." With implementation well underway, he reported talking "to a lot of middle-class and even upper-middle-class parents who are benefiting from the program… they have a right to it as well" (Siegel, 2014). In addition to lifting children, *Pre-K for All* was to ease family finances. "A lot of middle-class families in this town are stretched economically. This is the kind of benefit they deserve for their children, but also for their household budgets," de Blasio argued.

---

[5] In 2005, ACS issued a plan for expanding and simplifying how it contracted with CBOs to provide infant, toddler, and pre-k programs, including family child care and portable vouchers. These neighborhood sites were largely funded via federal Head Start and child-care block grants. On the eve of Mayor de Blasio's expansion of pre-k for 4-year-olds, ACS oversaw slots for 45,260 young children, 0-5 years of age (Gelatt & Sandstrom, 2014).

Raising Quality in Varying Institutions

The distribution of pre-k quality among demographic groups or neighborhoods may shape the extent to which this small-scale institution *lifts all children* or *narrows disparities* in early learning, the tandem goals expressed by de Blasio's design. Ever since initial planning for PKA began in early 2014, de Blasio and DOE leaders have labored to build a high level of quality across the nearly 1,800 pre-k's funded by the mayor's program, based either in CBOs or city schools. Yet, how to define *quality*, then enrich qualitative features of classrooms or teacher competencies, has been conditioned by institutional histories. CBOs had long dominated early-childhood services in the city as sketched above. At the same time, the mayor decided to build-out pre-k sites in city schools as well.

Baseline features of pre-k sites and teaching staff differed greatly between the tandem subsectors. One early analysis of classroom observation ratings from the city's pre-k sites in 2014-15 (*n*=1,116) found that CBOs displayed stronger classroom and organizational quality than school-based programs, compiling scores from the DOE-observed Early Childhood Environment Rating Scale (ECERS, Brender, 2016). A second study, drawing on a sample of 57 pre-k sites, found that CBOs operated two to three hours longer each day, compared with the pre-k's being fit into traditional school hours. CBOs were more likely to serve higher percentages of Black or dual-language children, and more frequently offer mental health services – given their long-running neighborhood focus (Reid, Melvin, Kagan, & Brooks-Gunn, 2019).

Yet, pre-k teachers inside city schools continue to be compensated more heartily for shorter work days, earning yearly salaries that averaged $73,471, compared with $43,660 earned by CBO-based teachers. Eighty-six percent of school-based teachers enjoy health insurance benefits versus just 48% of their CBO peers. Half the teachers in schools reside in a household where

annual incomes exceed $100,000, compared with 2% of CBO teachers. The sample of site managers surveyed by Reid et al. (2019) found that school principals earned nearly twice the salaries reported by CBO administrators.

On the other hand, pre-k teachers in city schools appear to be more qualified on paper. Reid and colleagues found that 91% of this group had obtained state certification of some kind, compared with two-thirds of CBO teachers. Still, the latter group was more likely to speak a second language (other than English) and engage in professional development activities. Among school-based teachers, half were White, another 18% of African-American heritage; these shares of ethnic membership equaled 23% and 34%, respectively, among CBO teachers.

To reduce such stark disparities in compensation, de Blasio and DOE leaders have wrangled with labor unions and children's advocates to move toward salary parity. The Day Care Council of New York worked with city officials in 2019 to broker an agreement that will essentially bring CBO teacher salaries in line with *starting salaries* of DOE-employed teachers, provided CBO staff possess or attain a teaching credential or master's degree. The agreement involved two unions that represent CBO teachers, each affiliated with the American Federation of State and Municipal Employees. State-certified teachers in CBOs will earn about $15,000 more per year in each of the next two years, reaching an average lead-teacher salary of about $69,000 by late 2021. About 4,000 additional union members, including classroom aides, cooks, and janitors, will receive an $1,800 supplemental payment (Parrott, 2020; Veiga, 2019).

Charter schools represent another institution playing a modest role in the expansion of pre-k, offering another organizational history. Just 16 charter schools operated pre-k sites under contract with the DOE when we compiled basic data in Fall 2019. An additional seven charter schools have been approved to serve preschoolers under DOE funding. But with space and

facilities at a premium, some charter leaders told us that the roughly $10,000 provided per 4-year-old for pre-k is a losing proposition, compared with $16,100 allocated per K-12 pupil by the state. Charter advocates have resisted city regulation of pre-k classrooms. Success Academy Charters, in 2017, won relief from additional oversight in the state appellate court via *DeVera v. Elia*.[6] Whether charter schools operate higher quality pre-k sites, perhaps emphasizing their stated goal of academic rigor, is a question on which little is known empirically.

Research Questions and Analytic Overview

Overall, prior research shows that mixed markets of preschools may unfairly favor better-off communities by regressively distributing quality. Even when policy makers equalize access to pre-k – making it free to all families, be they rich or poor – higher quality may tilt toward advantaged communities. This may stem from better-off parents demanding stronger quality, the migration of effective teachers to comfortable neighborhoods, or greater political strength exercised by economically secure families. At the same time, publicly funded efforts over the past half-century have progressively widened family access and raised pre-k quality for low-income groups. We also know that the magnitude of pre-k effects for children is sensitive to variation in quality, at least for those from low-income families (e.g., Fuller et al., 2017; NICHD & Duncan, 2003; Weiland & Yoshikawa, 2013).

What is not well understood is how the quality of pre-k centers varies among social groups or neighborhoods, especially as cities or states endeavor to provide a universal entitlement. Based on earlier research, we expect that institutional history (auspice), along with the demographic or economic features of neighborhoods, may condition the quality of pre-k sites. What's worrisome

---

[6] Despite this new-found autonomy, all charter schools contracting with DOE to run pre-k sites have opted into the Department's on-site support and professional development activities.

is that unless pre-k quality in poor areas approximates or exceeds quality levels in better-off neighborhoods, it's difficult to see how this entitlement could narrow disparities in children's early growth.

One key strength of the New York initiative is that city leaders remain keen on observing and improving classroom quality, whether pre-k sites are run under the auspices of CBOs or city schools. DOE staff observe and rate the quality of each pre-k site twice during a three-year window, drawing on two observational measures commonly used in the early-childhood field. They also maintain data on core organizational features, such as demographic attributes of children enrolled, hours of operation, the count of meals served each day, and the quality of facilities and play spaces. Given the ambition of New York's pre-k entitlement and the richness of quality data collected, it provides a ripe case for informing these empirical questions:

RQ1. Do average levels of observed pre-k quality differ based on organizational auspice, whether hosted by a CBO or city school?

RQ2. How do the economic and demographic features of neighborhoods (census tracts) condition differing levels of observed pre-k quality across the city?

RQ3. To what extent does racial segregation mark child enrollments in pre-k sites, and how are segregation levels conditioned by the features of host neighborhoods?

We first report descriptive data on each of these questions, highlighting mean differences in the quality of pre-k sites observed between CBO and school-based hosts. We then map and detail the distribution of pre-k quality based on economic and racial features of census tracts. We compiled comparable information collected by DOE for 1,610 pre-k sites with complete data during the 2016-2018 period, situated within New York City's 1,057 census tracts. We pegged all data for our cross-sectional analysis to this three-year window, given that the population of funded pre-k's shifts over time and data elements become available at differing times.

We detected a slight narrowing in quality gaps tied to neighborhood economics when including the city's most recent quality scores, the roughly one-third of pre-k sites observed in 2019. Yet, disparities detailed below remain statistically significant and moderate in magnitude. Overall, average pre-k quality did improve on most observed subscales during the initial years of PFA implementation. But this progress has leveled-off since 2017-18, a key point to which we return (Appendix 1).

Method

Data

The city's Department of Education collects detailed data on the quality and organizational features of each pre-k site, whether situated in a CBO, city school, dedicated pre-k center (run by DOE), or charter school. We compiled data that capture these variables for the 2016-2018 period, including 1,610 program sites with complete information for organization-level constructs (observed classroom quality and related attributes), along with demographic and economic data for host census tracts in which pre-k's are located. Each year, the DOE (2020) posts results from the most recent quality-observation exercise by site. Any given site is observed twice inside a three-year window, as city monitors employ two different observational measures of quality. As this data window moves forward year-by-year, new observation scores appear for about two-thirds of all pre-k's. The population of sites is shifting as well, mainly as different CBOs enter or exit the PKA initiative. We anchored the analysis to the recent three-year period, 2015-16 to 2017-18 school years, for which complete data were available for pre-k sites and host census tracts.

To obtain the data for DOE's two observed measures of quality, we first drew data from the city's online *Pre-K Finder* in Fall, 2019. This is a web-based tool, designed by DOE (2019b),

which allows parents to easily compare quality levels among preschool sites and provides updated quality scores by site. For each PKA site, one can view reduced *four-point* scores derived from the Early Childhood Environmental Rating Scale, Revised (ECERS) and the Classroom Assessment System (CLASS). Original *seven-point* quality scores (direct assessments using the ECERS and CLASS tools) were publicly posted for 1,791 pre-k sites during our 2016-2018 data window. After conducting a small measurement study to assess the consistency between four and seven-point scales, our analysis relies solely on the latter.

The DOE posts separate files for the location of current pre-k sites (geographical coordinates), child demographics, enrollment size, and organizational features of sites beyond the files containing quality scores and subscale data. These files appear at different times on the city's "data hub" or via annual snapshot postings, another reason that we pegged all data elements to the 2016-2018 period.[7] Data on pre-k teachers are maintained by the DOE but not made publicly available.

After merging the 2019 *Pre-K Finder* data with the files posted on-line (to capture seven-point scales, ethnic composition, and organizational features), 181 sites lacked complete data. Classrooms located in nearly 150 sites had yet to be observed utilizing the CLASS observation gauge. This may introduce systematic bias in the working sample: newer sites entering the PKA initiative may be underrepresented, since CLASS observations occur in the second year of program participation, and most of the 181 excluded sites lacked CLASS scores. However, we compared total ECERS subscale scores between our working file of 1,610 sites against the 181

---

[7] Quality scores and subscale data appear each year on one DOE website. Separate files on children's racial or ethnic characteristics appear elsewhere, along with geographic locations reported within a corresponding file.

sites with incomplete data. No significant differences in quality levels were detected for available measures (detailed in Appendix 2).

Additional quality ratings for one of two measures were updated by DOE in early 2020 for about two-thirds of all sites, those observed in 2018-19. We matched these scores back to all sites operating in the 2016-2018 period. Inclusion of these quality scores did not alter our core findings as detailed below. Nor did we find that newer pre-k sites coming online in 2018-19 display higher quality than programs participating earlier in the city's PKA initiative.

Measures

Pre-k quality and organizational features. The DOE requires quality observations of all contracted pre-k sites (CBOs) and city school classrooms serving 4-year-olds, employing the ECERS (Harms, Clifford, & Cryer, 2015) and the CLASS instruments (Pianta, Hamre, & Nguyen, 2020). The ECERS measure consists of 37 observed features of centers and selected classrooms, grouped into six subscales: space and furnishings, personal care routines (greeting children, meals, toileting and health practices), language reasoning, (classroom) activities (a blend of art, music, blocks, dramatic play), social interaction, and program structure (balance of free play, group time, accommodation of children with special needs; see DOE, undated). The ECERS has become an industry standard of sorts – one observational tool required by regulatory or quality-improvement agencies in over 19 states (Ackerman, 2014). ECERS subscales range from 1 to 7. The designers (Harms, Cryer, & Clifford, 2005) report that scores below 3 indicate minimal quality; scores of 3 to 5 signal medium quality; above 5, good to excellent quality.

The ECERS observation tool holds certain limitations. This includes an inconsistent ordering of low-to-high quality across items when analyzed by measurement experts. Subscales include mixes of unrelated or rarely used subscales. The predictive validity of the ECERS is uneven

when estimating children's developmental trajectories. Certain subscales, such as the social interaction component, have proven more strongly predictive of child outcomes (Brunsek et al., 2017; Fujimoto, Gordon, Peng, & Hofer, 2018; Hong et al., 2019). That said, the ECERS offers one quality gauge on which parents rely in New York as they weigh pre-k options. DOE observers score the total ECERS score between 1 and 7, and then reduce these scores to a four-point scale for greater simplicity. The four-point scales appear on the DOE website that allows parents to compare the quality of programs. We found that simple correlations (r) between four and seven-point scales are high, exceeding 0.80 for all subscales.

The CLASS barometer of quality focuses on how teachers and aides behave inside the classroom to provide emotional support and structured learning activities that facilitate language and cognitive challenges for the child. The CLASS subscales do not pertain to the wider organizational environment, as does the ECERS, but instead focus on instructional support (activities arranged and fostered by teachers), classroom organization (a mix of activities and behavioral routines), and social-emotional support provided by teachers and aides. The internal consistency of these subscales has been uneven in some studies, in part due to generally low mean scores for instructional support, relative to the other two subscales (Stout Sosinsky & Gordon, 2019).

DOE staff rotate cycles of CLASS observations across more than one classroom to arrive at each overall site score. This involves multiple observations (cycles) for each of the three subscales. The count of cycles depends on the number of classrooms operating at each site (DOE, 2020). To conduct the ECERS observation, one classroom in each pre-k site is randomly selected. We do not know whether observing multiple classrooms or a single classroom results in greater measurement reliability or predictive validity. Nor do we know whether distributing

subscale observations across multiple classrooms within a single pre-k site holds validity in predicting children's developmental trajectories. Over two-thirds (68%) of all pre-k sites enrolled 35 children or more during the 2016-2018 period, suggesting that multiple classrooms are commonly observed to arrive at average CLASS subscale scores for each program.

