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Facilities Options – How to Advance Early Education?

Gov. Gavin Newsom and legislative leaders have put forward differing options for improving children's access to early education. These proposals shine a bright light on two key elements of necessary *infrastructure*: expanding facilities to serve children unable to enroll in preschool or full-day kindergarten, and building a high quality and sufficiently paid workforce of caregivers and pre-k teachers.



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KEY FINDINGS

- California's capacity to widen family access to pre-k and kindergarten depends on constructing new, or renovating aging, facilities. The governor and legislative leaders propose differing strategies for expanding facilities to serve children 3 to 5-years-old.
- Alternative priorities may be weighed by considering current availability among differing children, pent-up demand among families, and pinpointing which facility priorities are more likely to narrow disparities in children's early learning.
- Nearly three-fourths of the state's elementary schools already offer full-day kindergarten. Schools that offer part-day programs are mostly situated in middle-class or affluent communities.
- One-third of all elementary schools do not offer Transitional Kindergarten (TK), including one-sixth of schools located in the state's poorest communities.
- Many bids to build full-day K facilities, filed in early 2019, come from districts located in middle-class or affluent communities. Most already offer full-day K. The legislature has prioritized facilities dollars for schools serving lower-income families.
- Research findings show that full-day K tends to accelerate the early learning of children raised in lower-income families, while weaker to nil benefits are felt by children from economically better-off families. Quality may enrich sustained effects.
- Extending Expanded Transitional Kindergarten may help achieve the governor's goal, while serving more 4-year-olds in lower-income communities, rather than expanding full-day K.
- Charter schools have expanded full-day kindergarten and TK more rapidly than traditional elementary schools.

The rainbow of policy options that has emerged in Sacramento – starting with facilities – stirs questions related to where, and for which children, new investments can best be focused? This brief offers fresh empirical findings that inform pertinent issues:

- Which school districts still offer part-day K and where are they located? Which children and families would likely benefit from new full-day K – if facilities were expanded for this specific purpose?
- How might the spread of full-day K interact with expansion of Transitional Kindergarten (TK), the latter option serving additional 4-year-old children? How do the likely beneficiaries of full-day K compare with those who lack access to TK?
- What’s the evidence on whether full-day K lifts children’s early learning, and for which participating children?
- Which school districts more readily express demand for state facilities funding in order to expand full-day K or preschool offerings?
- To what extent are charter schools expanding full-day K or programs serving 4-year-old children?

This brief also suggests criteria for how policy makers might weigh alternative proposals for expanding facilities (1) attending to differing rates of access among preschool and kindergarten-age children, (2) which youngsters are most likely to benefit from full-day K [whether age 4 or 5 at entry], and (3) the state’s historical focus on narrowing disparities in early learning.

We highlight necessary research that would inform the state Department of Education’s preschool development plan and the Administration’s anticipated “blueprint” for expanding and improving the early education sector. State policy makers often elect to expand one element of early care and education, ignoring how it impacts other subsectors. Expanding full-day K, for instance, might occur for 5-year-old children, while 4-year-old enrollments in TK or pre-k remain comparatively low.

Our analysis speaks to where, and for which children, might the state focus facilities investments. Options range from extending full-day kindergarten in communities that lack this option, to focusing public dollars on lifting preschool-age children, 3 and 4-years-old, largely within center-based programs. We examine options in between as well. This brief does not address facilities needs for infant and toddler care, or parental vouchers for care within licensed homes.

1. AVAILABILITY OF FULL-DAY KINDERGARTEN

Gov. Newsom proposes wider availability of full-day kindergarten to serve additional 5-year-old children. This particular option surfaces against the backdrop of rising state investment in preschool – offered by a mix of schools and community organizations serving 3 and 4-year-olds – along with steady growth of Transitional Kindergarten, serving 4-year-olds who turn 5 between early September and late March..

The governor also intends to backstop parents raising children, 0-2 years of age, by lengthening the weeks of paid family leave after a newborn arrives, along with

LEGISLATIVE OPTIONS - HOW AND WHERE TO GROW EARLY EDUCATION FACILITIES?

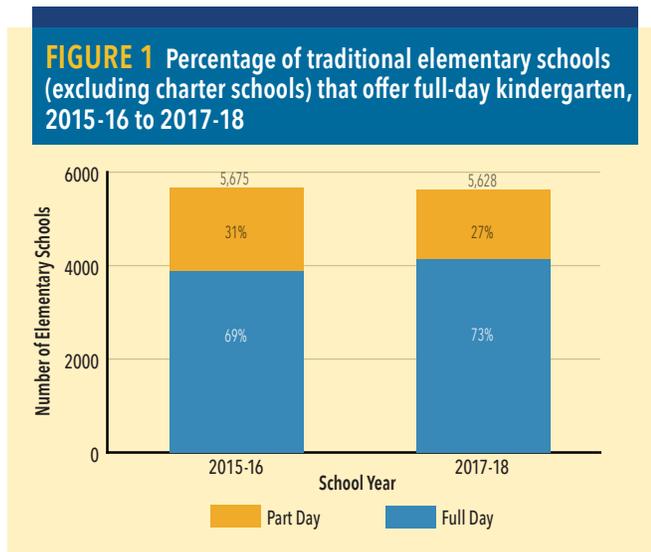
Several options – aiming to widen children’s access to quality early education – are being weighed by Gov. Newsom and legislative leaders. Expanding availability requires new or renovated facilities, whether housed in schools, community organizations, or licensed child-care homes

