TRANSITIONAL KINDERGARTEN IN CALIFORNIA

Early Growth and Uneven District Capacity

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2022

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Summary

California policy makers continue to widen access to Transitional Kindergarten (TK), aiming to serve all 4-year-olds by 2026 among parents opting to enroll. This paper informs how the state and local educators will implement this ambitious initiative. We ask, Which school districts have grown TK slots for young children since the program's inception? How might TK enrollment levels vary among counties and districts? Has the mix of children enrolled changed over time? How is variation in enrollment growth among districts related to the demographic or economic attributes of communities?

We find that TK enrollments grew steadily, about 14% per year, between 2013-14 and 2019-20 (prior to the pandemic). Child counts in TK equaled 19% of kindergarten enrollment in the state's median district in early 2020 and roughly 21% statewide. Access to TK remains unevenly distributed across California: Thirty districts host two-fifths of all children enrolled in TK statewide. Small, rural and exurban, districts hold limited experience with TK. One-third of all districts enroll 12 or fewer 4-year-olds.

Acknowledgments

The authors thank Mary Briggs and Jeremy Anderson at the California School Boards Association for their generous funding and wise guidance. They have supported Ms. Slovick's work, along with the Berkeley Children's Forum at the Graduate School of Education. Brianna Bruns, Jonathan Isler, Jane Liang, Laura Hill, Lupe Jaime-Mileham, Hanna Melnick, Beth Meloy, Sarah Neville-Morgan, Emmanuel Prunty, Karen Stapf Walters, and GG Weisenfeld offered helpful comments on earlier drafts. In addition, we thank Karen Vang, our colleague at the Center for District Innovation and Leadership in Early Education, for her design and dissemination efforts. Errors of omission or interpretation belong solely to the authors. Your comments are most welcome: abigail_slovick@berkeley.edu.

Recommended citation for this report: Slovick, A., Bryant, C., Huang, C., & Fuller, B. (2022). *Transitional Kindergarten in California: Early growth and uneven district capacity.* Berkeley Children's Forum.

This report can be found online at https://gse.berkeley.edu/sites/default/files/berkeley-transitional-kindergarten-report-2022.pdf

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Introduction and Policy Questions

California's policy leaders decided in summer 2021 to extend the state's Transitional Kindergarten (TK) program to all 4-year-old children by 2025-26. The governor and legislature, in short, envisage a universal pre-K program hosted largely by public schools.

TK was first legislated in 2010, a California invention that has served younger 4-year-olds before they enter kindergarten. A decade later, local school districts enrolled about 90,000 children in TK classrooms. The now-universal program would serve, when fully underway, a quarter-million additional 4-year-olds, assuming that about 70% of all parents enroll their children in school-based pre-K.[1]

Despite rising policy interest in Sacramento, local school boards have displayed less enthusiasm or capacity to create TK classrooms. We find that the median California school district, among the state's more than one thousand, enrolled just 23 TK students in 2019-20 compared to 136 kindergarten students, a count that equals about 19% of kindergarten enrollment on average. Thirty, mostly urban districts, enroll 40% of all TK students statewide, largely concentrated in Los Angeles and Orange counties, along with parts of the East Bay in northern California.

This paper delves into this variation in where TK growth has been most robust over the past decade – as we detail variation among geographic regions and types of school districts. We also ask whether the characteristics of students served in TK classrooms have changed over time.

The case of basic aid districts is examined, given their low TK enrollment rates despite the strong local tax bases these districts enjoy. Charter schools are also examined. We find that on average, traditional public schools display a bit greater wherewithal to expand TK than charter schools. We review earlier analysis of where part-day and full-day TK has sprouted, differing by the wealth or poverty of local communities. Finally, we report on the economic and demographic features of communities that predict stronger TK growth in recent years, along with how district organizational features may contribute to expansion.

Learning about local variation in TK growth, accompanied by uneven district capacity, informs future progress in two ways. First, several large urban districts have responded to the incentive embedded in TK finance: as more 4-year-olds enroll, host districts see gains in average daily attendance (ADA), even for half-day programs, which drives allocations from the state. This carrot grows bigger for districts that draw supplemental

[1] Georgia's universal pre-K program enrolls 62% of all 4-year-olds, an enrollment rate that reaches 82% in Oklahoma (Manship et al., 2018).

or concentration grants embedded in California's Local Control Funding (LCF) mechanism. But many, many districts have not responded to the financing incentive, and we don't really know why. Dissecting which districts have grown TK classrooms (or placed TK children in kindergarten classrooms) offers one step toward fuller understanding of the dynamics that predict more robust investment in TK.

Second, legislative leaders and the governor emphasize how universal TK will help address disparities in children's early learning and development.[2] Yet, this policy aim presumes that children in poor communities will be served first by TK expansion, or that quality will be sufficiently rich to lift these children toward the skill levels or social-emotional well-being displayed by middle-class children.

But what's the baseline picture in terms of which children are currently served in TK classrooms? Has the initial decade of TK growth manifested patterns of access that suggest disparities will narrow? Is the state building from a base that will likely lift poor children toward developmental benchmarks exhibited by middle-class peers? What will be required to ensure that children in poor areas are served sufficiently before universal financing spreads resources to middle-class and affluent parts of the state?[3]

The distribution of TK access and quality is conditioned – within California's particular context – by the incentives felt by differing school districts, along with their capacity to open new TK classrooms. Many districts have responded to the original legislation that created a TK option for one-fourth of all 4-year-olds in 2010. It created an innovative model to serve those with fifth birthdays falling between early September and December. This allowed a pre-kindergarten year for younger children in which a single teacher serves up to 24 children.[4]

The legislature expanded TK in the 2015-16 budget bill, allowing districts to claim average daily attendance (ADA) for children turning 5 after December but before the final ADA census day in March. By 2019-20, prior to the pandemic, about 90,000

[2] The legislation authorizing universal TK, the budget trailer bill for the 2021-22 fiscal year, repeatedly talks of high-needs students or schools, and targets new funding for districts or teacher-training institutions that serve higher shares of children eligible for free or reduced-price meals (FRPM), dual- or multi-language learners, homeless students, and low-income children served by the California State Preschool Program (CSPP). Portions of new planning funds going to local districts are weighted by the proportion of disadvantaged students under Local Control Funding. New facilities funding dedicated to TK and full-day kindergarten classrooms must first go to districts with weaker tax bases (California Legislature, 2021). So, the state's priority, placed on lifting poor children, remains clear.

[3] How state officials respond to this challenge will be further conditioned by federal pre-K efforts.

[4] See a brief historical overview of TK and its early roll-out in 2012.

children were enrolled in TK, either in separate classrooms or integrated with kindergarten students, costing about $1 billion annually.[5]

Pursuing Fairness – Tracing Growth in Transitional Kindergarten Enrollment

Policy Logics Underlying Universal TK

California's educators and policy makers have long invested in children's early learning and growth. Phoebe Hearst in San Francisco first advanced the innovation of kindergarten for the Golden State in the latter third of the nineteenth century. The ideal that civic associations or local councils should help nurture young children, before starting grammar school, originated in Europe, traveling to New England and then brought West.[6]

The Lanham Act, passed by the California legislature during the second world war, extended public support for child-care centers for the first time, as many mothers entered the workforce.[7] A growing count of school districts later created pre-K classrooms in the 1960s, financed by Washington's pioneering effort, called Head Start. This pre-K initiative became rooted in the community action movement, backing nonprofits in poor areas and offering job opportunities for local residents.

Rising awareness of children's early vitality during their first five years of life spurred California schools chief Wilson Riles to create the state's own State Preschool Program (CSPP), followed by publicly funded pre-K centers on college campuses and voucher-like "alternative payments" for parents working irregular hours or preferring individual caregivers.[8]

By 2018-19, rebounding from California's last sustained recession, government was investing nearly $5 billion in public early care and education, including Head Start, hosted by school districts, community nonprofits, licensed homes, and individual providers.[9] The state will invest another estimated $6 billion to extend TK to all 4-year-olds, along with collateral growth of CSPP and child-care vouchers.

Districts now enjoy stronger financial footing on which to build TK. After taking all revenue sources into account, roughly $21,600 will be available in 2021-22 for each K-

[5] Legislative Analyst's Office (2021a).

[6] Ward (1967); Fuller (2022).

[7] Cohen (2015).

[8] For an early history of child care and pre-K in California, see Grubb & Lazerson (1977).

[9] Shelton et al. (2019).

12 pupil in California.[10] Setting aside federal stimulus dollars (phasing out by 2024), a single TK classroom serving 20 children will generate more than $280,000 in state revenue for local districts.[11]

This rising investment – spurred by state and federal policy leaders – stems from two underlying factors. Rates of maternal employment began to climb for white and Latino mothers in the 1970s, spurring demand for nonparental forms of care (employment rates for Black women were high long before the 1970s). In 1975, about two in five mothers (39%) with a child under six years old worked outside the home for wages nationwide. This rate climbed to two-thirds (67%) of mothers by 2019.[12] To ensure wider career opportunities for women and backstop the economic well-being of families, policy makers began to fund a variety of child-care options, from vouchers to support kith and kin caregivers to formal preschools.

A half-century of research details the crucial importance of the first five years of life – in terms of young children's health, their cognitive and social-emotional growth. The evidence is quite clear that high-quality pre-K experience can lift these developmental trajectories for children from poor and working-class families.[13] Empirical reviews also show that intervening early to enrich young children's social environs yield stronger benefits than any effects of schooling later in life.[14] Research continues on the sustainability (or fade-out) of pre-K's effects, along with benefits they may or may not accrue compared to middle-class children.[15]

Expanding TK, Building District Capacity

California policy makers have opted to pursue free and universal preschool, serving 4-year-olds mostly in public schools. This model is similar to the path taken in Oklahoma, where enrollments have grown to more than 80% of this age group, and community-based pre-K's have shifted toward serving 3-year-olds, including nonprofit and Head Start providers. Other states (Georgia) and cities (New York) have opted to include community nonprofits within their networks of publicly supported pre-K's.

At the same time, California's enabling legislation for "Universal Transitional Kindergarten," approved by the governor in July 2021, emphasizes the policy goal of narrowing disparities in children's early learning (see note 2). We don't really know

[10] Legislative Analyst's Office (2021b).

[11] Based on the Legislative Analyst's estimate of Proposition 98 revenue for schools in 2021-22.

[12] U.S. Department of Labor (2021).

[13] Heckman (2010); Fuller et al. (2017); Joo et al. (2020).