Organizational auspice. We examined whether pre-k quality or organizational features of pre-k sites might vary by institutional auspice. These organizational hosts include city schools, charter schools, dedicated pre-k centers run by DOE, and two types of CBOs. We break-out CBO sites between those previously managed by ACS, prior to their 2019 merger into the DOE's overarching program, versus all other CBOs. We also distinguish the 12 charter schools that operated pre-k's during the 2016-2018 period. After initial reports of mean differences we report descriptive differences between all CBOs and all school-based sites. The organizational features examined include provision of extended-day hours for children, the count of meals served each day, and whether sites host indoor *and* outdoor play spaces for children, the latter often scarce for a city that's built-out and where property remains expensive.

Racial integration of young children. The DOE (2019c) annually reports the ethnic or racial composition of children enrolled in each pre-k program. We compiled the percentage of African-American, Asian, Latino, White, or mixed racial heritage aggregated across 4-year-olds enrolled in each pre-k site. We report these enrollment profiles by pre-k auspice, and display ethnic composition by demographic and economic features of host census tracts.

In addition, we calculated the *entropy index* for each pre-k, a measure commonly used in the segregation literature (Reardon, Yun, & Eitle, 2000). This gauge reports on the lumpy or evenly-spread distribution of ethnic groups within an organization. The index ranges from 1, when the

ethnic memberships of children enrolled are proportionally equal, to 0 when all children come

from a single ethnic group. Entropy is calculated as:

$$E = \sum_{r=1}^{R} Q_r \, log_R \frac{1}{Q_r}$$

Where R is the number of racial or ethnic groups in each pre-k program. Q_r is the proportion

of the racial group, r. In our case, pre-k entropy represents the extent to which groups are

evenly distributed within a pre-k program or dominated by a single group.

Demographic and economic features of tracts. Several characteristics of census tracts were

drawn from the Census Bureau's *Opportunity Atlas*, which contains demographic and economic

features of census, generally overlapping with the 2016-2018 data window (Census, 2020;

Chetty, Friedman, Hendren, Jones, & Porter, 2018). Possible tract-level predictors of pre-k

quality include: (a) median household income in 2016, (b) educational attainment, indicated by

the share of adult residents, age 25 or older, holding a college degree, (c) share of tract residents

of Asian, Black, Latino, or (non-Latino) White heritage, (d) share of individuals in the tract

below the federal poverty line, (d) share of households headed by a single parent, (e) median

gross rent for renter-occupied units for a two-bedroom unit, estimated for 2015, and (f) number

of high paying jobs within a five mile radius. The overall expectation is that demographic

features of neighborhoods and their economic vitality may influence levels of pre-k quality.

We also investigated whether residential gentrification in parts of New York further explains

variation in pre-k quality among tracts. The in-migration of Asian-heritage, White, and relatively

comfortable families to parts of Brooklyn, Queens, and Staten Island, for example, may renew

pressure to improve the quality of city schools (e.g., Freidus, 2020). Whether this applies to

demand pressures for quality pre-k is unknown. We drew from the gentrification and population

displacement index compiled by the New York Urban Displacement Project (UDP, 2019). This

barometer estimates the change in population composition, largely the loss of low-income residents between 1990 to 2015. The UDP methodology was adapted by NYU's Center for Urban Science and Progress to estimate gentrification along a three-point scale for New York City tracts (CUSP, 2018).

This working paper walks through descriptive differences in mean levels of pre-k quality by auspice (institutional host) and by demographic and economic characteristics of tracts in which pre-k's are located. The next step is to estimate independent effects on pre-k quality levels, stemming from attributes of sites and the census tracts in which they are situated. We will employ a basic hierarchical linear model (HLM, Bryk & Raudenbush, 1992), given that the 1,610 centers are nested in 1,072 tracts, and therefore independent drivers of pre-k quality. These results will soon be circulated for review and comment.

Findings

We begin by reporting on the internal consistency and inter-correlation of the subscales contained within the two measures of quality, the ECERS and CLASS instruments. Second, we examine how average levels of quality and organizational features of pre-k sites differ by auspice and the economic and demographic attributes of the neighborhoods (tracts) in which pre-k's are located. This descriptive analysis reveals systematic differences in the racial mix of children enrolled as well.

Internal Consistency of Pre-K Quality Measures

We mainly report on variation in pre-k quality as gauged by the 7-point scales for the ECERS and CLASS measures, as made available by the DOE. The 4-point scales, appearing online for parents, were highly correlated with the 7-point versions for both measures ($r > 0.80$ in all

pairings). For research purposes, the 7-point total and subscale scores offer greater precision and variability, enabling comparison with pre-k sites in other cities and states (Box 1, page 30).

Across the 1,610 pre-k centers with complete data, we found moderate to high correlations among the six subscales: r for all pairings was greater than 0.77 with two exceptions. The subscales for social interaction (between children and teachers, and among children) and program structure (balance of differing classroom activities) drifted lower, between r=0.45 and 0.66. We did not attempt a measurement study to identify latent constructs, since the DOE does not employ such transformations of the ECERS subscales. The total ECERS score was correlated with each of the component subscales at 0.66 or above, acceptable internal consistency.

Associations among the three CLASS subscales yielded even stronger internal consistency. The three subscales were inter-correlated at 0.83 or above across all pairings. We did find considerably lower scores on instructional support, relative to classroom organization and emotional support, consistent with independent observations earlier conducted by Reid et al. (2018). The instructional support subscale also proved more sensitive to pre-k auspice and characteristics of host tracts than the remaining two subscales, as described below.

Distribution of Pre-K Quality

To get a visual fix on variation in pre-k quality, we mapped the location of each of the 1,610 pre-k sites with complete data, using their total ECERS score rounded to the nearest integer (Figure 1). Institutional auspices were consolidated into *all DOE-run* pre-k's (situated in an elementary school or stand-alone pre-k center), *CBO* sites (previously ACS-run and all other CBOs), and pre-k sites run by *charter schools* under contract with DOE. Census tracts are shaded in the background, pegged to increments of median household income, detailed on the map legend). All figures and tables appear below following the text.

Pre-k's plotted as dark green squares are those with an ECERS score of 2 or 3, indicating low quality (*n*=235 sites). The lighter green symbol indicates a total score of 4 (*n*=749), medium quality, or observed at level 5 or 6 (*n*=615). We see that lower quality pre-k centers are disproportionately found in low-income parts of the city. This includes the area ranging from Harlem, north into the Bronx; a Lower East Side section, home to public housing; and scattered parts of Brooklyn. Most areas in Queen and middle-class parts of Staten Island tend to host higher quality pre-k sites. We will return to the association between pre-k quality and the economic vitality of host neighborhoods.

Institutional auspice. The distribution of quality may vary depending on the type of organization that runs a pre-k site under contract with DOE. That is, institutional history likely matters, given the long track record of many CBOs in operating child-care or pre-k sites, along with the more limited experience of city schools in the pre-k sector. We do observe differences in average ECERS scores, split by institutional auspice (Figure 2). The mean ECERS score for CBO-based sites equals 4.3, compared with 4.1 in public elementary schools (two-fifths, 0.42 standard deviation [*sd*] lower) and 4.0 in dedicated pre-k centers run by DOE (0.48 *sd* lower). Pre-k's situated in charter schools display the highest mean ECERS score (4.7); recall that just 12 charter sites reported complete data for the 2016-2018 period.

Mean CLASS scores are more similar across institutional auspice (Figure 3). The exception again is charter-based pre-k's, which display a 5.5 mean score, 0.29 *sd* higher than sites in traditional elementary schools (mean=5.3). We also detected significantly lower social-emotional support in previously ACS-run pre-k sites, based on this CLASS subscale, relative to programs run under all other auspices (Table 1). Overall, the city-assessed CLASS results that we found

averaged one to two-tenths of a point higher, relative to independent assessments conducted on a modest sample of sites by Reid et al. (2018) at Teachers College.

Table 1 details mean scores for all subscales of the ECERS and CLASS by site auspice. CBO sites (combining previous ACS and non-ACS sites) display higher ECERS scores on particular subscales, compared with city schools: space and furnishing for young children, personal care routines, social interaction, and classroom activities. Table 1 also reports that school sites are contracted to provide seats for eight more children than CBOs on average. CBOs serve significantly more meals each day to children, while reporting less access to indoor and outdoor play spaces. Charter-based programs are much less likely to offer extended day options after the school day ends for children.

Stability of differences. We do not examine change over time in the quality of pre-k sites in the present paper, a topic for future research. Instead, we selected the data window, 2016-2018, for which we could compile data on pre-k's and host census tracts. It's possible that this window could be peculiar in some ways, especially if quality indicators have been moving significantly since the inception of PKA. This appears true during the initial three years of the program, due to new pre-k sites joining the mayor's effort or early sites enjoying improved quality. Appendix 1 displays quality trends for the ECERS and CLASS for selected subscales, 2014-15 through 2018-19, based on DOE (2020) data files. After three initial years of improvement, these quality indicators have traced a generally flat plateau overall. The instructional support subscale of the CLASS declined in recent years, while the other two subscales of drifted slightly upward.

The *distribution* of pre-k quality – say by auspice or neighborhood context – could be changing over time, even as mean quality citywide has leveled-off. Note that the population of pre-k sites also shifts over time, with programs entering or exiting the mayor's program, one

reason we set the three-year data window, 2016-2018. That said, we further checked the stability

of our findings, merging DOE's most recent three-year set of quality scores, released in early

2020, into our core data file (*n*=1,610 sites). Re-running mean ECERS scores by auspice, the

disparity between CBO and school sites narrowed from one-quarter to just over one-tenth a scale

point (0.42 *sd* to 0.19 *sd*, respectively, both differences remain significant at *p*<.001).[8] Running

the 1,793 sites appearing exclusively in the 2018-19 data yielded a nearly identical result.

Neighborhoods – economic and demographic contexts. Next, we situate pre-k sites within

host census tracts to examine whether features of neighborhoods are related to average quality

levels. We first split New York City's 1,057 tract into four quartiles, each containing equal

counts of tracts, based on the median household income of residents. Figure 4 displays mean

ECERS scores by income quartile, from the poorest one-fourth (mean income=$25,181) of the

city's tracts to the economically best-off quartile (mean=$90,333). Average ECERS scores

ranged about one-third (0.35) *sd* higher for sites in the two more comfortable quartiles, compared

with pre-k's located in the poorest one-fourth of city tracts (*F*-value significant at *p*<.001).

After merging the DOE's 2018-19 data – checking the stability of this disparity – the gap in

mean ECERS scores between the poorest and most comfortable quartile of tracts narrowed a bit,

equaling 0.23 *sd,* while remaining statistically significant at *p*<.001. DOE's efforts to lift low-

quality sites may be paying off, although higher quality still tilts toward families residing in

economically better-off neighborhoods.

Comparatively lower pre-k quality is observed in the poorest quartile of tracts across ECERS

subscales. Figure 5 reports five selected subscales, displayed for each of the income quartiles.

---

[8] Matching sites over the entire 2016-2019 period results in losing CBO pre-k's that entered or exited the city
initiative during this time. We have not yet analyzed whether this churning yields significant effects on overall
quality levels, by auspice, or within certain neighborhoods.

Mean levels of social interaction were observed at 0.27 *sd* lower in pre-k's situated in the poorest quartile of tracts, relative to the economically most comfortable neighborhoods (marginally significant, *p*<.10). Recall that this subscale holds validity in predicting the pace of young children's growth. The disparity is greater for the balanced structure of the program (blending group time, free play, a clear schedule of activities): pre-k sites in poor tracts fall 0.81 *sd* below those in better-off quartiles.

Table 2 details means differences for all ECERS subscales by quartile. This helps unpack the underlying classroom and organizational features that explain the modestly regressive distribution of pre-k quality among neighborhoods. In addition to the disparity in program structure, the richness of language-reasoning by teachers was observed to be stronger in the upper two quartiles, an advantage equaling about one-third *sd*. Sufficient space and furnishings for young children were more adequate in pre-k's situated in the top two income quartiles, compared with mean scores in the poorest one-fourth of the city's tracts, a difference equaling 0.39 *sd*. Quality levels in the most affluent one-tenth of all tracts did not differ from those located in the top quartile.

We also divided tracts into equal counts based on the percentage of their residents of African-American heritage, then compared mean quality levels. Both ECERS and CLASS mean scores are reported in Figure 6, grouped by the share of Black residents in each of the four quartiles of equal counts of tracts. The three-tenths scale point difference in mean scores for the ECERS – between quartiles with the lowest and highest shares of Black residents – equals nearly half a standard deviation (0.48 *sd* and highly significant statistically). The same pattern occurs for between-quartile differences in CLASS means, equaling 0.35 *sd* lower in predominantly Black census tracts.

Enrollment composition and pre-k quality. A related way to think about context pertains to variation in children enrolled among sites. The racial or ethnic composition of pre-k's may further reflect features of neighborhoods, historical differences in resources levels, or institutional habits. We sorted the 1,610 preschool sites by the percentage of children enrolled of Latino heritage, then split them into four groups with equal counts of sites (quartiles). Then, we calculated the mean ECERS score for each quartile (Figure 6B). We see that sites enrolling the lowest concentrations of Latino children (quartile 1, far left) display significantly higher quality than the one-fourth of sites with the highest share of Latino enrollees (a gap equaling one-fourth *sd*). The identical, moderately regressive pattern appears when resorting sites by the share of children enrolled of African American heritage.

We repeated this procedure, then calculated mean levels of *instructional support* (from CLASS), given that this subscale distinguishes sites in other comparisons. Figure 6C shows a pattern nearly identical to the gap in ECERS scores just shown, although the difference for instructional support between high-to-low concentrations of Black or Latino children is small, equaling about one-sixth *sd*.

We also calculated the odds that children access a pre-k site that displays "good" or "excellent" quality, scoring a five or higher on the seven-point ECERS scale, based on racial characteristics of the tract in which the program is located. One in four children attended a pre-k displaying this level of quality in the quartile of tracts with the highest share of Black residents, compared with two in five children when entering pre-k sites in predominately White or Asian American neighborhood. These odds fell slightly lower for children in heavily Latino tracts (30% of sites), although the disparity was quite small (35% for mostly White and Asian communities).

Gentrifying neighborhoods. We also found that mean ECERS scores climbed higher in tracts experiencing an "advanced pace of gentrification," relative to tracts losing fewer low-income families in recent decades, as defined as "at risk of gentrification," shown in Figure 7. The mean ECERS score was 0.47 *sd* higher in rapidly gentrifying communities across the city. Our forthcoming multivariate analysis will tease-out whether gentrification operates on pre-k quality independently of household income or related demographic predictors.

Racial Integration as Quality Indicator

Another facet of quality pertains to the racial composition of children enrolled in diverse pre-k sites. The racial or economic integration of differing children may yield benefits in cognitive and social-emotional domains as reviewed above. The overall ethnic composition of pre-k enrollees citywide in 2017-18 included 17.7% children of Asian heritage; 22.4% African-American; 38.6% Latino; 18.0% white; and 3.4% of mixed race and other. Tuition-charging preschools, of course, continue to serve families that can afford them.

We can visualize the geographic distribution of segregated pre-k's by mapping sites in which 75% or more children enrolled belong to a single racial group (Figure 8, Map 2). Overall, just over one-third (34%) of all preschoolers experienced this level of segregation in 2017-18 – where 75% or more children enrolled in a given pre-k came from a single ethnic group (36% of all sites).[7] We found that 259 pre-k's served such high concentrations of Latino children. This count of highly segregated sites equaled 158 pre-k's for Black children; 66 sites dominated by Asian-heritage youngsters; and 77 sites with such large shares of White children.

We see how pre-k's with segregated concentrations of Latino children are densely packed into the area that reaches from north of Harlem and across much of the Bronx. Recall these sites display lower quality in these low-income neighborhoods, relative to other parts of the city

(Figure 1 above). Brooklyn hosts a large count of highly segregated White and Black pre-k's, while racially isolated Asian sites tend to be concentrated in Queens. Even middle-class tracts on Staten Island host several racially isolated sites, dominated by Black or Latino enrollments.

What percentages of pre-k sites are severely segregated, dominated by a particular ethnic group? Figure 8B displays the share of sites in which one ethnic group of children makes-up at least 75% of the program's enrollment, split between CBO and city school programs (again combining previously ACS and non-ACS community organizations). The vertical bar on the left shows that 1.2% of all CBO pre-k's enroll 75% or more children of Asian heritage. Another 10.2% are dominated by Black children, again making-up at least 75% of enrollments. The bar on the right reports somewhat higher percentages of sites in CBOs that enroll at least 75% Asian, Black, or White children.

Adding-up these shares, we find that nearly three in 10 pre-k sites in city schools are severely segregated (28.5%). This proportion equals two in every five pre-k's in CBO (40.4%), perhaps due to their historical ties to Head Start and the community action movement over the past half-century. These findings resemble Potter's (2019) results on pre-k segregation, not surprising since we are looking at a time period matched to her analysis. Potter did find that pre-k sites are more segregated than kindergartens in the city schools. Using a different benchmark – defining severe segregation as city schools that enroll 90% or more students, non-White – Kucsera and Orfield (2014:90) found that 72% of traditional public schools hit this isolation benchmark. We find that 38% of all pre-k sites enrolled more than 90% non-White 4-year-olds, when combining Black and Latino children.

White children attend the most racially isolated pre-k sites (Figure 9). Recall the entropy index offers a gauge for how evenly (or lopsided) racial groups are spread within a preschool. An

index value of 1 indicates that the percentages of all ethnic groups among children enrolled are equal; a value of 0 indicates that just one ethnic group is represented among preschoolers. Isolating on the sites dominated by a single ethnic group, Figure 9 shows the percentage of that group enrolled, along with the entropy index (the diversity of children in the remaining 25% share (or less) of kids enrolled. Pre-k's dominated by white children are the most isolated on average (91% white) and display the lowest (least integrated) entropy score, 0.28, relative to other racial groups.

How Large Are These Quality Gaps?

Designers of the Early Childhood Environment Rating Scale (ECERS) specify that pre-k centers scoring below 3 on the 7-point scale reflect minimal quality; 3 to 5, medium quality; above 5, good to excellent. New York City's programs averaged 4.3 in 2019 [Appendix 1]. Three-fifths scored at 4 or less on this scale in 2018. One study found that centers in San Jose, California averaged 5.8, while pre-k's in Tampa, Florida fell to 3.2 (Loeb et al., 2004). The mean Instructional Support score for CLASS observations among city pre-k's was lower (2.9) in 2018-19, compared with Head Start pre-k's nationwide (3.0).

Against this backdrop, when researchers observe a difference in quality scores of, say, one-fourth a standard deviation (sd) on the ECERS, should we be worried? Yes. This disparity – observed between pre-k's in the city's poor versus better-off neighborhoods – equals one-fifth a point on the ECERS. Subscale gaps between economically different neighborhoods range up to four-fifths sd (medium to large differences, Kraft, 2020). These gaps push many pre-k's into "minimal" or "medium" levels of quality, rather than scoring "good."

Do These Quality Gaps Disadvantage Certain Children?

It's difficult to see how these disparities could work to equalize child-level benefits of pre-k. Earlier research finds that ECERS subscales – the observed measure of social interaction, for instance – predicts gains in children's development (Hong et al., 2019). To help narrow gaps in early learning, quality must be equal to or higher in disadvantaged neighborhoods, relative to levels observed in middle-class areas of the city. But pre-k's situated in predominantly Black communities host pre-k programs that score more than one-third a point lower on the ECERS, ranging up to half a point lower on the CLASS gauge of quality. This will not likely equalize the benefits diverse children potentially enjoy from quality pre-k.

We also verified, after calculating mean entropy scores, that CBO pre-k's tend to serve more racially segregated children, compared with city-school sites. Figure 10 reports mean entropy scores by auspice. These differences are modest in magnitude, equaling just over one-third (0.35) *sd*. We know that CBOs, many harking back to their original settlement-house or

Head Start roots, have tended to serve particular low-income communities. This fits the fact that school-based pre-k's are distributed more evenly around the city, relative to CBOs, the former more present in middle-income areas. Just over one-fourth (27%) of all city-school pre-k's and 38% of stand-alone DOE sites were located in the economically best-off quartile (one-fourth) of census tracts in 2019, compared with 23% of CBO pre-k's.

Overall, we see how severely segregated pre-k's tend to be concentrated in the Bronx, parts of the Lower East Side and Brooklyn (Figure 8 above). Even in more integrated neighborhoods, children and families may sort along social-class lines, keeping poor children apart from middle-class peers. More detailed data on children and families are required to probe this important question. At the same time, the demographic diversity of areas lead to segregated pre-k's – a predominantly Latino pre-k operating in close proximity to a mainly White program, for example. This means that desegregating preschools would not necessarily be constrained by geographic distances between programs.

Discussion and Policy Implications

These findings help to identify the challenges faced by advocates and policy makers who advance universal entitlements. When it comes to pre-k, these includes the task of progressively distributing organizational quality across differing communities, essential if the policy aim is to reduce inequities for children and families. Our empirical results return us to the pivotal issue of how to meaningfully achieve fairness. The universal provision of free services or income supports – whether through health care, public education, or paid family leave – intends to set a firm floor below which no family should fall in a humane society. But the actual distribution of these public goods or forms of social insurance is key.

Our findings suggest that when the allocation of educational services manifests unequal quality, a well-intentioned reform may disadvantage the very children policy makers hope to elevate. To argue that *all* young children should benefit from early education offers a reasonable philosophical position, similar to advocacy for common public schooling. Or, that socializing the cost of child-rearing justly frees the labor power of all parents. But when higher quality pre-k tilts toward better-off families, this small-scale institution may harden, rather than narrow, disparities in children's early growth. It's such institutionally encased inequalities – ordered by race and social class – that millions of Americans have protested against in recent months.

Evidenced by one observed measure (ECERS), children in the poorest one-fourth of New York City neighborhoods attend sites of lower quality than peers in economically comfortable neighborhoods. On both gauges of quality (ECERS and CLASS) utilized by city monitors, we found that pre-k quality dips lower in programs serving greater shares of Black and Latino children, compared with sites hosting proportionally more Asian-heritage or White youngsters. The same pattern appears for pre-k sites situated in predominantly Black areas of the city. It's difficult to argue that such regressivity, even at moderate degrees of disparity, will reduce gaps in children's early learning.

We also discovered how the pursuit of entitlements does not take root in virgin soil. Instead, various institutions already populate the terrain. Community nonprofits had long offered child-care and preschool options, going back a century in some cases, as Mayor de Blasio initiated his dramatic pre-k expansion. Since the Great Society, these CBOs have nurtured the growth of Head Start preschools, often staffed by teachers with strong ties to professional associations and training in developmental science. At the same time, city schools operate in middle-class parts of the city, employ large fractions of highly credentialed teachers, and

compensate them at higher levels than their CBO counterparts. We don't know whether pre-k teachers in city schools share historical ties to early-childhood professional groups and the knowledge base they advance.

Against this backdrop, we find that pre-k quality is modestly higher inside CBO sites on average, compared with city-school programs on one of the two barometers of quality. This CBO advantage operates in progressive fashion, given that community-based pre-k's serve larger concentrations of disadvantaged children and families. Our findings are consistent with Brender's (2016) earlier analysis, finding higher average quality in the CBO subsector, relative to school-based sites. Focusing on the CLASS observation tool, Reid et al. (2018) found that school-based pre-k's displayed stronger classroom organization and instructional support, compared with CBOs, based on a sample of 57 sites. We were unable to replicate this finding after considering all 1,610 sites. We did find significantly lower social-emotional support in ACS sites, although this gap does not appear for all other CBOs (Table 1 above). Such institutional differences – observed between the two sets of CBOs – may continue to operate until the city finds efficacious ways of progressively distributing pre-k quality.

These findings help pinpoint how the mayor might equalize pre-k quality among neighborhoods and demographic groups, as the education department prepares to reopen city schools and preschools. The Covid-19 pandemic has vividly exposed the inequities built into public education, along with the uneven home resources and economic slack experienced by diverse families. Might the city seize this moment to reduce disparities in how educational resources are extended to families? The mayor is doing just that in the K-12 sector, focusing summer efforts, including stronger online connections, on students who failed a course during the past year. Complementary efforts could be mounted in the pre-k sector.

Lower quality preschools, often situated in poor areas of the city, likely hold weaker capacity to stagger children's attendance and staff much smaller (socially distanced) classes. We don't yet know how many pre-k teachers will not return to work. Many pre-k teachers are raising their own children at home, although working-class households face stiff pressure to return to their jobs. More adequately paid pre-k staff – those employed by city schools – may feel less urgency to return to work, compared with CBO counterparts who belong to low-income households. We have detailed how not all pre-k's are created equal in New York. Those suffering from lower quality or organizational vitality will be least able to cope with spotty staff availability, budget cuts, and radically altered conditions this Fall. To ignore the maldistribution of pre-k quality could further worsen disparities in children's early growth.

The DOE is making determined efforts to raise the quality of weaker pre-k sites. A fresh round of funding to CBOs – to be announced this summer – will encourage inventive ways of desegregating pre-k sites, at least along economic features of families. This includes a pioneering effort to integrate poor and non-poor children, breaking down earlier funding restrictions. That said, very few pre-k's have submitted plans for how to integrate kids across racial or economic lines (Veiga, 2020). Nor has DOE leveraged its central application process to balance parent preferences with feasible integration goals. Several cities pursue such a strategy via "managed choice" programs. The move by Brooklyn District 15 to base middle-school assignment on lotteries, rather than relying on competitive admissions criteria, reflects fresh thinking on how to carefully integrate children.

Additional research is required to examine how CBO pre-k's manifest stronger quality, on average, while often situated in lower-income parts of the city. One next step is a conventional multivariate analysis to see how CBO auspice and neighborhood demographics may

independently affect pre-k quality. Equally important, we have much to learn about how CBOs have built high quality over time, attracting skilled and caring teachers, despite being paid less than peers in city schools, often laboring in challenging conditions.

The unusually high quality of pre-k sites in charter schools offers another case of institutional segmentation. Recall that complete data are only available on 12 charter-based pre-k's (the DOE has approved another seven to come online by 2022). Yet, charter advocates may be delivering on their promise of well-organized and rigorous classrooms, essentially operating as laboratories for innovation and high quality. On the other hand, if their pre-k sites are pegged to a traditional K-12 curriculum – perhaps a narrow conception of "school readiness" – classroom activities may prove developmentally inappropriate. Either way, we have much to learn about what charter schools are doing inside pre-k classrooms and how their methods yield gains in children's growth.

Good news appears with the modest narrowing of quality disparities when comparing sites among income quartiles, after factoring-in the most recent panel of pre-k observations for one-third of the city's programs. It's important to assess whether this progress continues, especially as overall quality gains have stalled in recent years. Three possible explanations for this quality plateau seem feasible. Higher-quality teachers may be migrating from CBOs to better paid pre-k positions in the city schools, helping to lift quality in the latter subsector. Alternatively, DOEs efforts to elevate low-quality programs may be paying off. DOE employs about 175 instructional coaches to help lift flagging pre-k's. Or, the evolving mix of city pre-k's may be replacing low quality organizations with higher quality sites. Each possible dynamic deserves future research.