[14] McCoy et al. (2017).

[15] Yoshikawa et al. (2013).

empirically whether universal pre-K efforts work to close inequities in kids' early development.

This may occur if the benefits accruing to poor children exceed the magnitude of cognitive or social-emotional gains enjoyed by middle-class peers. Evidence backing this hypothesis has emerged to a limited extent in Boston and Oklahoma, although child samples studied are weighted heavily toward low-income families.[16]

But in New York City, two independent teams have found that pre-K quality is higher in centers that serve predominantly white or Asian-American children, relative to programs hosting Black or Latino children. Such a regressive distribution of quality may inadvertently reinforce, not lessen, disparities in children's early growth.[17]

In California, local school boards will assume responsibility for nurturing the early learning of 4-year-old children under the state's TK initiative. The legislature's budget "trailer bill" requires that local districts offer a TK program for increasing counts of 4-year-olds, ramping-up in two- or three-month age increments over a four-year period starting in 2022-23. In that school year, districts must provide TK for children turning 5 by early February, rather than the earlier age cut-off of early December.

Lead TK teachers must be credentialed – either reassigned from a higher grade level or acquired with a newly minted multiple-subject teaching credential. All TK classrooms must now host an instructional aide, lowering the child:adult ratio to 12 children per adult, and this ratio may fall to 10:1 in future years.[18]

The ambitious TK expansion requires a big lift for local school boards. Another 250,000 children are expected to enter the now-universal TK program statewide. This expansion requires at least 11,000 new teachers and a much greater number of classroom aides.[19] Classrooms must be renovated to fit young children or newly constructed, as districts look for local funding or appeal to the State Allocation Board for facilities funding.

We ask whether the historical response of local districts has been uniform or patchy. That is, do we observe certain regions of the state or types of districts hosting stronger growth in TK enrollments? Do particular types of children display stronger or weaker enrollment rates? Many local districts and county education offices have grown-out CSPP programs over several decades, at times in concert with federal Head Start efforts.

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[16] Gormley et al. (2017); Weiland (2016).

[17] Latham et al. (2021); Fuller & Leibovitz (2021).

[18] Assembly Bill 130, approved by the governor on July 9, 2021.

[19] Williams et al. (2021).

Now, they must prepare classrooms, find scores of new teachers, and integrate TK into regular K-12 operations – with unknown effects on existing pre-K programs.

Independent of financial incentives, a portion of local school boards may not hold the organizational capacity to build early-childhood expertise within district offices, refurbish classrooms, and prepare site principals for younger children.

We detail below how one-third of the state's districts enrolled 12 or fewer TK children in 2019-20, just prior to the pandemic. Many of these children were inserted into kindergarten classrooms. Part of our analysis is to examine whether district resources or organizational features help to explain stronger expansion of TK enrollment, pointing to factors that may foster or inhibit future expansion.

District Competitors? The Wider Ecology of Early Care and Education

Public schools must extend TK access to a growing count of 4-year-olds, beginning in 2022-23. But they will not be alone in offering pre-kindergarten programs. Local schools will continue to operate in a wider ecology of early care and education providers.

About 65% of California's 4-year-olds, numbering 514,000, were enrolled in a nonprofit center or TK classroom in 2016. The remaining share, equaling about 180,000 children, were cared for by a parent, family child-care home, or individual provider. About 260,000 of the state's 514,000 children, four years of age, were eligible for subsidized child care or pre-K, with their families earning under 70% of the state median income. Some 69% of these subsidy-eligible children attended a center-based program of some kind. In turn, about 72,000 children not eligible for subsidized care attended pre-K centers that charged parental fees.[20]

We do not know how differing groups of children and families will respond to free TK as slots expand in nearby schools. Yet, local districts will continue to face competition from a variety of nonprofit centers, licensed family child care, and individual caregivers – as parents weigh the convenience, trust, and quality of their options.

The dramatic expansion of TK will affect this wider constellation of child-care and pre-K organizations – even in unanticipated ways. When New York City quickly expanded pre-K for 4-year-olds, utilizing city schools and nonprofits, the latter agencies reduced slots for infants and toddlers, given that securing city revenue for 4-year-olds proved

[20] Statistics compiled by the American Institutes of Research in Manship et al. (2018).

much easier.[21] Crowd-out of nonprofit pre-K's occurred in Georgia as school-based programs expanded under the state's universal program.[22]

The wider organizational ecology of ECE also includes licensed family child-care homes and individual providers supported through public subsidies (vouchers). California spent nearly $1.4 billion for CSPP centers in 2018-19, compared with about $985 million for children enrolled in TK, plus another $530 million for child-care vouchers. Federal Head Start allocations equaled about $1.2 billion for California children, from infant-toddler through pre-K.[23]

The point is that state and federal agencies support multiple programs to serve 4-year-old children, and local agencies will compete with public schools for clients. A major question going forward is, What effect will this wide ecology of individual child-care providers, licensed homes, and neighborhood nonprofits exercise as districts now attempt to enroll growing shares of preschoolers? Put another way, will this local ecology of child-care providers limit the ability of districts to grow-out well intentioned TK programs?

Research Questions – Analytic Strategy

Set in this dynamic context, our analysis aims to trace patterns of TK enrollment growth among California's diverse variety of school districts, including how enrollment rates may vary for differing types of children. As TK has spread unevenly across California over the past decade, the question arises as to whether children in certain regions or districts are served disproportionately, stemming from local demographics or features of district organizations. Our analysis centers on these empirical questions:

- How has growth of TK enrollments varied among counties and regions of the state?
- Does the growth of TK enrollments vary by district size or related organizational features?
- Has the composition of TK children changed over time as enrollments have grown?
- Do demographic features of communities help to explain the rate of growth in TK enrollments observed among districts?

[21] Brown (2018).

[22] Bassok et al. (2014).

[23] Shelton et al. (2018).

We also examine levels of TK enrollment, along with change over time, for charter schools and basic aid districts. The latter set of districts enjoy relatively wealthy tax bases, yet they receive no additional state funding when enrolling TK students.

Data

Transitional Kindergarten

Our study is based on data for the 2013-14 through 2019-20 school years, provided by the California Department of Education's (CDE) Transitional Kindergarten Data. This TK information includes state, county, district, and school-level TK participation data disaggregated by race, ethnicity, and subgroup (i.e., English learner, migrant, and socioeconomically disadvantaged status).

We draw on CDE counts of TK students, reported by local districts, on the Census Day for counting average daily attendance. To accurately compare TK enrollments to total kindergarten enrollments, we exclude TK counts from the total count of kindergarten students for each year. When we report growth on either the school or district level, total counts include only schools and districts that offer kindergarten.

For some growth analyses, we split districts into quartiles based on 2019-20 kindergarten enrollment counts. These quartiles range from small districts to large districts. When districts are separated into enrollment-based quartiles, medians are reported for each quartile.

Gauging TK Enrollments among School Districts or Counties

We utilize three ways of reporting enrollment levels:

- ***Raw counts*** of children enrolled – offering a precise picture but not controlling on overall district enrollment size.
- The number of TK children enrolled ***as a percentage of kindergarten students*** enrolled in each district, which takes into account a district's enrollment size.
- The number of TK children enrolled in a county ***as a percentage of all 4-year-old children*** residing in that county.

About 40% of all 4-year-olds have been eligible to enroll in TK after legislation provided 'Expanded Transitional Kindergarten.'

Charter Schools

To better understand how charter schools implement TK, we merged CDE's Transitional Kindergarten Data with data from the 2019-20 Public Schools and Districts Data. For most analyses, charter enrollments are included in TK and kindergarten counts. In addition, we pulled charter enrollments out to analyze these patterns separately from children attending regular public schools.

Of the more than 1,300 charter schools in California, 699 offered kindergarten and 468 enrolled TK students in 2019-20. Charter schools offering TK programs are located

throughout the state in rural, suburban, and urban areas. As of the 2020–21 school year, the count of students enrolled in charter schools was approximately 11% of the public school student population in California.

Basic Aid Districts

In addition to understanding how charter schools are implementing TK, we merged the Transitional Kindergarten Data with data from CDE's 2019-20 Principal Apportionment information to understand how basic aid districts are growing TK programs. Basic aid districts are districts with high property values from either residential or commercial properties. In 2019-20, 124 basic aid districts served kindergarten students and 75 served TK students. Many of these districts serve significant counts of students from low-income families.

Estimating TK Growth Rates among Districts

To identify underlying factors that might shape differing rates of growth in TK enrollment among districts since 2013-14, we merged data on features of districts and student demographics into our core TK data. We drew from the National Center of Education Statistics (NCES) Common Core of Data (CCD) and CDE's enrollment data for CSPP to estimate the effects of district- and student-level characteristics on the degree to which TK enrollments have grown or leveled-off over time.