Our study is limited in notable ways. First, we have yet to pull-in textured data on teachers, still not made publicly available by DOE. We do know from prior surveys of sampled pre-k's

that CBO teachers and aides remain less well-paid, work longer days and weeks per year, and display weaker credentials, compared with peers in the public schools (e.g., Reid et al., 2019). The city's recent labor agreements will partially narrow this disparity over time. But more textured research could detail what CBO teachers are doing well that school-based peers are not – ways of organizing classroom activities, while fostering children's growth in warm and supportive ways. The pair of observational measures on which our study relies don't necessarily pinpoint these key teacher competencies. For both school and CBO-based programs, qualitative research could reveal the means by which a sizeable share achieve high levels of quality.

More work on the migration patterns of teachers is sorely needed, especially as CBO staff understandably move to school sites, where they can earn two-fifths more in a workplace that's open less hours and fewer weeks per year. The CBO subsector – serving the lowest income parts of the city – may be losing its most competent teachers. The DOE could track the movement of teachers among sites and neighborhoods, along with measuring the relative effectiveness of teachers as they migrate within the PFA network. Nor do we know which subsector more effectively raises the growth trajectories of young children over time and through what organizational strategies.

We have much to learn about whether overall trends in pre-k quality stem from a changing mix of pre-k organizations across CBOs and city schools, or from evolving quality levels among a constant core set of local sites. We focused on a given data window, 2016-2018, to control on any churning of participating sites. But over time it's important to learn whether quality trends differ among long-running program sites, or whether quality levels are nudged by pre-k's that newly enter (or exit) the city's initiative. DOE could lift quality and better distribute quality sites

via its instructional coaching efforts, by pruning low-quality programs, or through a combination of the two strategies.

Finally, our analysis relies mostly on cross-sectional data for the 2016-2018 period. Analysts will soon be able to study where in the city pre-k quality is *changing* over time and holding *what effects* on children's early learning. More and more pre-k sites are being observed for a second time. One working hypothesis is that when quality rises in a steady stock of pre-k's, this serves to elevate children's growth trajectories. Whether this causal sequence unfolds in particular or many parts of the city remains a pivotal question. The regressive distribution of quality among neighborhoods does not bode well for the city's poorest children. On the other hand, if CBOs more effectively advance children's development, they may power over time a progressive distribution of benefits from this well-intentioned entitlement. . □

References

Ackerman, D. (2014). State funded pre-k policies on external classroom evaluations. Princeton: Educational Testing Service.

Barnett, S., Friedman-Krauss, A., Gomez, R., Horowitz, M., Weisenfeld, G., Brown, K., & Squires, J. (2016). *The state of preschool 2015: State preschool yearbook*. New Brunswick, NJ: Rutgers University.

Bassok, D., & Galdo, E. (2016). Inequality in preschool quality? community-level disparities in access to high-quality learning environments. *Early Education & Development, 27,* 128-144.

Beatty, (1995). *Preschool education in America: The culture of young children from the colonial era to the present.* New Haven: Yale University Press.

Brender, G. (2016). Losing the best. New York: United Neighborhood Houses. Online: https://works.bepress.com/gregory-brender/2/.

Brunsek, A., Perlman, M., Falenchuk, O., McMullen, E., Fletcher, B. et al. (2017). The relationship between the Early Childhood Environment Rating Scale and its revised form and child outcomes: A systematic review and meta-analysis. *PLoS ONE, 12*, Article e0178512.

Carey, G., & Crammond, B. (2014). A glossary of policy frameworks: The many forms of 'universalism' and policy 'targeting'. *Journal of Epidemiology and Community Health*. Online: doi:10.1136/jech-2014- 204311.

Census Bureau (2020). Opportunity atlas. Washington, DC: U.S. Census Bureau. Online: https://www.census.gov/sites-surveys/ces/data/analysis-visualization-tools/opportunity-atlas.html.

Chetty, R., Friedman, J., Hendren, N., Jones, M., & Porter, S. (2018). The Opportunity Atlas: Mapping the childhood roots of social mobility. Washington, DC: Center for Economic Studies, U.S. Census Bureau (no. CES 18-42). Online: https://www.census.gov/content/dam/Census/sites- surveys/center-for-economic-studies/opportunity_atlas_paper.pdf.

Cole, W. (1908). Motives and results of the social settlement movement. Cambridge, MA: Harvard University, Social Museum exhibit: Online: https://curiosity.lib.harvard.edu/ women-working-1800-1930/catalog/ 45-990029678850203941.

Colvin, J. (2013). 'Senator provolone' doubles down on pre-k message. *The Observer*, September 30. Online: https://observer.com/2013/09/senator-provolone-doubles-down-on-pre-k-message/.

de Blasio, B. (2015). New York City mayor goes all-in on free preschool. Interview with Robert Siegel, September 8.. Washington, DC: National Public Radio. Online: https://www.npr.org/sections/ed/ 2015/09/08/438584249/new-york-city-mayor-goes-all-in-on-free-preschool.

DOE, Department of Education (2019a). Request for proposals: Birth to five services. New York: Division of Early Childhood Education.

DOE, Department of Education (2019b). NYC pre-k finder for school year, 2019-2020. New York City. Online: https://maps.nyc.gov/upk/#map-page.

DOE, Department of Education (2019c). Data file containing ethnic composition of pre-k sites. New York City. Online: https://data.cityofnewyork.us/Education/2015-2018-Demographic- Snapshot-Pre-K-For-All/u4g8-wkku/data.

DOE, Department of Education (2020). Program assessments. New York City. Online: https://infohub.nyced.org/working-with-the-doe/early-childhood/early-childhood-educators/supporting-quality-care-and-instruction/program-assessment.

DOE, Department of Education (undated). Early Childhood Environment Rating Scale (ECERS-R) 102. New York: Presentation by Pre-K for All staff.

Dworkin, R. (1981). What is equality? Part 1: Equality of welfare. *Philosophy & Public Affairs, 10,* 185-246.

Early, D., Maxwell, K., Burchinal, M., Bender, R., Ebanks, C. et al. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool sites. *Child Development, 78*, 558-580.

Freidus, A. (2020). Modes of belonging: Debating school demographics in gentrifying New York. *American Educational Research Journal, 57,* 808-839.

Fujimoto, K., Gordon, R., Peng, F., & Hofer, K. (2018). Examining the category functioning of the ECERS-R across either data sets. *AERA Open, 4*, 1-16. Online: DOI: 10.1177/2332858418758299.

Fuller, B. (2015). Who's left behind by universal preschool in New York City? Berkeley: Institute of Human Development, University of California.

Fuller, B., Bein, E., Bridges, M., Kim, Y., & Rabe-Hesketh, S. (2017). Do academic preschools yield stronger benefits? Cognitive emphasis, dosage, and early learning. *Journal of Applied Developmental Psychology*, 52, 1-11.

Fuller, B., Loeb, S., Strath, A., & Carrol, B. (2004). State formation of the child care sector: Family demand and policy action. *Sociology of Education, 77*, 337-358.

Fuller, B., & Strath, A. (2001). The child-care and preschool workforce: Demographics, earnings,and unequal distribution. *Educational Evaluation & Policy Analysis, 23*, 37-55.

Gelatt, J. & Sandstrom, H. (2014). Early Learn NYC: Innovations in New York health and human services policy. Washington, DC: Urban Institute. Online: https://www.urban.org/sites/default/files/publication/22466/413079-Innovations-in-NYC-Health-and-Human-Services-Policy-Early-Learn-NYC.PDF.

Harms, T., Cryer & Clifford, (2005). Early childhood environment rating scale, revised and updated edition. New York: Teachers College Press.

Henry, G., Gordon, C., & Rickman, D. (2006). Early education policy alternatives: Comparing quality and outcomes of Head Start and state prekindergarten. *Educational Evaluation & Policy Analysis, 28*, 77-99.

Hill, Z. (2017) Examining the role of intergroup relations in Black and Hispanic parents' preschool enrollment decisions. Ph.D. dissertation. Durham, NC: Duke University.

Holloway, S., & Reichhart-Erikson, M. (1988). The relationship of day care quality to children's free-play behavior and social problem-solving skills. *Early Childhood Research Quarterly, 3*, 39–53.

Hong, S., Sabol, T., Burchinal, M., Tarullo, L., Zaslow, M. et al. (2019). ECE quality indicators and child outcomes: Analyses of six large child care studies. *Early Childhood Research Quarterly*, 49, 202-217.

Johnson, R. (2019). *Children of the dream: Why school integration works.* New York: Basic Books.

Kraft, M. (2020). Interpreting effects sizes of education interventions. *Educational Researcher, 49,* 241-253.

Kucsera, J., & Orfield, G. (2014). New York state's extreme school segregation: Inequality, inaction and a damaged future. Los Angeles: UCLA Civil Rights Project.

Martínez, M., Cuéllar, G., & Cabrero, B. (2013). Challenges to improving preschool quality in Mexico. Pp. 124-148 in *Regarding educación*, edited by B.Jensen & A.Sawyer. New York: Teachers College..

Miller, P., Votruba-Drzal, E., McQuiggan, M., & Shaw, A. (2017). Pre-K classroom-economic composition and children's early academic development. *Journal of Educational Psychology, 109*, 149–165.

NICHD, National Institute of Child Health and Human Development, & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. *Child Development, 74,* 1454-1475.

Nores, M., & Barnett, S. (2014). Access to high quality early care and education: Readiness and opportunity gaps in America. New Brunswick: Center on Enhancing Early Learning Outcomes.

Odden, A., & Picus, L. (2014). *School finance: A policy perspective.* New York: McGraw-Hill.

Packer, G. (2013). Bill de Blasio's vision. New Yorker, August 12. Online: https://www.newyorker.com/news/daily-comment/bill-de-blasios-vision.

Parrott, J. (2020). The road to and from salary parity in New York City: Nonprofits and collective bargaining in early childhood education. New York: The New School.

Phillips, D., Gormley, W., & Anderson, S. (2016). The effects of Tulsa's CAP Head Start program on middle-school academic outcomes and progress. *Developmental Psychology*, *52*, 1247-1261.

Piazza, P., & Frankenberg, E. (2019). Segregation at an early age, 2019 update. State College, PA: Pennsylvania State University, Center for Education & Civil Rights.

Potter, H. (2019). Creating integrated early childhood education in New York City. New York: Century Fund, online: https://tcf.org/content/report/creating-integrated-early-childhood-education- new-york-city/.

Powell, J., Menendian, S., & Ake, W. (2019). Targeted universalism: Policy and practice. Berkeley: Haas Institute for a Fair and Inclusive Society.

Rawls, J. (1971, 2009). A theory of justice. Cambridge, MA: Harvard University Press.

Reardon, S., & Portilla, X. (2016).Recent trends in income, racial, and ethnic school readiness gaps at kindergarten entry, *AERA Open, 2*, 1-18.

Reardon, S., Yun, J., & Eitle, T. (2000). The changing structure of school segregation: Measurement and evidence of multiracial metropolitan-area school segregation, 1989-1995. *Demography, 37,* 351-364.

Reid, J., & Kagan, S. (2015). A better start: Why classroom diversity matters in early education. Century Foundation and the Poverty and Race Research Action Council, April 2015, 11. Online: https://tcf.org/content/report/a-better-start/.

Reid, J., Melvin, S., Kagan, S., & Brooks-Gunn, J. (2018). Building a unified system for universal pre-k in New York City. New York: Teachers College, National Center for Children and Families.

Reid, J., Melvin, S., Kagan, S., & Brooks-Gunn, J. (2019). Building a unified system for universal pre-k: The case of New York City. *Children & Youth Service Review, 100,* 191-205.

Reid, J., & Ready, D. (2013). High-quality preschool: The socioeconomic composition of preschool classrooms and children's learning. *Early Education & Development, 24,* 1082-1111.

Shapiro, A, Martin, E., Weiland, C., & Unterman, R. (2019). If you offer it, will they come? Patterns of application and enrollment behavior in a universal prekindergarten context. *AERA Open*, April. Online: https://journals. sagepub.com/doi/10.1177/2332858419848442.

Siegel, R. (2015). New York City mayor goes all-in on free preschool. National Public Radio, September 8.

Stout Sosinsky, L. & Gordon, R. (2019). Assessment in early care and education environments. Pp. 98-127 in *Oxford handbook of infant, toddler, and preschool mental health assessment*, edited by A. Carter & R. DelCarmen-Wiggins. New York: Oxford University Press.

Tienda, M., & Glass, (1985). Household structure and labor force participation of Black, Hispanic, and white mothers, *Demography, 22,* 381-394.

Veiga, C. (2019). NYC boosts salaries for 1,500 non-union pre-K teachers in community-run sites. *Chalkbeat*, November 19. Online: https://ny.chalkbeat.org/2019/11/18/21109304/nyc-boosts-salaries-for-1-500-non-union-pre-k-teachers-in-community-run-programs.

Veiga, C. (2020). As fewer families applied to NYC's free pre-k programs, more got their top choices. *Chalkbeat*, May 15. Online: https://ny.chalkbeat.org/2020/5/13/21257920/fewer-applied-pre-k-top-choices.

Weiland, C., & Yoshikawa, H. (2013). The impacts of an urban public prekindergarten program on children's mathematics, language, literacy, executive function, and emotional skills: Evidence from Boston. *Child Development, 84,* 2112–2130.

Whitebook, M., Howes, C., & Phillips, D. (1989). Who cares? Child care teachers and the quality of care in America. Berkeley: Child Care Employee Project, University of California.

Wong, V., Cook, T., Barnett, S., & Jung, K. (2008). An effectiveness-based evaluation of five state pre-kindergarten sites. *Journal of Policy Analysis & Management, 27,* 122-154.

Yoshikawa, H., Wieland C., Brooks-Gunn J., Burchinal M., Espinosa L., Gormley W., et al. (2013). Investing in our future: The evidence base on preschool education. Society for Research in Child Development. Online: http://fcd-us.org/resourcec/evidence-base-preschool.

Zigler, E., Gilliam, W., & Barnett, S. (2011). *The pre-k debates: Current controversies and issues*. Baltimore: Brookes. Publishing.

Figure 1 / Map 1. Distribution of Quality among Pre-K Sites in New York City, 2016-2018
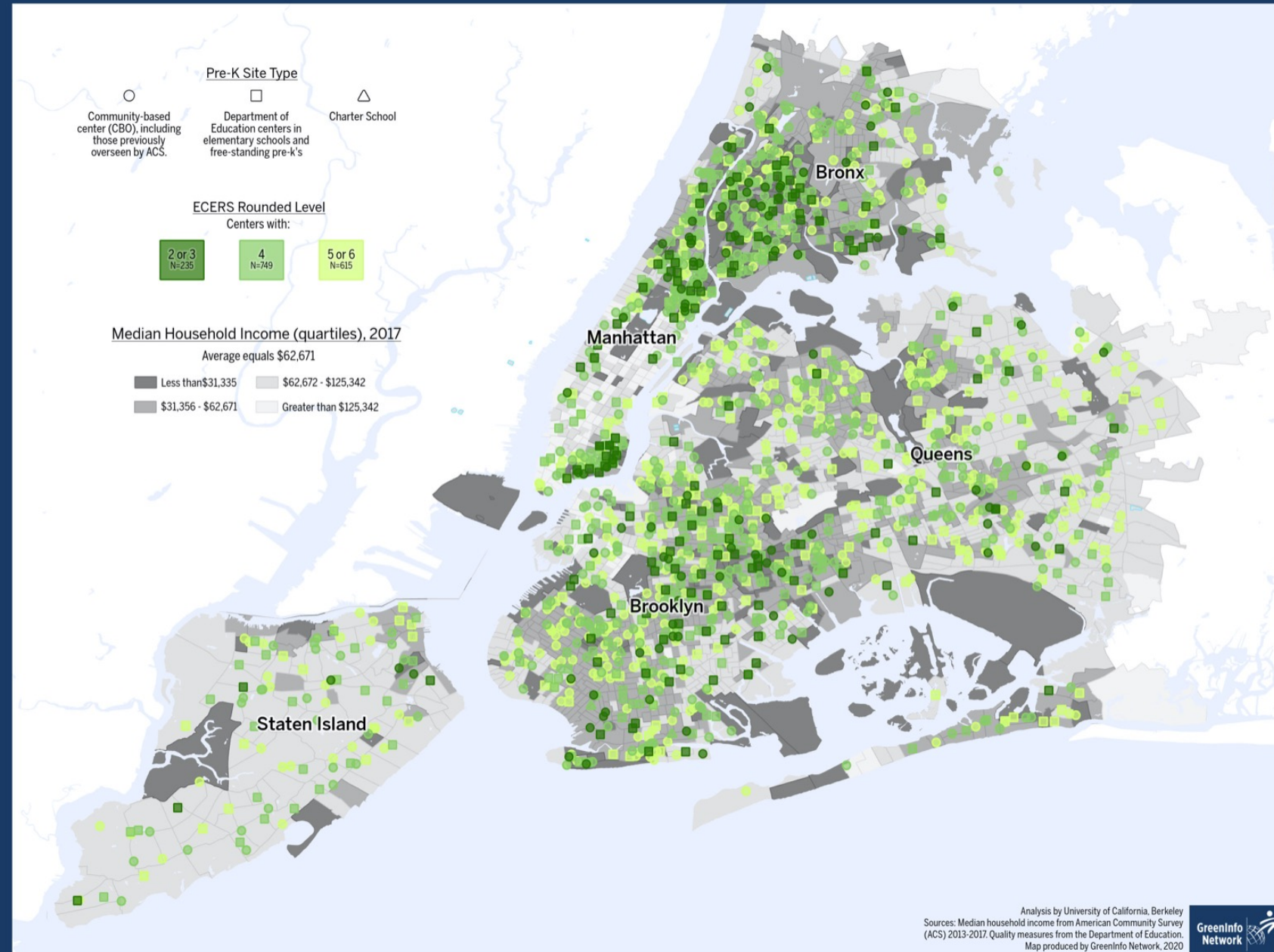Observed Early Childhood Environment Rating Scale (ECERS) scores by site and neighborhood wealth or poverty

Pre-K Site Type

○ Community-based center (CBO), including those previously overseen by ACS.

□ Department of Education centers in elementary schools and free-standing pre-k's

△ Charter School

ECERS Rounded Level
Centers with:

| 2 or 3 N=235 | 4 N=749 | 5 or 6 N=615 |

Median Household Income (quartiles), 2017
Average equals $62,671

Less than $31,335
$31,356 - $62,671
$62,672 - $125,342
Greater than $125,342

Bronx

Manhattan

Queens

Brooklyn

Staten Island

Analysis by University of California, Berkeley
Sources: Median household income from American Community Survey (ACS) 2013-2017. Quality measures from the Department of Education.
Map produced by GreenInfo Network, 2020
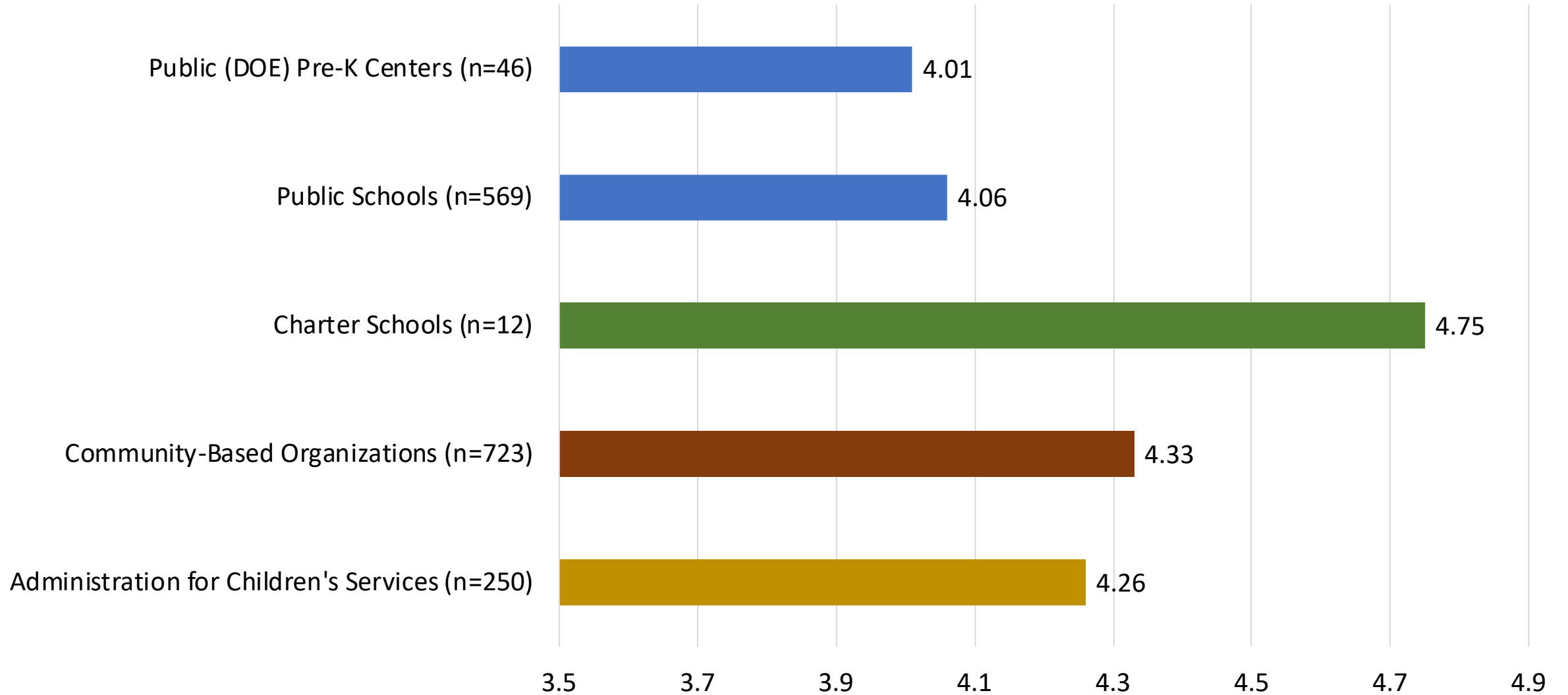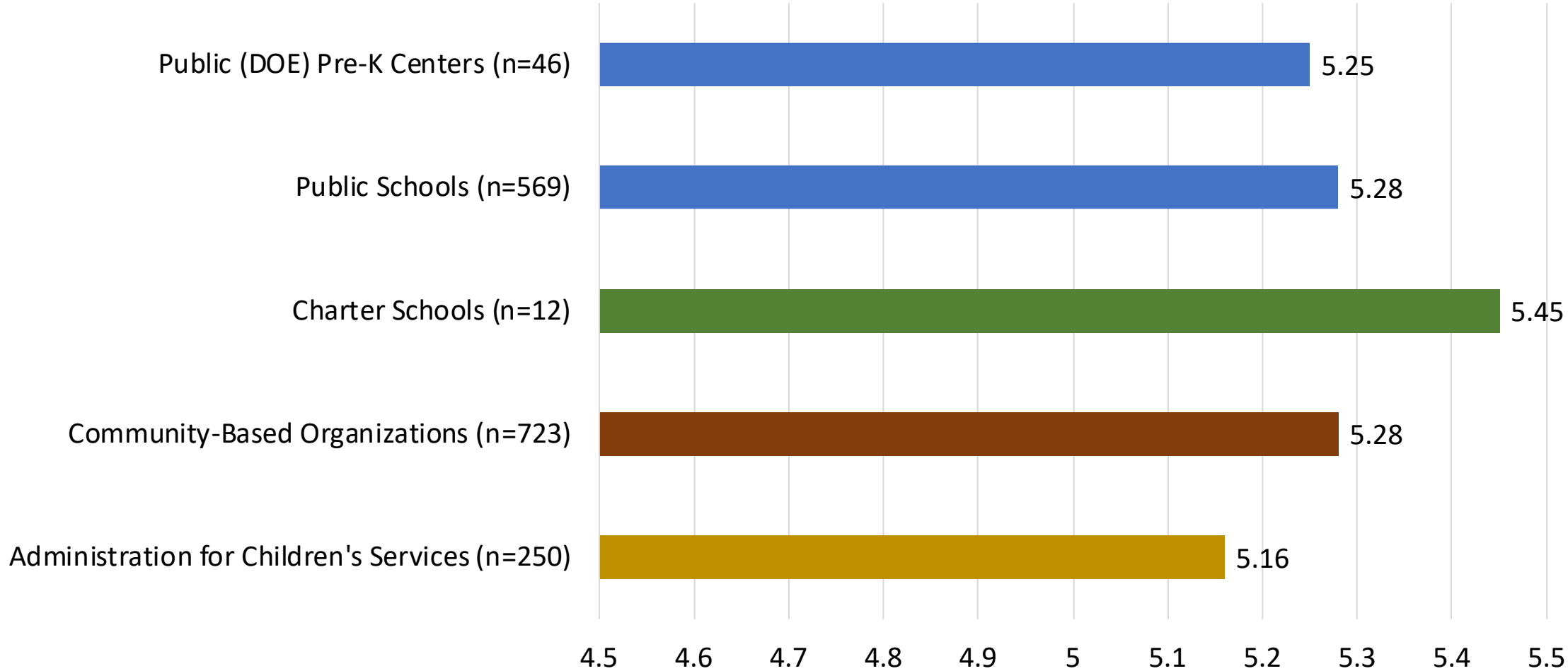
GreenInfo Network

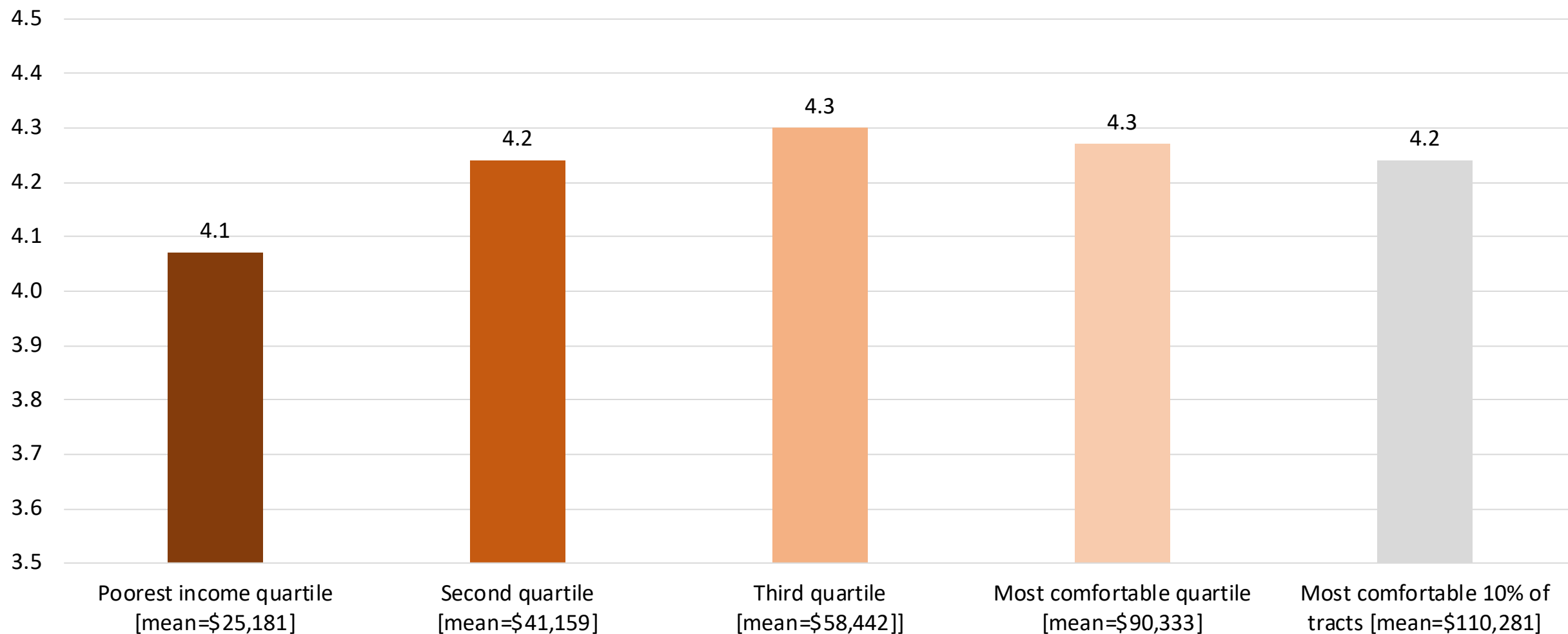# Figure 2. Mean total ECERS scores by pre-k auspice, 2016-2018 (*n*=1,610 sites)

Note: CBO-based pre-k's score 0.42 *sd* higher than school-based programs, ACS programs 0.31 *sd* higher.