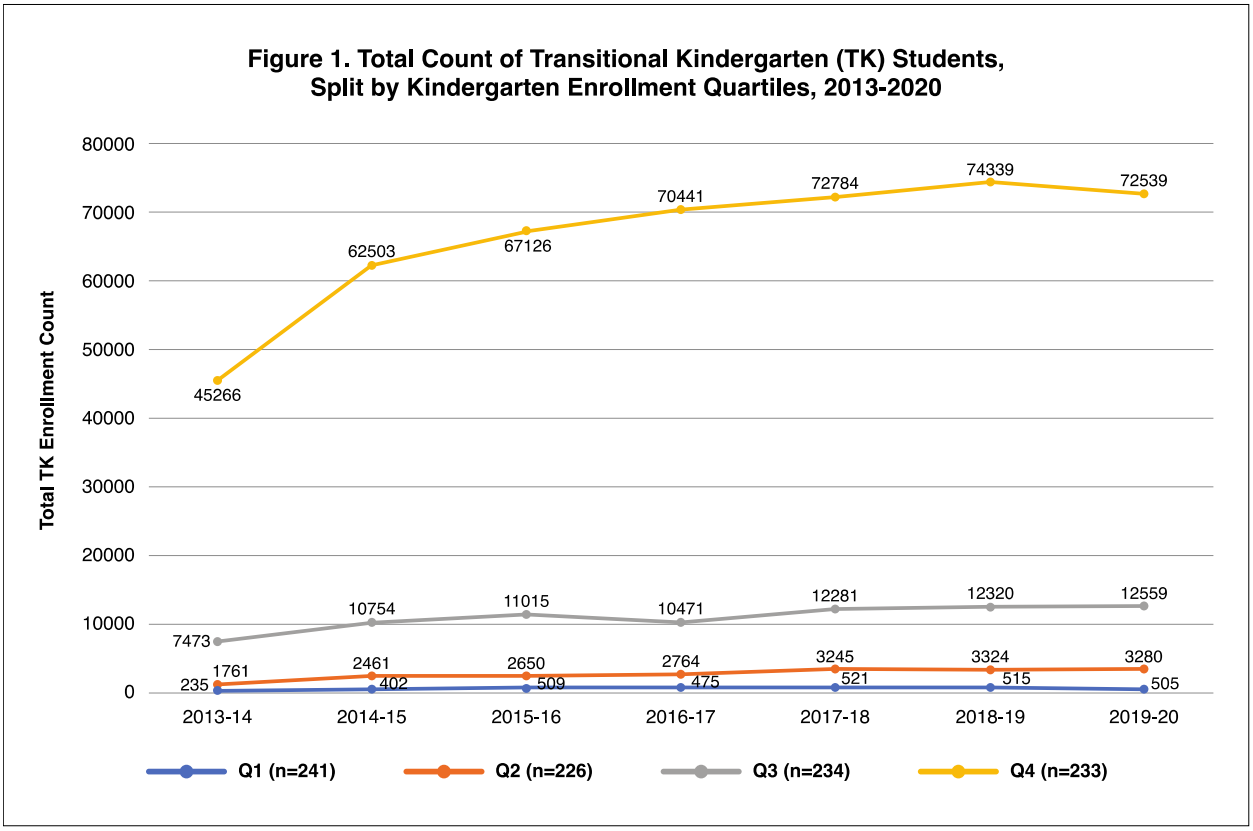
We report a baseline model that reveal cross-sectional correlations between the various predictive factors and raw TK enrollment levels in 2013-14 among districts. We then gauge whether the same predictors help estimate TK enrollments in 2019-20, after taking into account baseline levels. This is similar to estimating growth in TK enrollments over the period. Predictors tied to district features include district size, CSPP enrollment counts, geographical location, percentages of charter or magnet schools in a district, and student-teacher ratio (as a proxy for resources). For our student composition variables, we include the percentage of students eligible for FRPM and students' racial and ethnical composition.

Findings

TK Enrollments Statewide

We first examine how TK enrollments have grown over time, along with how these trends differ among school districts. Figure 1 shows growth in the total count of children enrolled in TK classrooms from 2013-14 to 2019-20 (prior to the pandemic shutdown of public schools). These counts are from students participating in TK on Census Day as reported by districts to CDE for establishing average daily attendance.

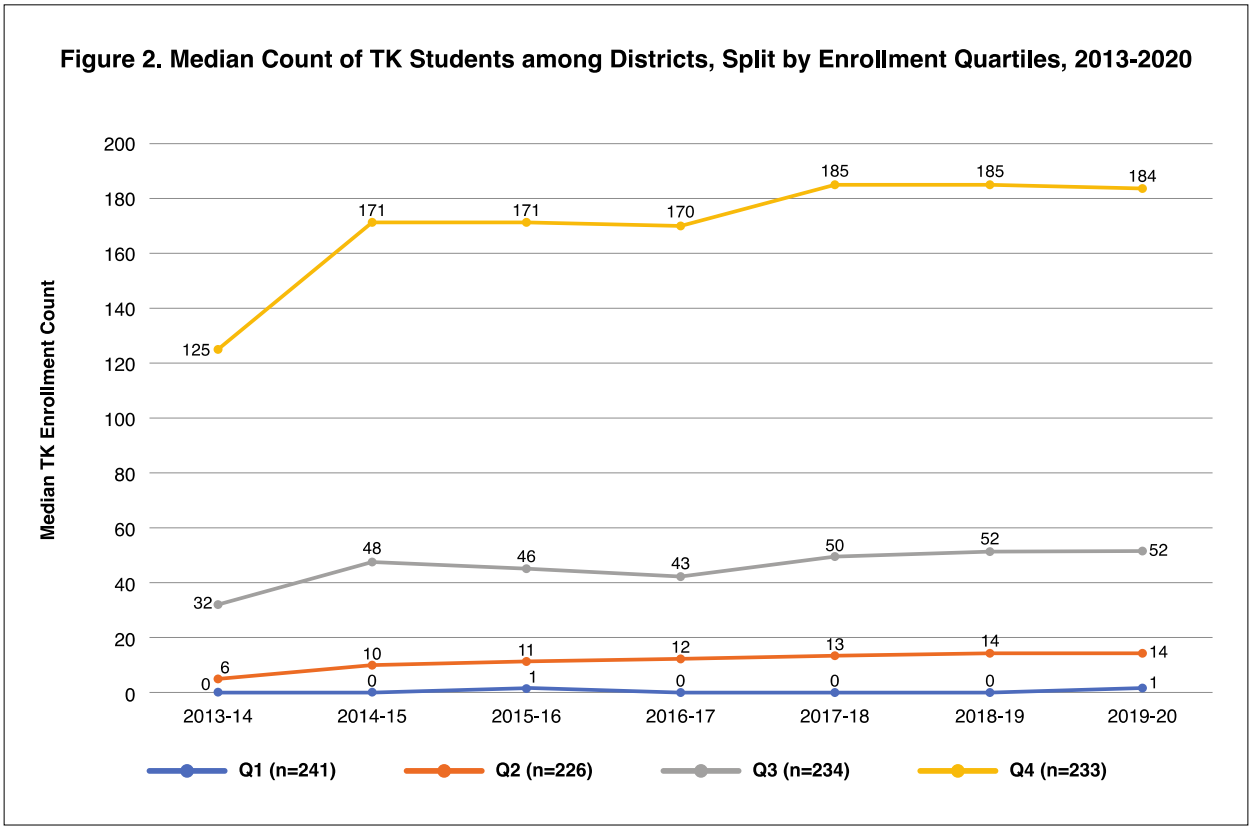
We split districts into quartiles by their kindergarten enrollment size. For example, the yellow line is for the largest one-fourth of all districts (based on kindergarten enrollments). From 2013-14 to 2019-20, these districts enrolled roughly an additional 27,000 TK students. Together, the remaining three-fourths – the gray, orange, and blue lines – of districts enrolled just over 6,800 more TK students in 2019-20, compared to 2013-14.



Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2013-2020

Next, we examine the *median count* of children enrolled in TK classrooms among districts from 2013-14 to 2019-20 (prior to the pandemic shutdown). In Figure 2 we again split districts into quartiles by their (kindergarten) enrollment size. We report median averages, rather than means, given that high TK enrollments in a few large districts artificially inflate statewide means.

As shown in Figure 2, the largest one-fourth of all districts initially experienced quick growth from 2013-14 to 2014-15, which flattened, and then rose again between 2016-17 and 2017-18, In contrast, the median count of TK students in the smallest one-fourth of districts remained stagnant during this period. The blue line shows how the median number of TK students in these districts fluctuated between zero and one TK student enrolled between 2013 and 2020. Figure 2 shows, in raw terms, enrollment counts and growth depend upon overall district size.



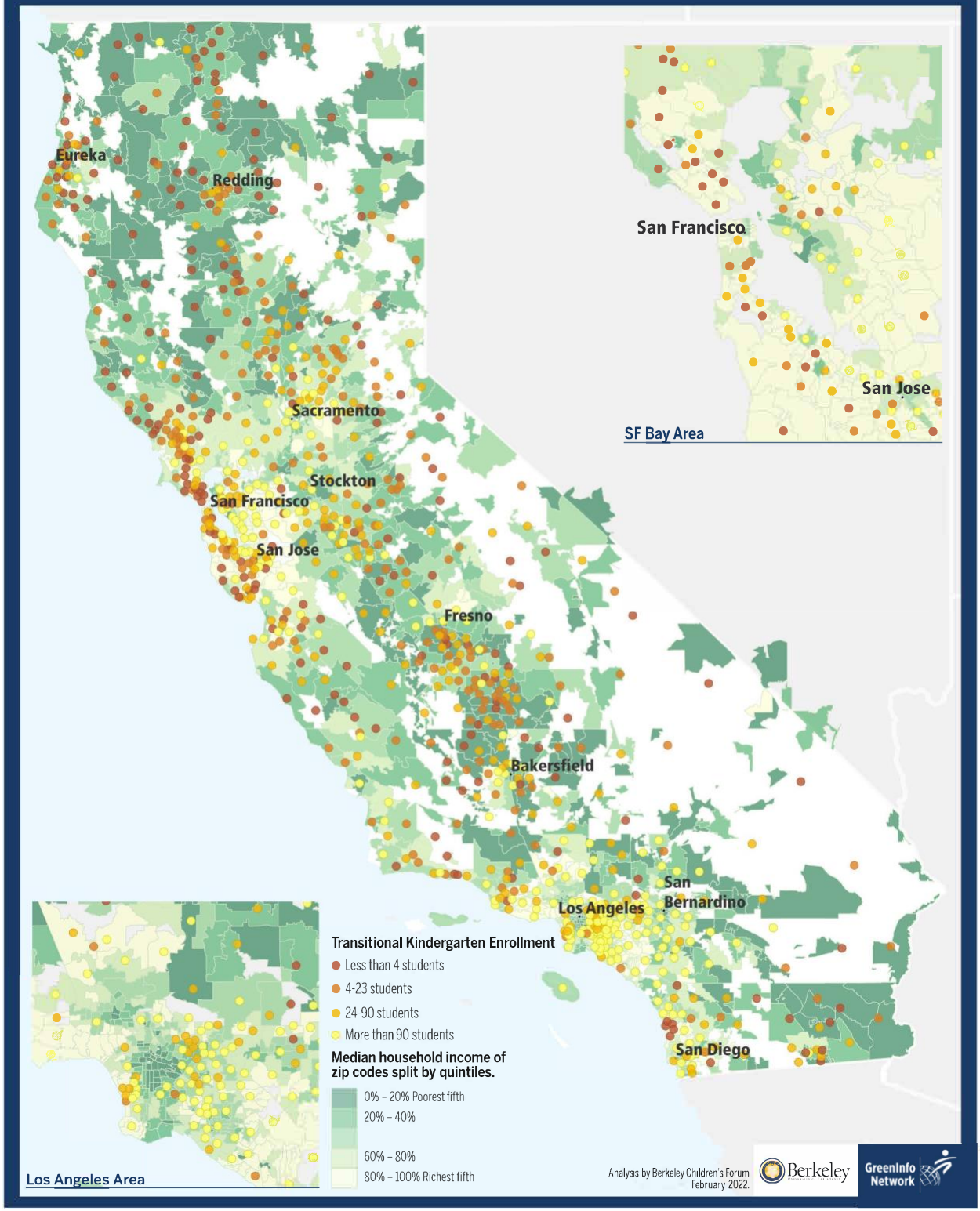
Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2013-2020

Figure 3 maps variation in TK enrollments across California. We split districts into four groups with equal counts of districts (quartiles) based on raw counts of children enrolled in TK. For example, the dark red dots show locations of districts that enrolled fewer than four TK students in 2019-20. Successively lighter-color dots show districts enrolling 4-23, 24-90, and over 90 TK children.