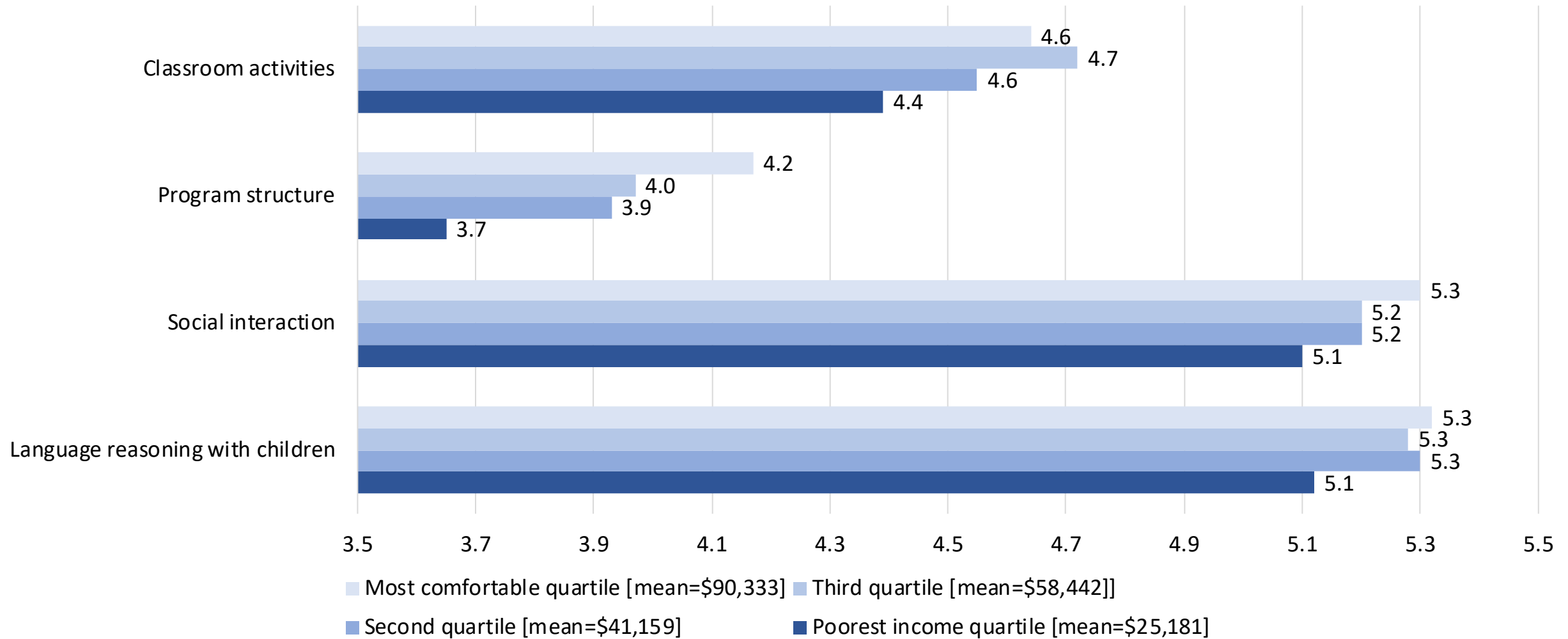Figure 3. Mean total CLASS scores by pre-k auspice, 2016-2018 (*n*=1,610 sites)

Note: Charter-school pre-k's [only 12 programs] score 0.29 SD higher than DOE school-based programs.

Figure 4. Mean total ECERS scores, 2016-2018, split quartiles defined by median-household-income of census tracts [n=1,057 census tracts]

4.1	4.2	4.3	4.3	4.2
Poorest income quartile [mean=$25,181]	Second quartile [mean=$41,159]	Third quartile [mean=$58,442]]	Most comfortable quartile [mean=$90,333]	Most comfortable 10% of tracts [mean=$110,281]

Note: ECERS mean scores are about one-third (0.35) SD higher in the highest two income quartiles, relative to the poorest quartile of tracts.

Figure 5. Mean ECERS subscale scores split by quartiles defined by median-household-income of tracts, 2016-2018 (n=1,057 census tracts)

Note: ECERS subscale scores are 0.47, 0.81, 0.27, and 0.31 *sd* lower in the poorest quartile of tracts (classroom activities thru language reasoning respectively), compared with the highest income quartile.

Figure 6. Total CLASS and ECERS mean scores, 2016-2018, quartiles of tracts defined by percentage of tract residents, Black (*n*=1,057 census tracts)

Note: Mean CLASS scores are 0.35 *sd* lower in tracts with largest shares of Black residents (third and fourth quartiles). This gap equals 0.48 *sd* for mean ECERS scores, between low and high shares of Black residents.

Figure 6B. Mean ECERS quality scores split by percentage of children enrolled Black or Latino (quartiles) 2016-2018 (n=1,610 sites)

	Lowest enrollment %	Second quartile	Third quartile	Highest enrollment %
Black enrollment: mean ECERS score	4.32	4.23	4.08	4.16
Latino enrollment: mean ECERS score	4.31	4.18	4.15	4.14

■ Black enrollment: mean ECERS score ■ Latino enrollment: mean ECERS score

The difference in ECERS mean scores between sites with lowest percentage of Black children (first quartile) to highest percentage (fourth quartile) equals one-quarter (0.24) *sd*. The gap is similar for Latino children.

Figure 6C. Mean Instructional Support [CLASS] quality scores, split by percentage of children enrolled Black or Latino, 2016-2018 (*n*=1,610 sites)

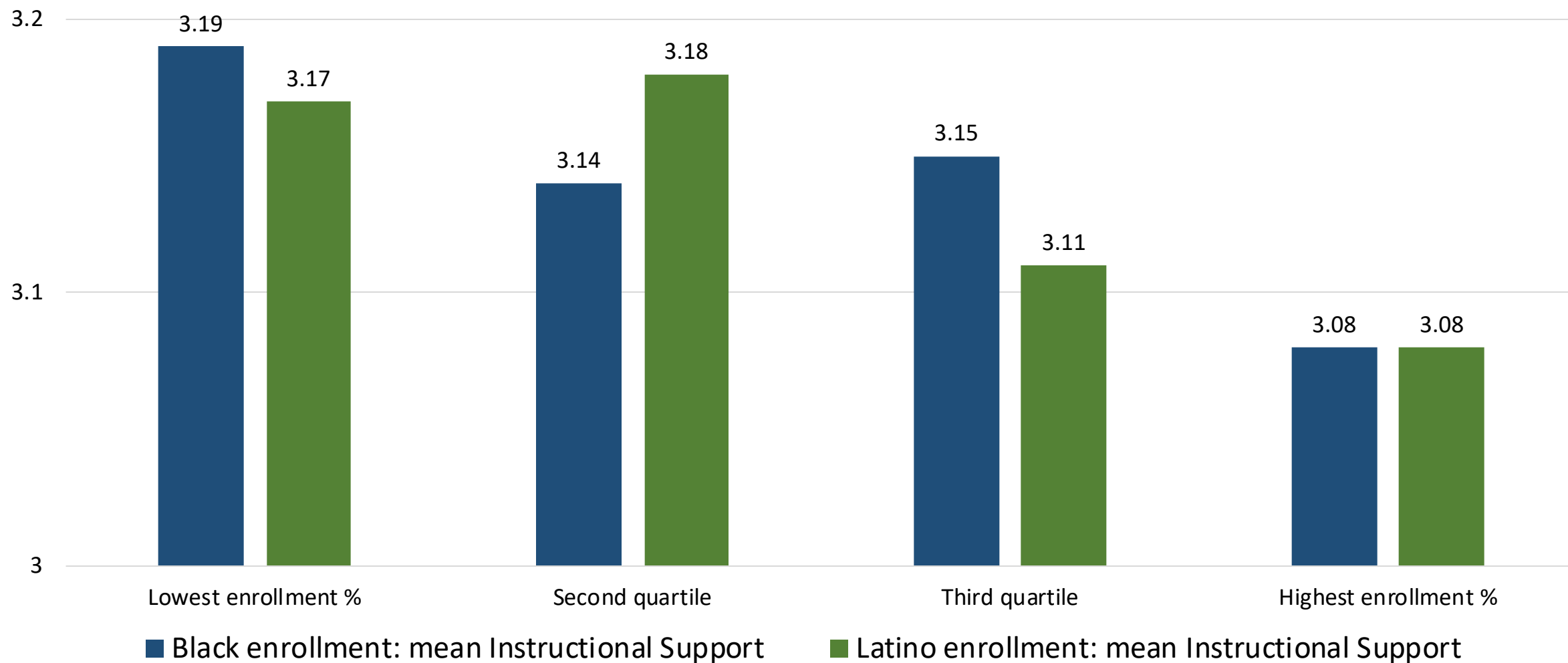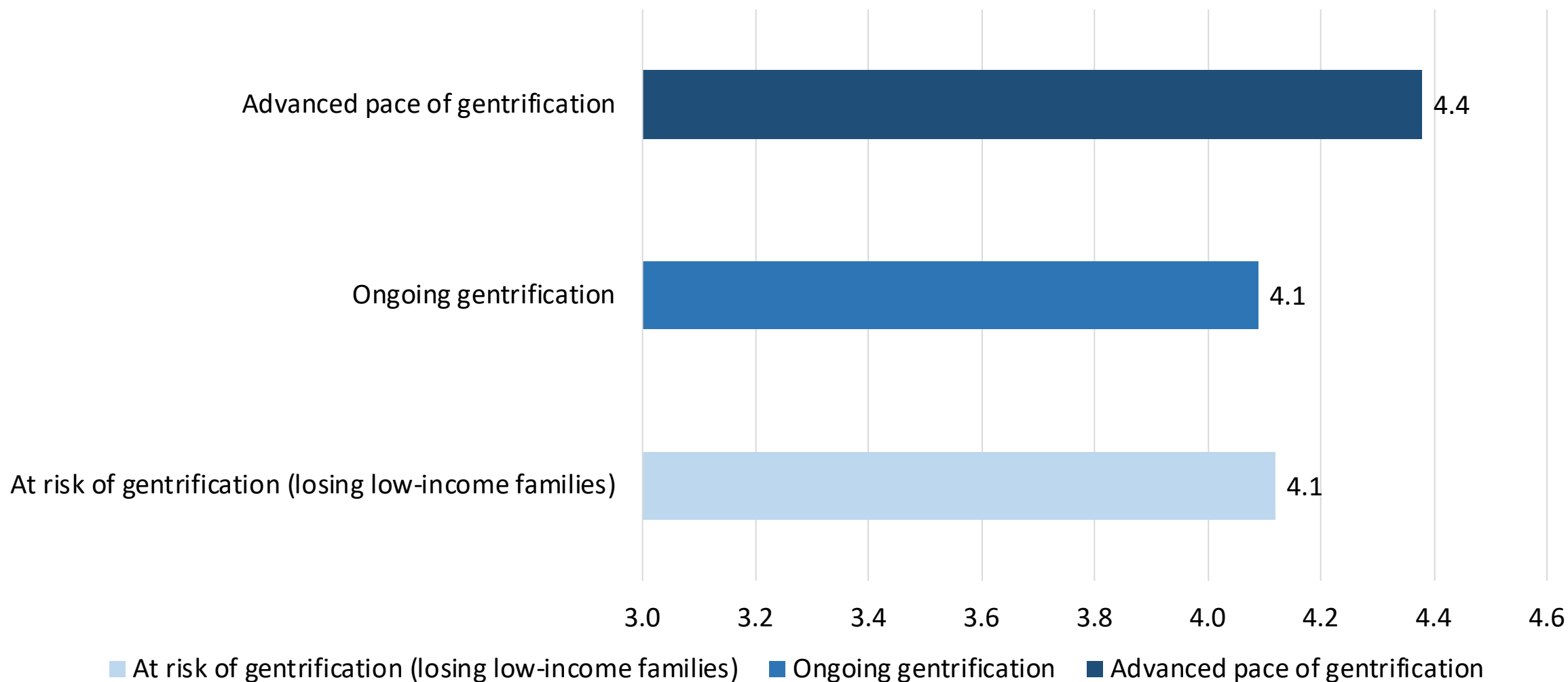|	Lowest enrollment %	Second quartile	Third quartile	Highest enrollment %
Black enrollment: mean Instructional Support	3.19	3.14	3.15	3.08
Latino enrollment: mean Instructional Support	3.17	3.18	3.11	3.08

Figure 7. Total mean ECERS score, 2016-2018, for tracts undergoing demographic change (*n*=757 tracts with discernible gentrification)

Note: Mean ECERS score is 0.47 *sd* higher in tracts with advanced gentrification, compared with other gentrifying tracts.

Figure 8 / Map 2. Distribution of Racially Segregated Pre-K Sites in New York City, 2017-18
Sites with at least 75% child enrollment with one single ethnic group.

Pre-K sites with at least 75%, one single ethnic group (n=560 sites)

- Black
- Latino
- Asian
- White

Median Household Income (quartiles), 2017
Average equals $62,671

- Less than $31,335
- $62,672 - $125,342
- $31,356 - $62,671
- Greater than $125,342

Bronx

Manhattan

Queens

Brooklyn

Staten Island

Analysis by University of California, Berkeley
Sources: Median household income from American Community Survey
(ACS) 2013-2017. Quality measures from the Department of Education.
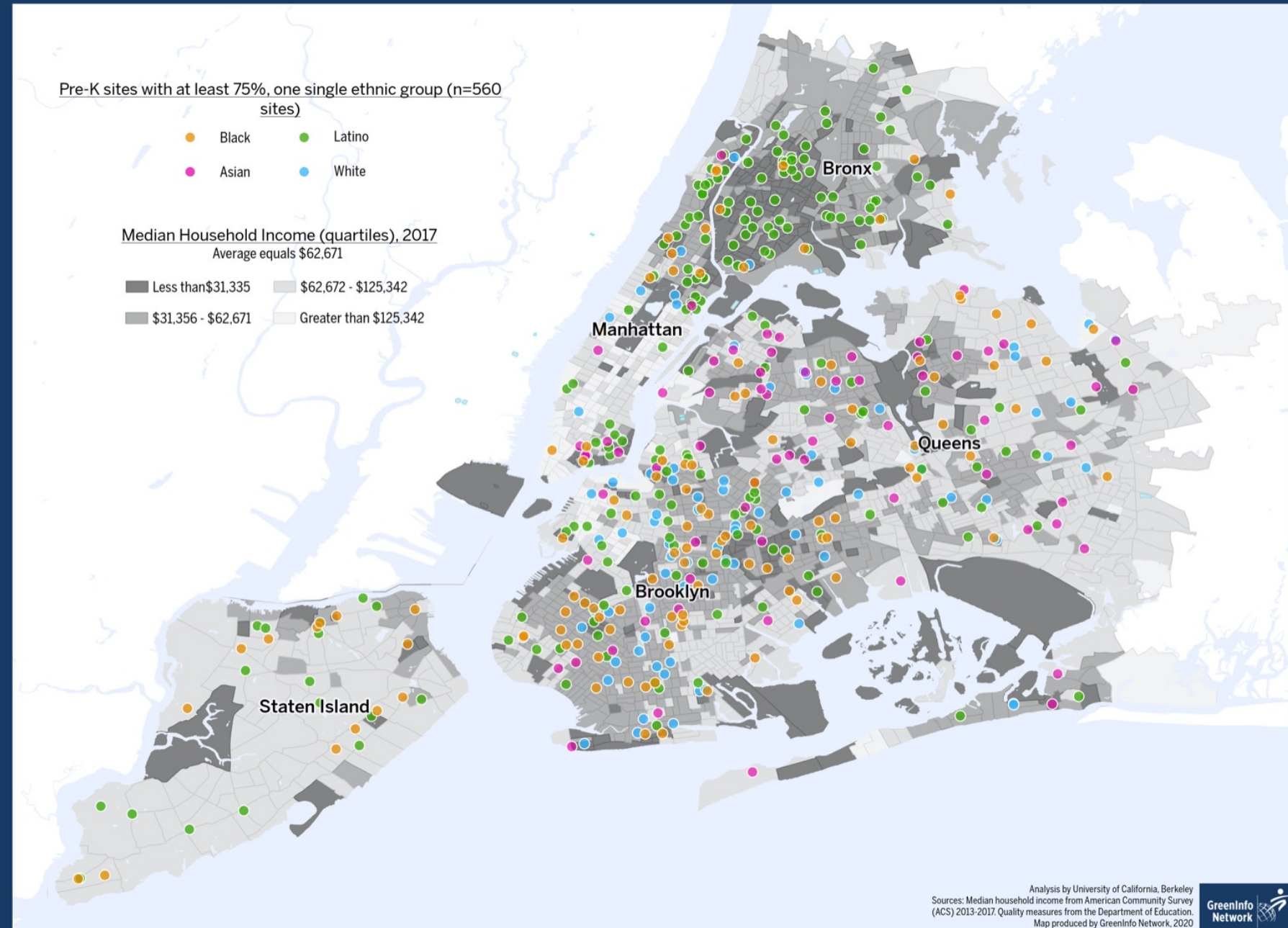Map produced by GreenInfo Network, 2020

GreenInfo Network

Figure 8B. Percentage of pre-k sites enrolling at least 75% of children a single racial group, split by CBO and city-school sites, 2016-2018

Percentage of pre-k sites

City School Sites - 75%+ One Group

- 1.9%
- 15.2%
- 10.2%
- 1.2%

CBO Sites - 75%+ One Group

- 8.0%
- 12.7%
- 12.4%
- 7.3%

■ Asian, 75%+   ■ Black, 75%+   ■ Latino, 75%+   ■ White, 75%+   ■ Not extremely segregated
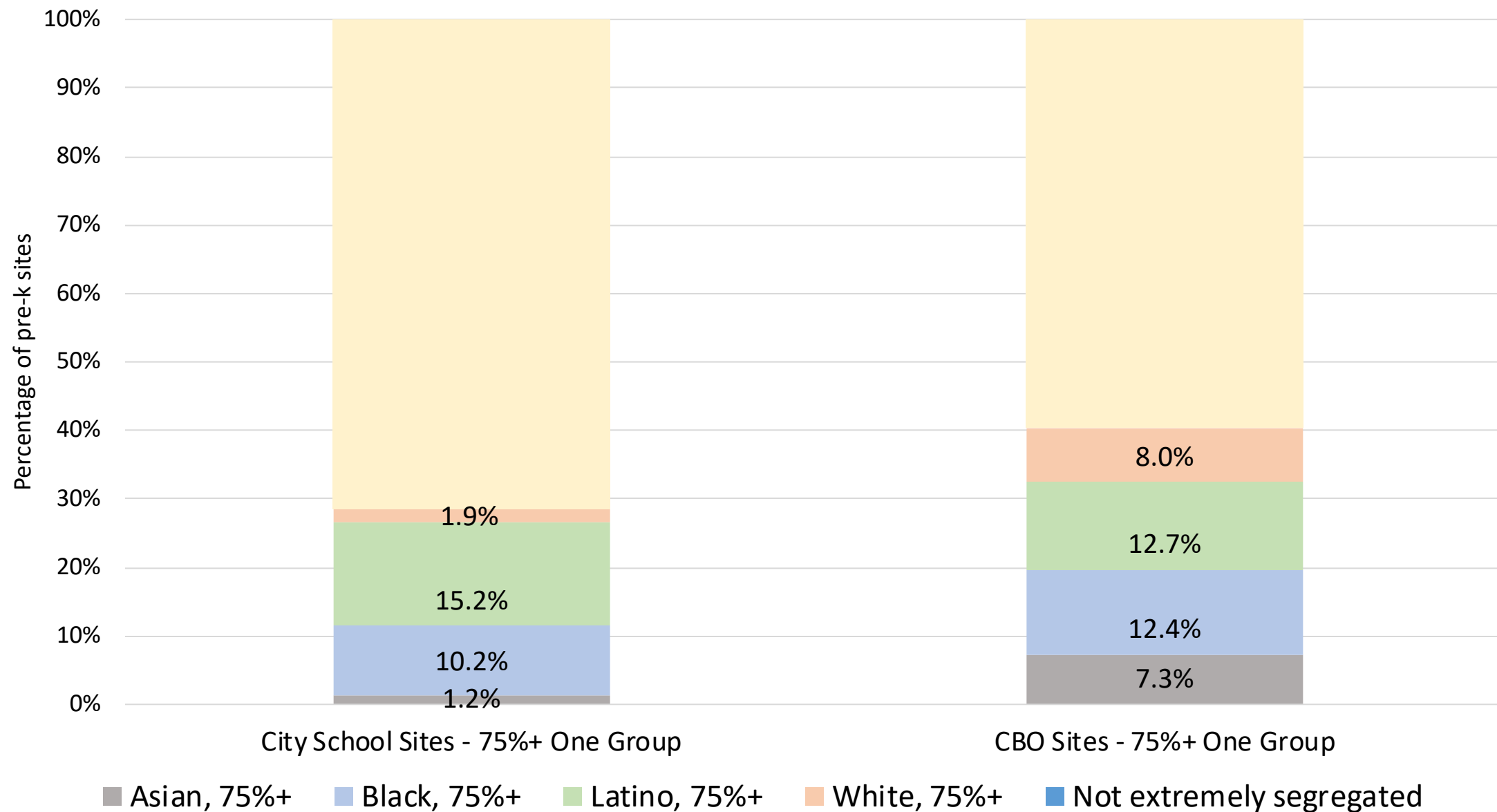
Figure 9. Ethnic concentration of children and entropy index scores for pre-k's in which 75% or more from a single group