We see that raw TK enrollment counts are low in the Bay Area, the state's far northern counties, Fresno County, and much of the Central Valley. Many districts on the San Francisco Peninsula are basic aid districts. On the other hand, TK counts are relatively high in Los Angeles, Orange, and San Diego counties, along with districts in the East Bay area. This pattern suggests that larger districts benefit from stronger organizational capacity and have been able to equip classrooms and find TK teachers to steadily expand programs, compared with smaller, more constrained districts.

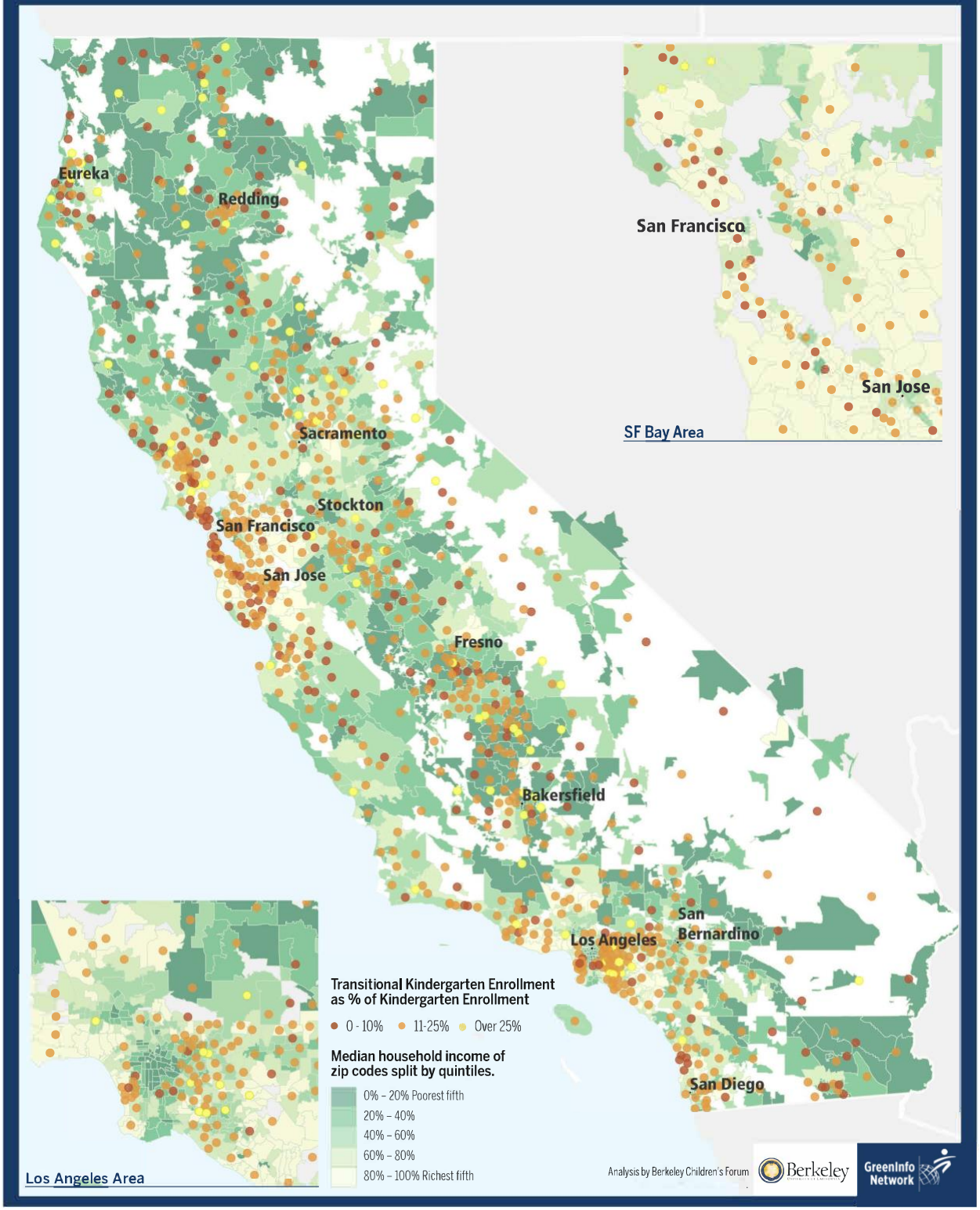
Figure 4 reports on TK enrollments as a percentage of kindergarten enrollments, which takes into account district size. Darker red dots again indicate districts with low TK enrollments, counts between 0-10% of kindergarten enrollment counts. Districts indicated by light yellow dots are those with TK enrollments that equal 25% of kindergarten enrollments or more.

Figure 3. TK Enrollment Counts by School District, 2019-20



Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2019-20

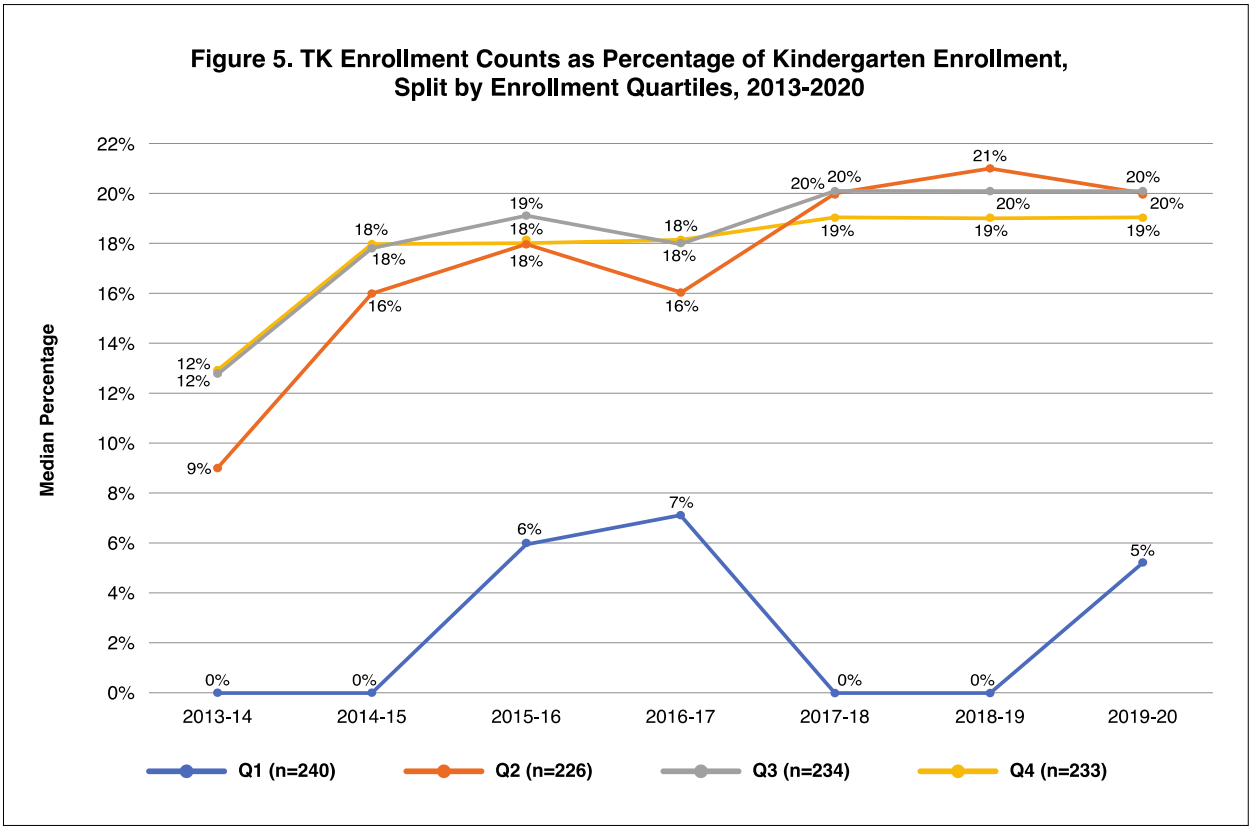
Figure 4. TK Enrollments as Percent of K Enrollment by School District, 2019-20



Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2019-20

Bay Area and far north districts continue to show low enrollment levels in Figure 4, along with several districts in southern California and those scattered across the Central Valley. Figure 4 illustrates the wide variability in district capacity to expand TK enrollments since the program's inception roughly a decade ago.

Figure 5 further disaggregates median TK enrollments as a percentage of kindergarten enrollments by district size. Dividing districts into quartiles by overall enrollment size, we find that other than the smallest one-fourth of districts (blue line), districts follow a similar trend from 2013-2020. While larger districts can more easily enroll TK children relative to the capacity of, and perhaps family demand felt by, smaller districts, medium-size districts are enrolling comparable percentages of TK students.

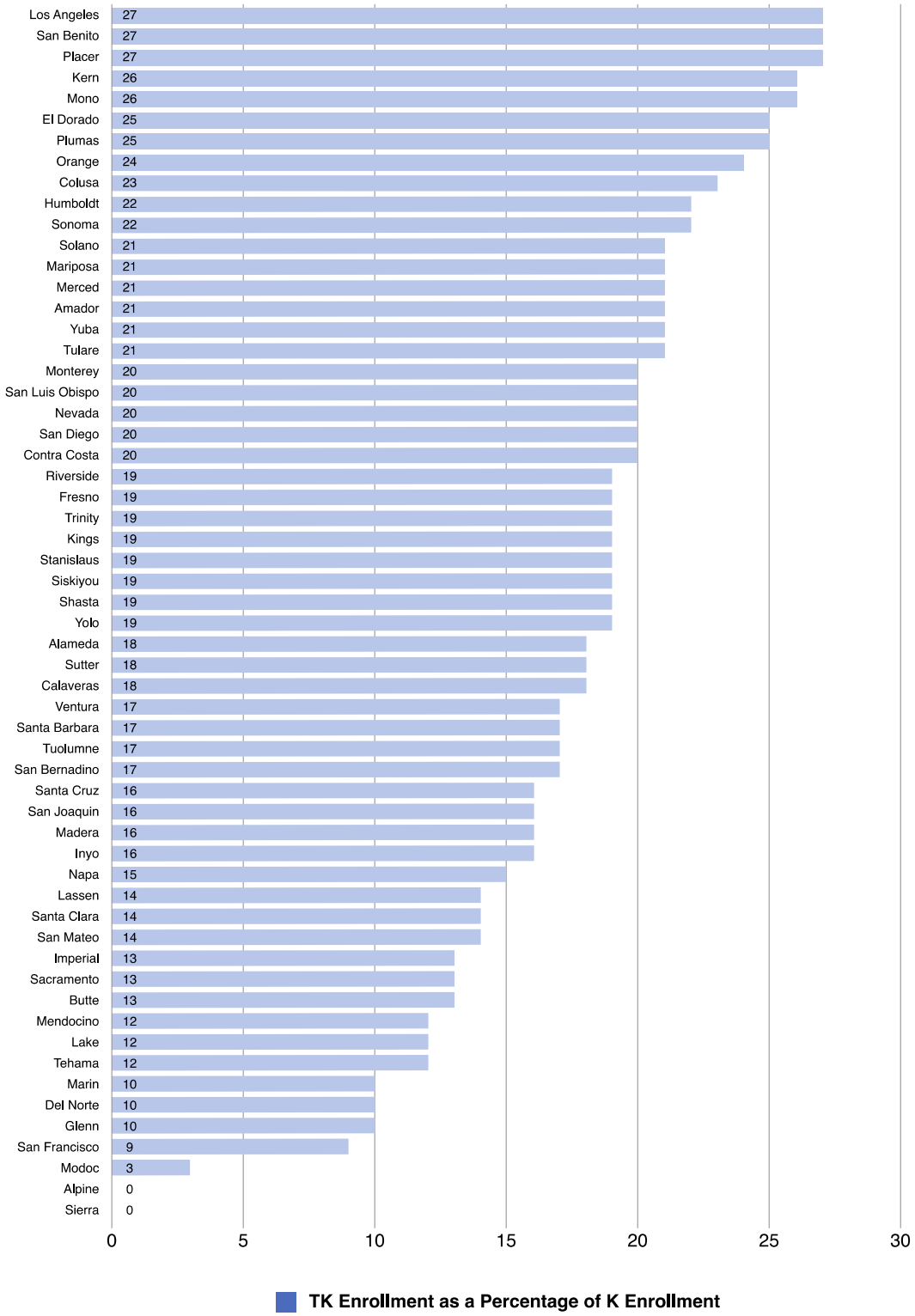


Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2013-2020

Enrollment Trends among Counties

TK enrollment levels vary widely among the state's counties. In Figure 6, we again report TK enrollment levels as a percentage of kindergarten enrollment. TK enrollments hosted by districts within L.A. County, for instance, equaled 27 children for every 100 kindergarten students in 2019-20. This stems largely from assertive efforts by the Los Angeles Unified School District (LAUSD) to grow their TK program. In contrast, Marin County enrolls just 10 kids in TK for every 100 kindergarten students.

Figure 6. TK Enrollment Counts as Percentage of Kindergarten Enrollment by County, 2019-20



Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2019-20

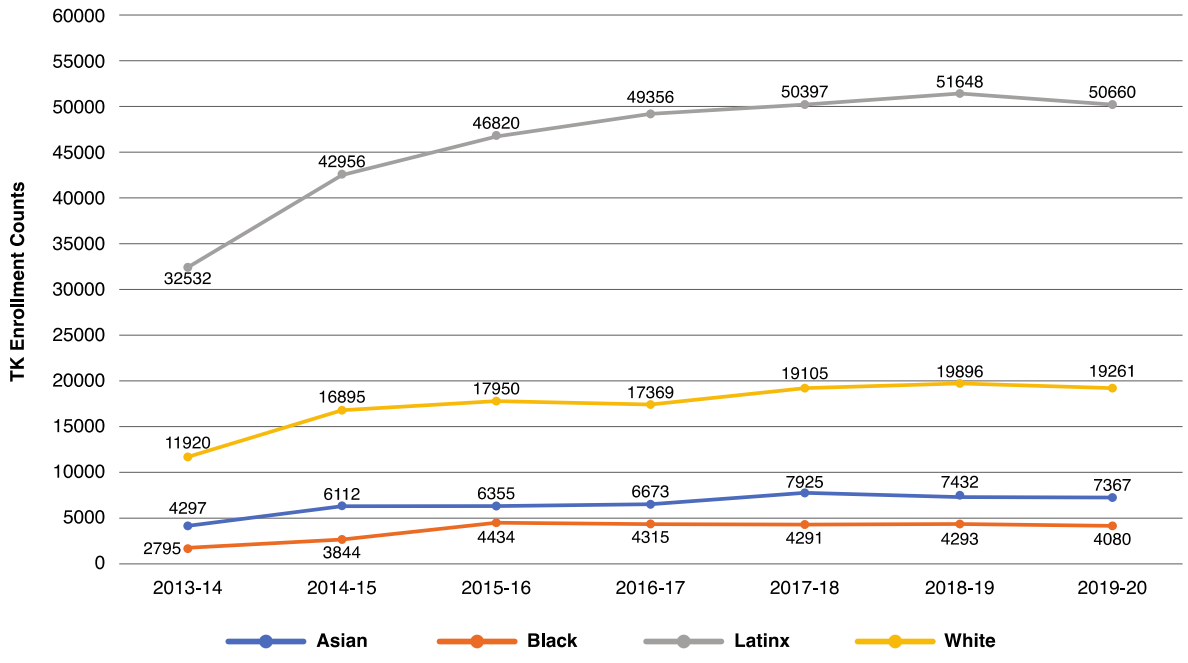
Figure 6 reveals that the rural-urban divide is not the only driver of variable levels of TK enrollment. San Francisco enrolls just nine TK children for every 100 kindergarten students, in part due to a large California State Preschool Program, along with high private school enrollments. Largely urban Sacramento County enrolls 13 TK children per 100 kindergarten students, whereas nearby Placer County hosts 27 TK children for every 100 students enrolled in kindergarten.

A variety of factors could affect this variation beyond district capacity, including levels of parental demand tied to maternal employment rates, school-finance incentives, and the strength of Head Start, CSPP, and other community-based pre-K programs. We return below to estimating the strength of these kinds of factors on district enrollment growth.

A Shifting Mix of TK Students?

Growth in enrollments vary by the racial and ethnic backgrounds of children served by TK programs, as shown in Figure 7. Since 2013-14, Latino children (gray line) have made up the largest share of TK students throughout the state, followed by white children (yellow line), Asian-heritage children (blue line), and Black children (orange line). In 2019-20, before the pandemic, enrollment counts of children from each racial and ethnic group appeared to decline slightly. Most notably, enrollment numbers for Black children – historically quite low – have slipped lower since 2015-16.

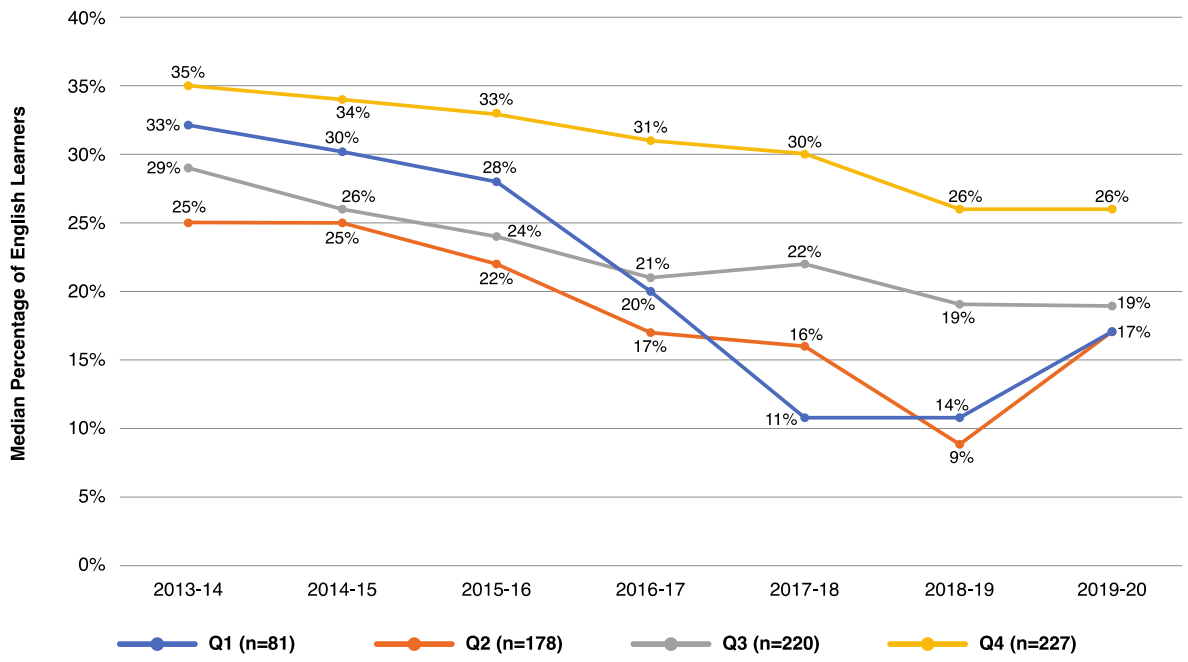
Figure 7. TK Enrollment Counts by Race and Ethnicity, 2013-2020



Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2013-2020

We also examine how the mix of TK children has changed in terms of poverty and English-learner (EL) status. Figure 8 illustrates how a declining share of TK children have been designated as English learners. While this decline is consistent for larger districts, we find the decline fluctuates more among the state's smallest districts (blue line). This decline could stem from falling shares of EL-identified students overall, a possibility that we examine below in Table 1.