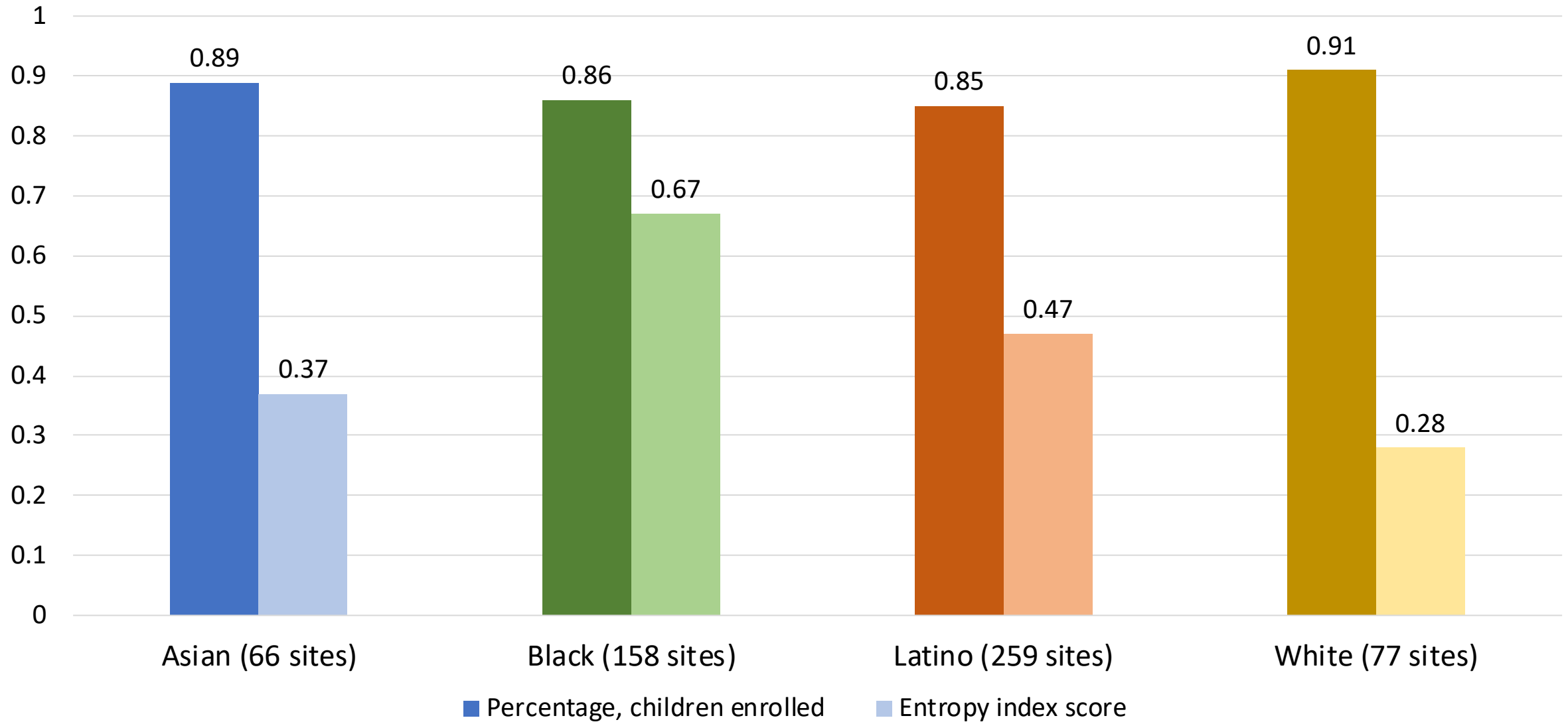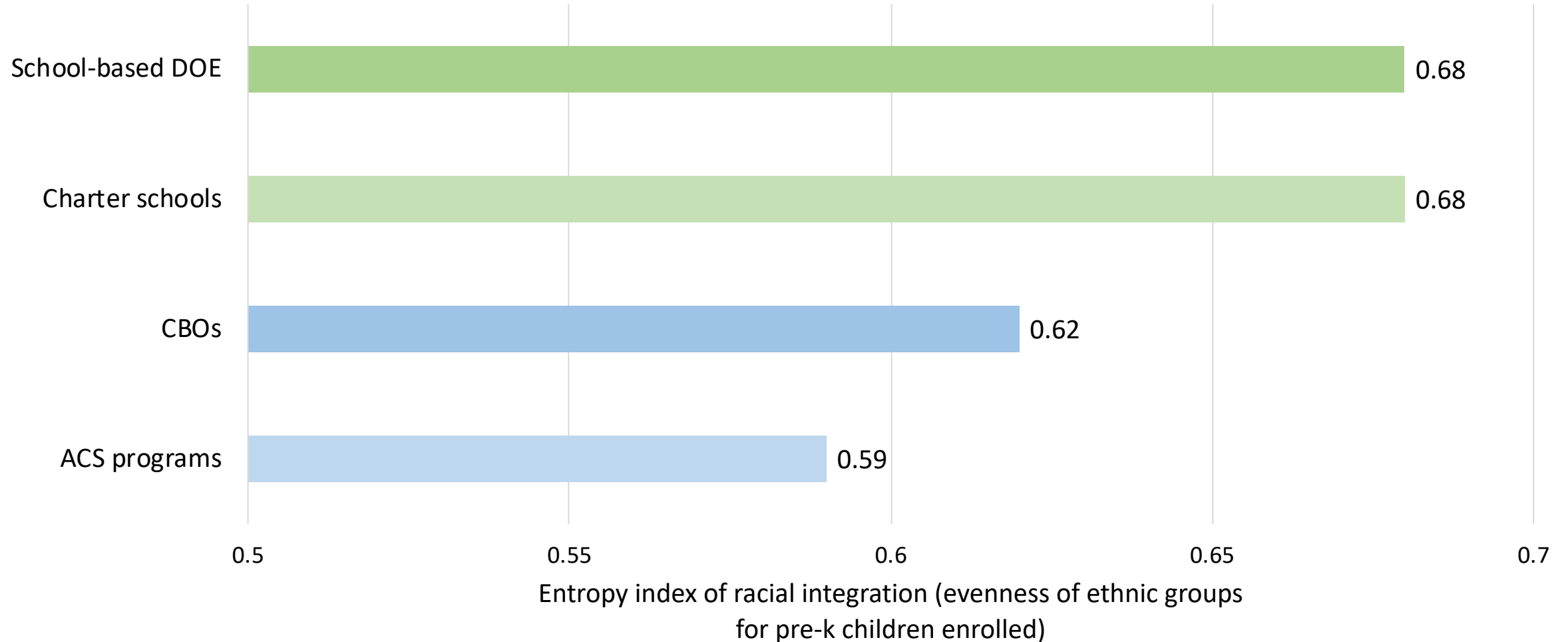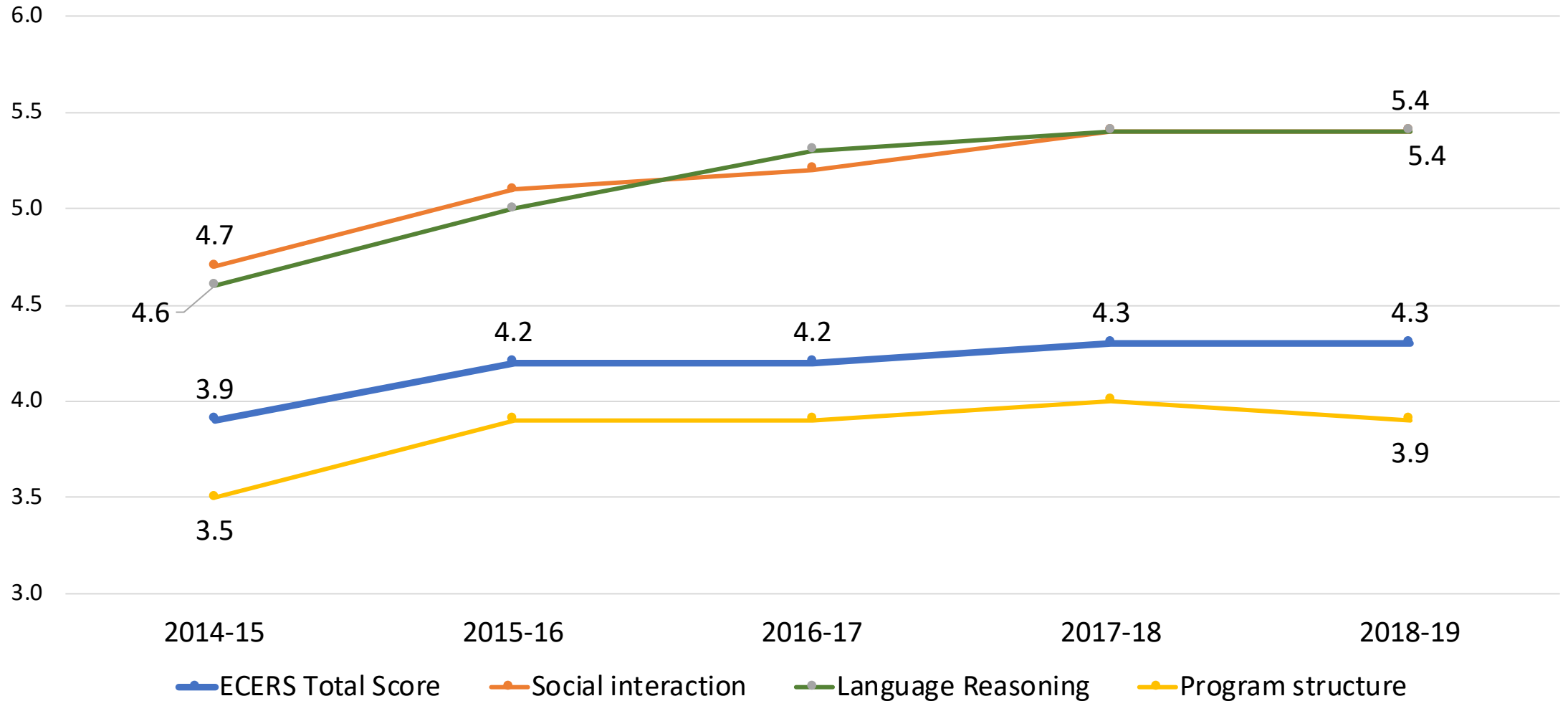Percentage, children enrolled ■ Entropy index score

Figure 10. Pre-k integration (entropy) index by program auspice, 2017-18 (n=1,370 sites with ethnic composition data)

School-based DOE	0.68
Charter schools	0.68
CBOs	0.62
ACS programs	0.59

Entropy index of racial integration (evenness of ethnic groups for pre-k children enrolled)
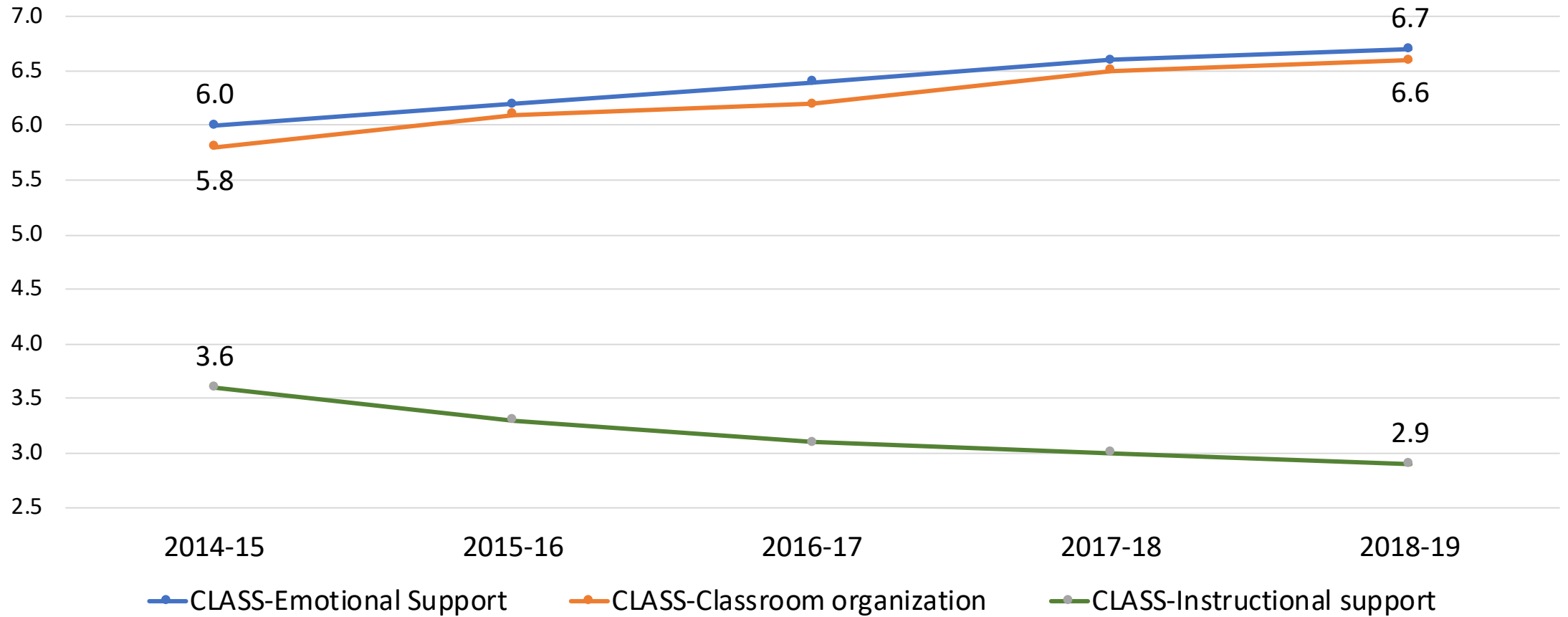
Note: School-based pre-k's display integration scores 0.35 *SD* greater than CBO programs.

Appendix 1 - Figure A. Change in mean ECERS and selected subscale scores, 2014-15 to 2018-19 (*n* of cases, sites varies)

N of pre-k sites with observation scores equal 1,116, 1,541, 1,802, 1,761, and 1,748 across the five years, respectively.

Appendix 1 - Figure B. Change in mean CLASS subscale scores,
2014-15 to 2018-19 (*n* of cases, sites varies)

N of pre-k sites with observation scores equal 557, 1,135, 1,570, 1,730, and 1,723 across the five years, respectively.

Table 1. Mean ECERS and CLASS total and subscale scores, 2016-2018, by pre-k institutional host (n=1,600 centers)

	DOE schools	DOE dedicated pre-k centers	Charter schools	CBOs	ACS-run pre-k's	Overall F-value, analysis of variance
ECERS quality measures						
Total score	4.06	4.01	4.75	4.33	4.26	11.84***
Space and furnishing	3.77	3.78	4.40	3.98	3.88	12.93***
Personal care routines	2.50	2.41	2.92	2.88	2.88	12.81***
Language-reasoning	5.17	4.96	5.82	5.33	5.26	3.12**
Social interaction	5.00	5.10	5.87	5.33	5.30	5.36***
Program structure	3.77	3.78	4.83	3.99	4.06	3.08**
Classroom activities	4.40	4.28	5.05	4.72	4.56	8.70***
CLASS quality measures						
Total score	5.28	5.25	5.45	5.28	5.16	2.84*
Instructional support	3.10	3.11	3.65	3.19	3.09	1.38
Classroom organization	6.27	6.27	6.29	6.23	6.10	3.19*
Social-emotional support	6.46	6.38	6.45	6.41	6.28	4.87***
Organizational features of pre-k sites						
Child seats	51.8	48.7	58.8	43.5	45.3	6.25***
Meals provided (count)	2.3	2.2	2.7	2.6	2.7	24.51***
Indoor *and* outdoor play spaces available (% yes)	85	80	87	47	44	48.97***

*p<.05, **p<.01, ***p<.001. Note that designers of the ECERS label subscale names as space and furnishings, personal care routines, program structure, language reasoning, interaction, and activities. Revised 24 April 2020

Table 2. Mean ECERS total and subscale scores, 2016-2018, by quartiles of tracts defined by median-household-income of residents (n=1,074 tracts)

	Poorest quartile (x=$25,181	Second quartile (x=$41,159)	Third quartile (x=$58,442)	Most comfortable (x=$90,333)	Highest 10% tracts (x=$110,281	Overall F-value analysis of variance
ECERS						
Total score	4.07	4.24	4.30	4.27	4.24	17.38***
Space and furnishings	3.73	3.93	3.98	3.91	3.90	12.51***
Personal care routines	2.68	2.79	2.77	2.70	2.62	0.03
Program structure	3.65	3.93	3.97	4.17	4.04	25.71***
Language reasoning	5.12	5.30	5.28	5.32	5.29	5.77*
Social interaction	5.10	5.22	5.23	5.27	5.24	3.04
Classroom activities	4.39	4.55	4.72	4.84	4.58	18.39***

*p<.05, **p<.01, ***p<.001. Note that designers of the ECERS label subscale names as space and furnishings, personal care routines, program structure, language reasoning, interaction, and activities. Revised 24 April 2020

Appendix 2. Mean differences in ECERS total and subscale scores between working file containing pre-k programs with complete data and programs with incomplete data

	Working file with complete data (*n*=1,610) mean, *SD*	Programs with incomplete data (*n*=181) mean, *SD*	*t*-value two-tailed
Total ECERS score	4.23 (0.74)	4.27 (0.65)	1.49
Subscale scores			
Language reasoning	5.23 (1.04)	5.53 (0.82)	1.04
Interaction	5.20 (1.31)	5.33 (1.03)	1.17
Activities	4.47 (0.98)	4.72 (0.91)	1.06
Personal care routines	2.76 (0.86)	2.61 (0.68)	1.05
Space and furnishings	3.91 (0.75)	3.87 (0.77)	1.48
Program structure	3.97 (1.43)	3.77 (1.32)	1.08

Note: No subgroup contrasts yield significant differences.