Figure 8. Median Percentage of TK Students, English-learners, Split by Enrollment Quartiles, 2013-2020

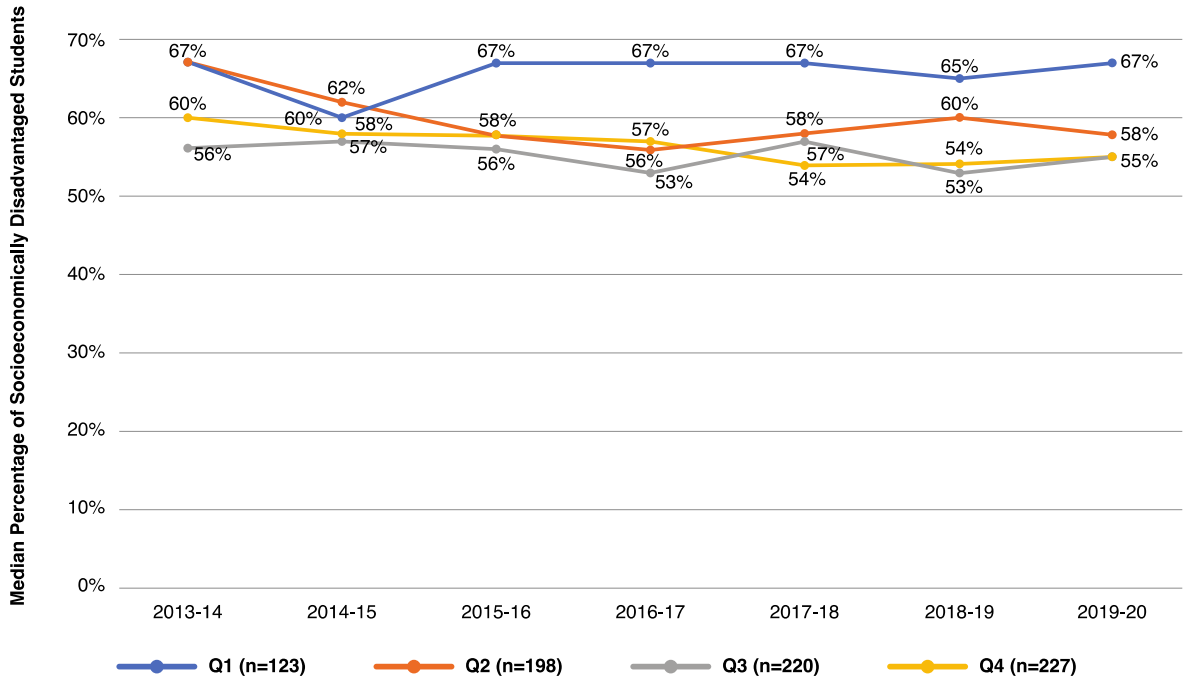


Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2013-2020

In Figure 9 we track changes in terms of social-class status. We can see that the state's smallest districts (blue line) serve the largest share of disadvantaged students. From 2013-14 to 2019-20, the share of disadvantaged TK students in these districts has remained relatively constant.

Meanwhile, the share of disadvantaged students enrolled in TK in the state's largest districts (yellow line) declined from 60% in 2013-14 to 55% in 2019-20, perhaps suggesting more well-off families are enrolling their children in TK. Likewise, the state's small-medium size districts experienced a declining trend. In 2013-14, 67% of TK students in these districts were from disadvantaged families; however, this share of students fell to 58% in 2019-20.

Figure 9. Median Percentage of TK Students, Economically Disadvantaged, Split by Enrollment Quartiles, 2013-2020



Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2013-2020

Table 1 displays the state's overall shares of English learners, disadvantaged students, and children from migrant families. We find that in both TK and kindergarten, the share of EL students declined substantially from 2013-14 to 2019-20. The percentage of third-grade students designated as English learners declined modestly during this period. Care is required when interpreting the 2020-21 numbers, the first full year under the pandemic's shadow.

Table 1. Median Percentages of TK students who are English-learners, Economically Disadvantaged, and from Migrant Families, 2013-2021

	English-learner			Economically Disadvantaged		Migrant	
	2013-14	2019-20	2020-21	2013-14	2019-20	2013-14	2019-20
Transitional Kindergarten	31%	21%	–	62%	56%	0%	0%
Kindergarten	28% (24%)	20% (17%)	(9%)	62%	59%	3%	2%
Grade 3	22%	17%	18%	–	–	–	–

Note: The calculations for TK and kindergarten English-learner, economically disadvantaged, and migrant students in 2013-14 and 2019-20 are based on Transitional Kindergarten Data, provided by the California Department of Education. The corresponding calculations for Grade 3 used Census Day Enrollment by School data and English Learners by Grade & Language data. The numbers in parentheses refer to English learner percentages of kindergarten enrollment calculated with Census Day Enrollment by School data and English Learners by Grade & Language data.

Additional research is required to determine whether districts serve a declining share of EL students, relative to English-fluent children, in other grade levels. Declining fertility or in-migration rates among Latina mothers in some counties may lead to fewer EL-designated children. Or, districts may endeavor to identify fewer such children.

Likewise, from 2013-14 to 2019-20, the overall share of disadvantaged students declined slightly. The share of disadvantaged TK students fell more than the share of kindergarteners, as more middle-class families appeared to enroll their children in TK.

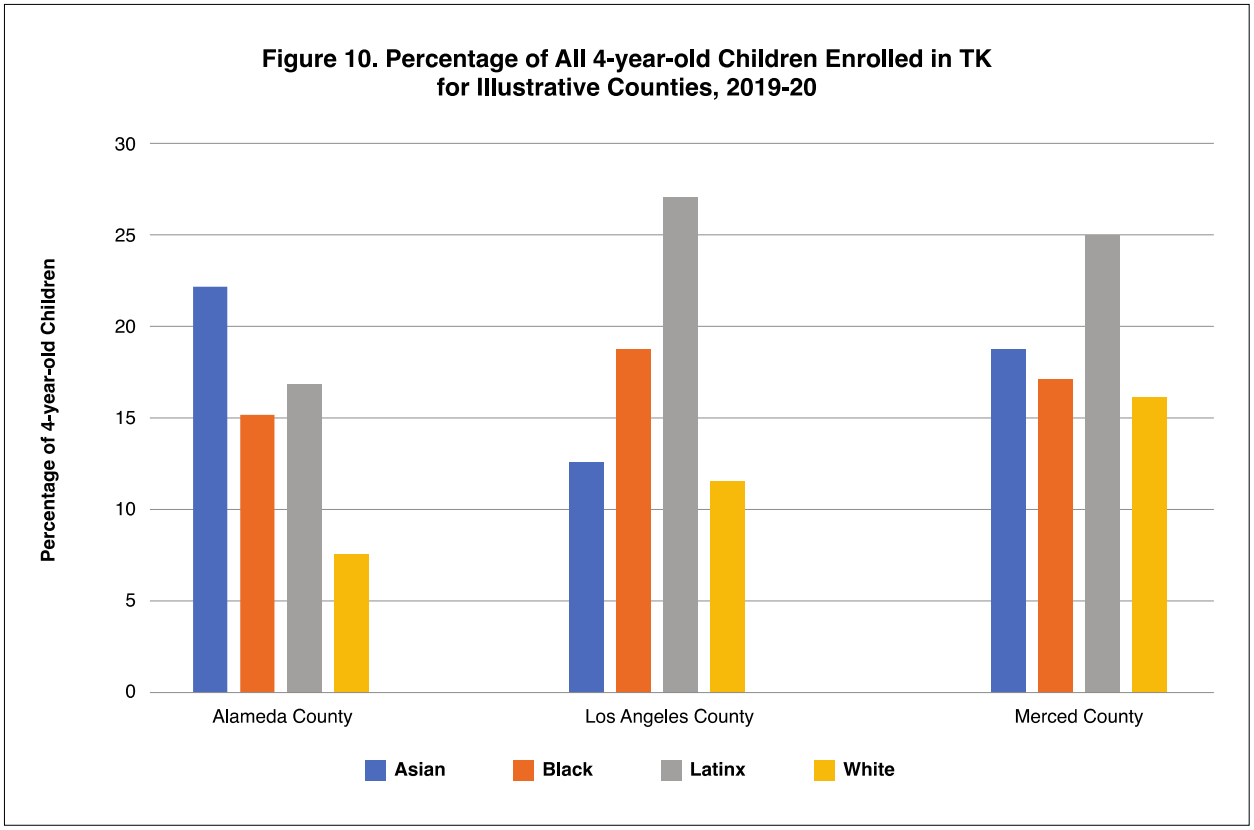
Examining the share of children from migrant families enrolled in TK, these data suggest migrant families are not opting to enroll their children in school-based TK. Host districts have experienced little capacity to serve these children, or families are choosing state and federal programs specific to migrant children. When these data are disaggregated by district size, the state's smallest one-fourth of districts are most likely to serve students from migrant families.

These findings may inform future expansion of TK, highlighting which families gain access and the extent to which TK narrows – or perhaps reinforces – disparities in the early learning of children from differing backgrounds.

Race and Ethnicity Enrollment by County

TK enrollment levels vary by the racial and ethnic backgrounds of children among the state's counties. In Figure 10, we report TK enrollments as a percentage of total 4-year-old counts in Alameda, Los Angeles, and Merced. This offers a different gauge of access, rather than reporting TK enrollment as a percentage of kindergarten enrollment. Of all 4-year-old Asian-heritage children in Alameda County, for example, 22% enrolled in a TK program in 2019-20. Meanwhile, in Los Angeles and Merced, Latino families were more likely to enroll their children in TK, 27% and 25%, respectively.

Across the three counties shown in Figure 10, white families appear less likely to enroll their children in TK compared to peers of other racial and ethnic heritage. In Alameda and Merced counties, Black families were less likely than Latino or Asian families to enroll their 4-year-olds in TK. Yet, in Los Angeles County, Asian families were less likely than Black or Latino families to enroll their 4-year-olds in TK. If families from various racial and ethnic backgrounds were adopting TK at a similar rate, we would expect all groups to enroll about 25% of their 4-year-olds, given that TK is currently available for children whose fifth birthday is between September 2nd and December 2nd. Again, additional research is required at the local level to determine how and why families are opting for TK or other pre-K programs.

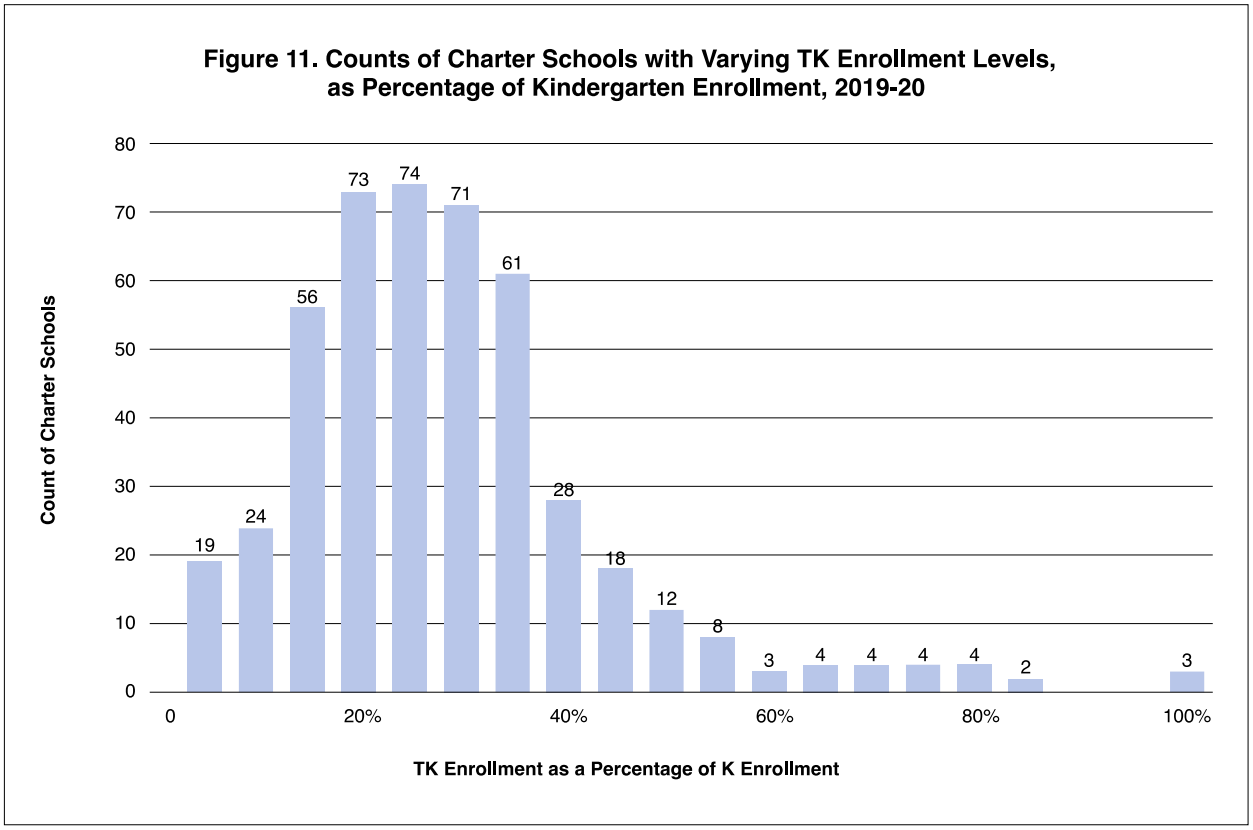


Data source: California Department of Education's (CDE) Transitional Kindergarten Data, 2019-20

Charter Schools

We also examine how charter schools are implementing TK. In Figure 11, we report TK enrollment as a percentage of kindergarten enrollment for charter schools, among those providing kindergarten in 2019-20. The fairly normal distribution in Figure 11 has a peak of TK enrollment equaling just over 20% of kindergarten enrollment in charter schools, and that a number of charter schools host relatively high TK enrollments.

At the same time, we find that on average the number of TK students as a percentage of kindergarten students enrolled in traditional public schools is about three percentage points higher compared to charter schools ($p<.001$), 21% versus 18%, respectively. Such findings help to inform where future expansion of TK is more likely to occur.

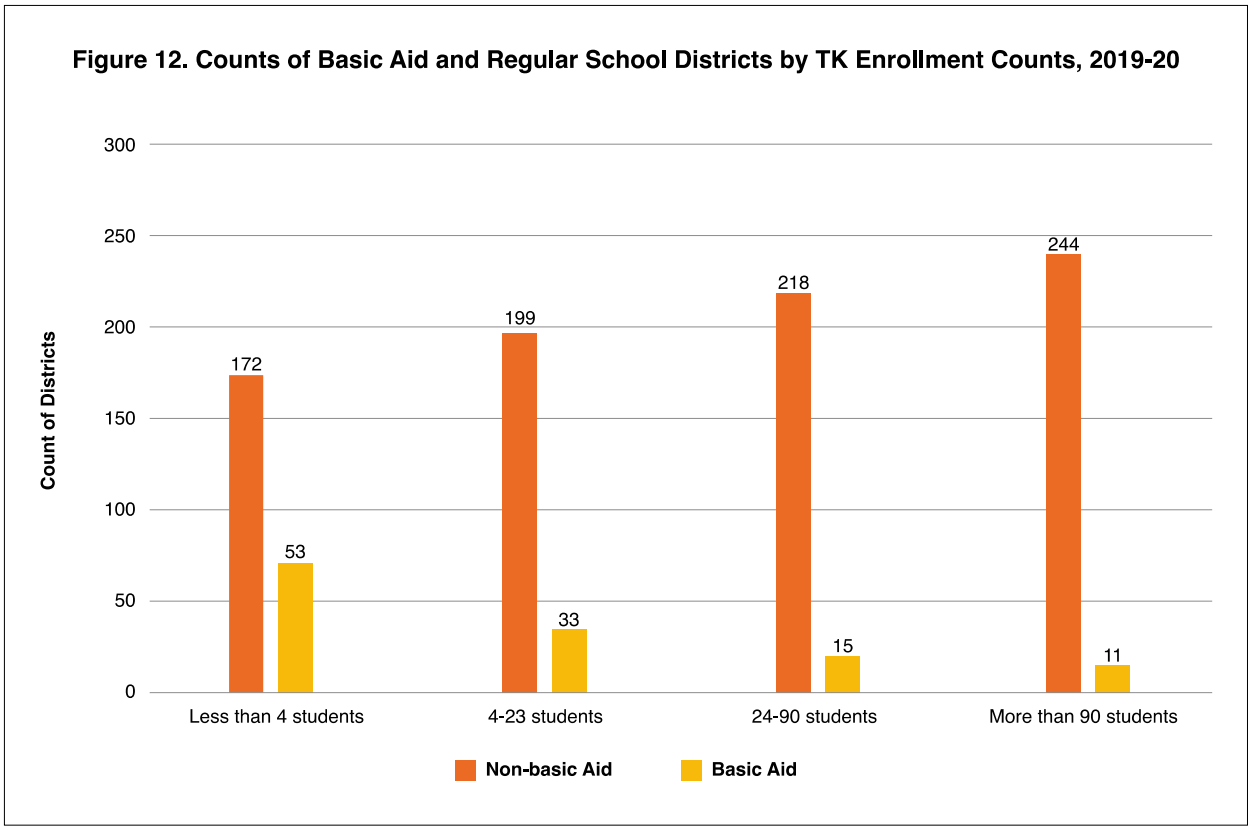


Data sources: California Department of Education's (CDE) Transitional Kindergarten Data, 2019-20; CDE's Public Schools and Districts Data 2019-20

Basic Aid Districts

In 2019-20, some 124 California districts serving TK students enjoyed very high property values locally. The legislature, to date, has decided against providing additional state aid to these basic aid districts when they choose to enroll children in TK. This may explain very low TK enrollment levels in this subset of districts – including several located on the San Francisco Peninsula shown earlier on the maps (Figures 3 and 4).

Figure 12 reports the number of districts that host differing counts of TK children (split by the four quartiles defined above in Figure 3). The first vertical bar, for instance, shows that 172 regular districts enrolled less than 4 TK students, along with 64 basic aid districts (2019-20). In contrast, the pair of bars on the far right of shows that 244 regular districts enrolled more than 90 TK students, compared with just 11 basic aid districts. The policy dilemma is that some basic aid districts, such as Santa Clara Unified and Mountain View-Whisman, enroll large counts of students from low-income families, while TK access remains limited.



Data sources: California Department of Education's (CDE) Transitional Kindergarten Data, 2019-20; CDE's Principal Apportionment 2019-20

Part-day and Full-day TK

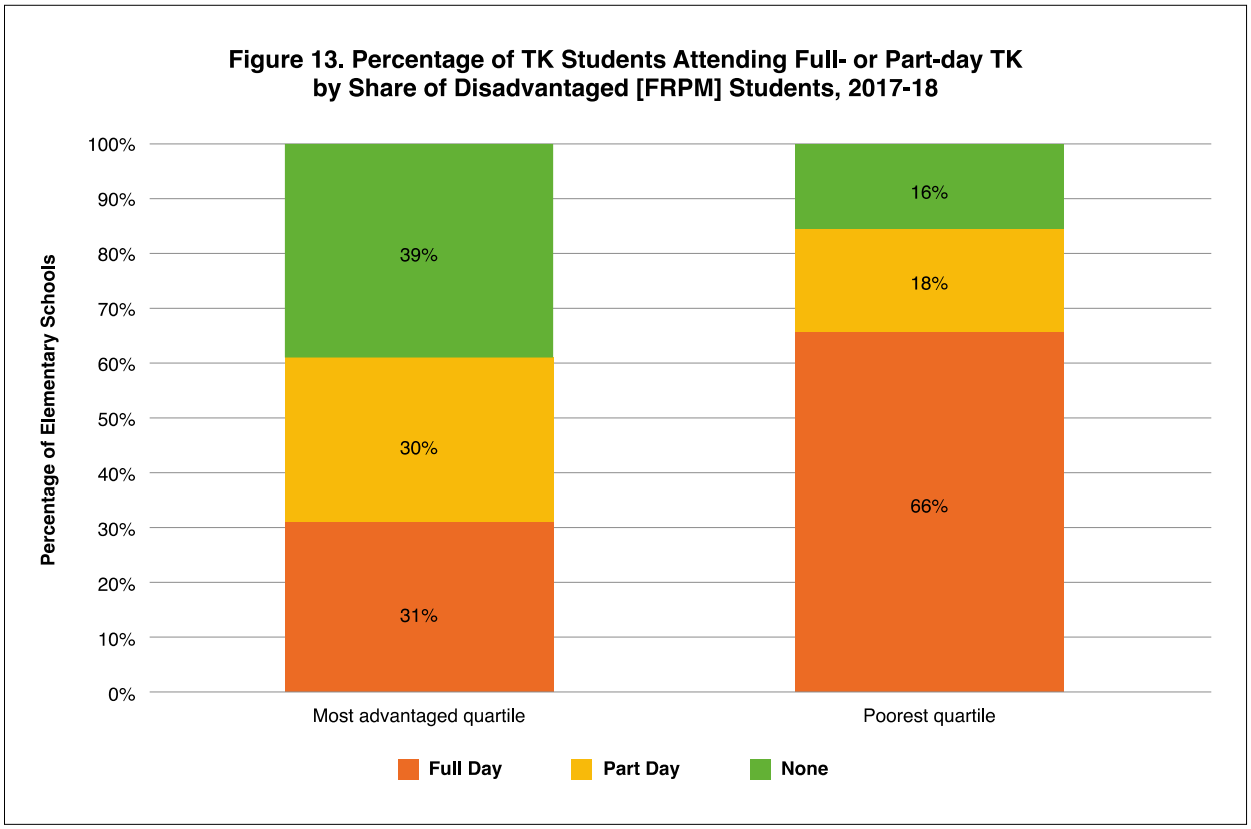
Berkeley analysts earlier reported on the distribution of part- and full-day TK hosted by elementary schools. Some districts operate TK classrooms in just a subset of their schools. Overall, about half the state's elementary schools provided full-day TK classrooms in 2017-18; another one-fourth offered half-day programs (Figure 13). The remaining one-fourth of elementary schools did not operate any dedicated TK classrooms, as reported by districts in that year.[24]

TK appears to be progressively distributed among schools – more readily available in the quartile of schools with the highest share of FRPM-eligible children, compared with schools in better-off communities (Figure 13). Nearly two-thirds of elementary schools in the poorest quartile provided full-day TK in 2017-18; another 18% offered part-day TK. The remaining 16% did not provide TK. This earlier study found that full-day offerings grew five percentage points for this quartile since 2015-16.

In contrast, less than one-third of traditional elementary schools in the most advantaged quartile of schools provided full-day TK, another 30% provided part-day TK, and two-fifths were yet to open TK classrooms. We do not know how these patterns

[24] Findings detailed in Lee & Fuller (2019).

may differ as schools reopened during the past year. Yet, the progressive distribution of full-day TK may help narrow disparities in early learning – if we assume that exposure to TK by disadvantaged children yields sufficiently strong benefits.



Data source: Lee & Fuller (2019).

Explaining Differing TK Growth Rates among Districts

We have discovered how differing types of districts enroll varying levels of TK children. We now ask, which of these factors exert independent effects on the degree to which TK enrollments have grown or leveled-off over time?

Correlations between Explanatory Factors and 2013-14 TK Enrollment Levels

We begin by examining possible associations between features of districts or their demographic composition that may help to explain baseline TK enrollment levels, 2013-14. We statistically regress raw TK enrollment counts for 945 districts on organizational features of districts, demographic attributes of K-12 students, and enrollment levels in CSPP, which 4-year-olds may attend rather than enrolling in district-based TK (see Table 2 for detailed results, Appendix).

At baseline (2013-14) TK enrollments ranged higher in districts with larger K-12 enrollment overall. As seen above, bigger urban districts were initially most assertive in creating TK classrooms and growing-out this option for 4-year-olds. TK enrollments

were lower in districts situated in suburbs and those enrolling larger shares of Asian-American students. These significant explanatory factors explained about one-sixth of the variance in TK enrollment levels among districts. Many other unmeasured factors operating within districts affected local capacity and interest in growing-out TK.

Factors Explaining Growth in TK Enrollments through 2019-20

A wider range of factors predict growth in TK beginning in 2016-17. This was one year after the legislature liberalized the age of 4-year-olds that would generate additional financing from the state ('Expanded Transitional Kindergarten'). We do not know if this was the pivotal event. And recall that growth in TK enrollments slowed statewide from 2017-18 forward.

We regressed raw TK enrollments in 2019-20, controlling for baseline enrollment levels. This allows us to estimate degrees of growth from the same possible predictors (Table 2). We find that TK growth occurred largely in suburban districts from 2016-17 forward, and a bit in rural parts of the state. TK enrollments grew more in districts hosting larger shares of charter schools (as percentage of all schools). This may be due to rising TK counts in charters themselves or growth in regular elementary schools facing greater competitive pressure from charter schools.

We found positive relationships between the count of children enrolled in CSPP in the baseline year (2013-14) and growth in TK enrollments. We did not find that CSPP enrollments "crowded out" incremental gains in TK enrollment, at least not for this period. Note these models are 'over-determined,' given the strong correlation between K-12 and TK enrollment counts. We also ran estimations using TK enrollment as a share of kindergarten enrollment, yielding less robust results (available from the authors).

Lessons for Implementation and Unanswered Questions

Major Findings

- TK enrollments grew in the program's initial years through 2014-15, then leveled-off. About 21% of 4-year-olds attended TK, as a percentage of kindergarten enrollment, just prior to the pandemic (2019-20).
- Thirty school districts – mostly large education authorities – hosted two-fifths of all children enrolled in TK in 2019-20. The smallest one-half of California's districts serve relatively few TK students, less than 15 children on average.
- TK enrollment rates appear lowest in the far north counties, the Central Valley, and parts of Southern California. Basic aid districts host relatively few TK children.

- Latino children make-up over half the state's TK enrollments, while Black children comprise about 9% of enrollments. The representation of English learners among all TK students has declined since 2013-14, although this decline appears in kindergarten enrollments as well.
- TK enrollment rates in traditional public schools slightly exceed the average take-up in charter schools. Enrollments exceed more than 30% of kindergarten enrollments in 143 charter schools statewide.
- Growth in TK enrollments was initially related to district size, while suburban districts have displayed growth in more recent years. Districts with more differentiated forms of schooling display stronger growth in TK counts. Districts with higher shares of charter schools show greater increases in TK enrollments.
- In the state's one-fourth of districts serving the highest concentrations of poor students, two-thirds offered a full-day TK option (2017-18). Less than one-third of the state's most well-off districts (based on student background) hosted a full-day TK program.

Implementation Challenges

These findings spotlight several challenges facing local school boards and the state Department of Education as they expand access to TK. First, large and medium-sized districts that have led initial expansion of TK appear best positioned to further widen access. Small districts display less interest or capacity to grow their TK options. This may exacerbate disparities in the geographical distribution of TK opportunities. Geography corresponds to poverty levels in California, including the Central Valley and rural expanses of the state.

Second, the evolving composition of TK students signals possible inequities in which families may be served by the planned expansion. TK appears to be attracting large shares of Latino children and families. Yet, declining participation of English learners and relatively lower shares of Black and white children raise a variety of questions. Do Black parents prefer other forms of center-based care, including CSPP or Head Start programs? Are white families buying care in the pre-K market, or can these parents afford to stay at home during their child's preschool years?

CDE currently holds limited ability to track which children are served across differing types of care, including the distribution of racial and ethnic groups among differing pre-K programs. In some cases, publicly supported pre-K operators are not required to report detailed information about the children they serve nor the teachers they employ. Without adequate monitoring capacity, it's unlikely that CDE or any other agency could sufficiently target support on TK programs that hold the potential to equalize access among demographic groups or geographic areas.

Third, differing subsectors seem variably positioned to aid the state's aspirations for expanding TK access. Our findings suggest that many charter schools express enthusiasm to grow TK options – based on the distribution of their enrollment rates. In contrast, basic aid districts exhibit muted interest in boosting TK enrollments, despite serving many children from low-income families.

Implementation in Empirical Darkness

Our initial analysis points to a variety of unanswered questions. We have already emphasized that the state does not presently hold the capacity to trace the flow of young children across differing child-care and pre-K programs. Nor can CDE track the movement of pre-K teachers across programs or into TK positions. We do not know how 4-year-old children *not attending* TK sort into other forms of child care or pre-K.

Work proceeds to remedy this situation. Yet, expansion plans outpace our capacity to understand which children and families are being served, where across California, and against what benchmarks of distributive equity? Without thick data on which children are being served by TK – and in relation to other pre-K providers – the governor and lawmakers will never know whether they are narrowing disparities in children's early learning.

We know little about how families that enroll in TK are combining other forms of care after school. Our analysis highlights the large number of part-day TK programs currently operating – programs that dismiss children early afternoon. State's funding of Expanding Learning Opportunity grants now requires districts to provide longer after-school programs, which may or may not serve TK students.

Until district leaders address this "wrap-around" element, they may not attract working parents to TK. The expansion and vitality of TK will likely depend upon partnerships with nonprofit pre-K's that have long served this age group. But we know little about the extent to which districts will build from cooperative arrangements to ensure full-day care for working parents who prefer this option.

This analysis focuses on the growth and distribution of TK access among the state's diverse school districts. We also have much to learn about the quality of TK classrooms and how quality levels may differ among local communities and types of children.

Appendix

Table 2. Factors Explaining Growth in TK Enrollments among School Districts, 2013-14 to 2019-20

	2013-14 (baseline)	2016-17	2019-20
TK enrollment control, 2013-14	--	2.09***	1.99***
		(0.02)	(0.02)
District characteristics			
K-12 enrollment (size)	22.62***	-23.26***	-17.82***
	(3.94)	(2.54)	(2.57)
CSPP enrollment	6.25***	0.345*	0.124
	(0.13)	(0.15)	(0.15)
Percentage of schools[1], suburban	24.34	38.48***	30.09**
	(16.00)	(9.97)	(9.81)
town	0.482	48.74***	35.02**
	(19.50)	(12.20)	(12.00)
rural	31.73	34.35**	22.00
	(20.62)	(12.96)	(12.74)
Percentage of schools, charter	-28.29	55.01***	54.34***
	(19.13)	(12.13)	(11.95)
Student-teacher ratio	0.003	0.015	0.018
	(0.04)	(0.02)	(0.02)
Percentage of schools, special or alternative	12.26	30.58*	33.59*
	(22.94)	(14.26)	(14.37)
Student / child characteristics			
Percentage of K-12 students, FRPM	-16.23	-23.64	-30.19
	(25.32)	(15.81)	(15.82)
Percentage of K-12 students[2], Black	-45.81	31.87	7.96
	(84.59)	(54.92)	(59.32)
Latino	-0.701	7.48	9.93
	(24.61)	(15.41)	(15.33)
Asian	-107.9*	37.92	-3.33
	(53.26)	(32.98)	(32.45)
two or more	-57.92	-52.30	-17.39
	(90.62)	(56.19)	(58.00)
Summary statistics			
Constant	-128.3***	92.75***	80.33***
	(36.91)	(23.48)	(23.49)
N of school districts	926	914	907
F-value	182.7	2550.1	2383.5
Adjusted R^2	0.759	0.979	0.978

*p<.05, **p<.01, ***p<.001. [1] Compared with urban schools. [2] Compared with white students.
Note: Standard errors reported in parentheses. Tests for a full set of covariates available from the authors.

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