- The governor has proposed \$750 million, a one-time facilities investment, to expand full-day K state-wide. This could include facilities for TK classrooms serving 4 year-olds. Another \$245 million is proposed for preschool facilities in community-based centers and licensed homes.
- Legislator Kevin Mullin is carrying a bill (AB 452) to provide facilities grants to expand services for infants and toddlers. The legislation would return the education department’s revolving loan fund to local grants that support child-care facilities in community-based programs as well.
- Kevin McCarty, member of the state Assembly, is proposing a half-billion-dollar revenue bond to expand child-care facilities serving 3 and 4-year-old children, a measure that would appear on the statewide ballot in 2020 if approved by the legislature (AB 124).
- Senator Susan Rubio aims to extend support to additional 4-year-olds served through the Expanded TK funding stream, which holds implications for kindergarten facilities (SB 443).
- Senators Portantino and Roth propose that Expanded TK serve 4-year-old children with special needs, if they turn 5 after December 2nd but before the school year ends (SB 217).
- Stakeholders are discussing a broader school construction bond, possibly including support for pre-k or kindergarten facilities, similar to prior earmarks for charter schools and career-technical education.

expanded pediatric screening of babies and toddlers to spot health issues or developmental delays.

Serving more children across these age ranges will require new or renovated facilities, whether situated in schools or community-based organizations (CBOs). The governor’s initial proposal includes \$750 million for school districts to expand full-day K and \$245 million in facilities support for CBOs and family child-care homes.¹

Elementary schools – both traditional campuses and charter schools – already make full-day K widely available to California families. Nearly three-quarters (73%) of all traditional schools (excluding charters) offered full-day kindergarten in the 2017-18 school year, as shown in Figure 1. This share climbed by four percentage points over the past three years, according to data compiled by the state Department of Education.²



Our findings, centering on full-day offerings among *schools*, match the Legislative Analyst’s recent study, focused on variation among *districts*. They found that 71% percent of the state’s school districts ran only full-day K in 2017-18; just 19 percent ran only part-day programs, and 10% ran a mix of full and part-day K. Districts served about 370,000 kindergartners in full-day programs, and 160,000 in part-day offerings.³

Full-Day Kindergarten – Progressively Distributed

Full-day kindergarten is not equally available among California’s diverse communities: elementary schools in poorer communities are *more likely* to operate full-day programs than schools located in economically better-off neighborhoods.

We first ranked the state’s 5,600-plus traditional elementary schools based on their share of enrolled children eligible for free or reduced-price meals (FRPM), averaged over 2015-16 to 2017-18. We then split schools into four groups (quartiles) with roughly equal counts of schools. The most advantaged group (quartile 1) includes elementary schools that, on average, enroll 19% FRPM children, compared with quartile 4 schools, where 92% are FRPM eligible. (Less than 2% of all elementary schools report offering no kindergarten program.)

We see in Figure 2 that 82% of schools in the poorest quartile operated full-day kindergartens in 2017-18, compared with 63% in the most advantaged quartile. The share of schools in better-off communities offering full-day K continues to grow, rising seven percentage points in the last three years. We review below earlier research that helps to explain this counter-intuitive finding, why full-day K has historically spread more thickly in lower-income communities and school districts

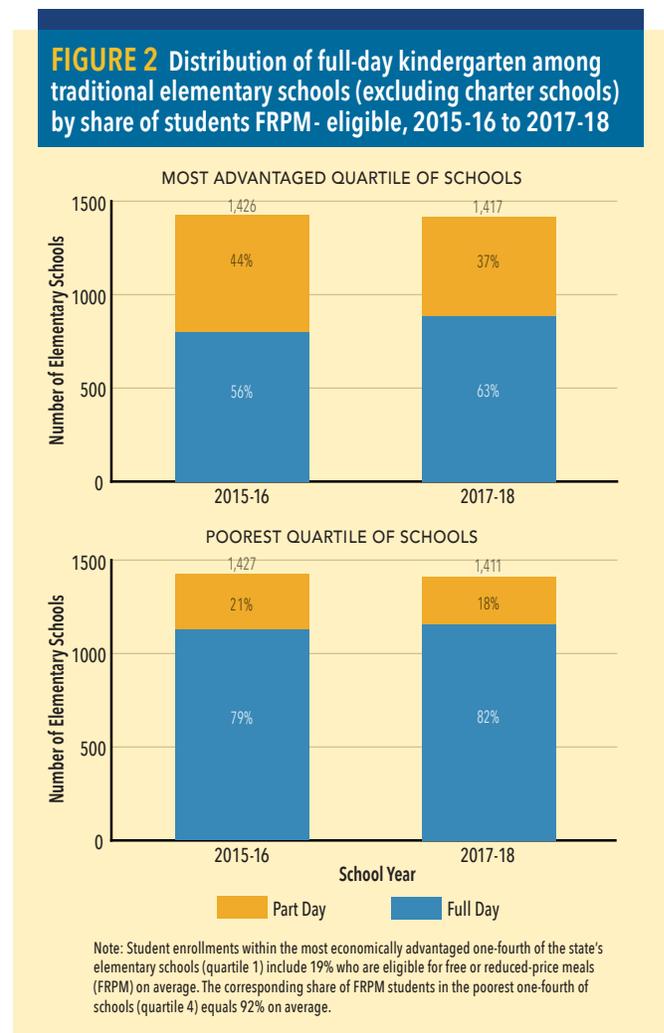
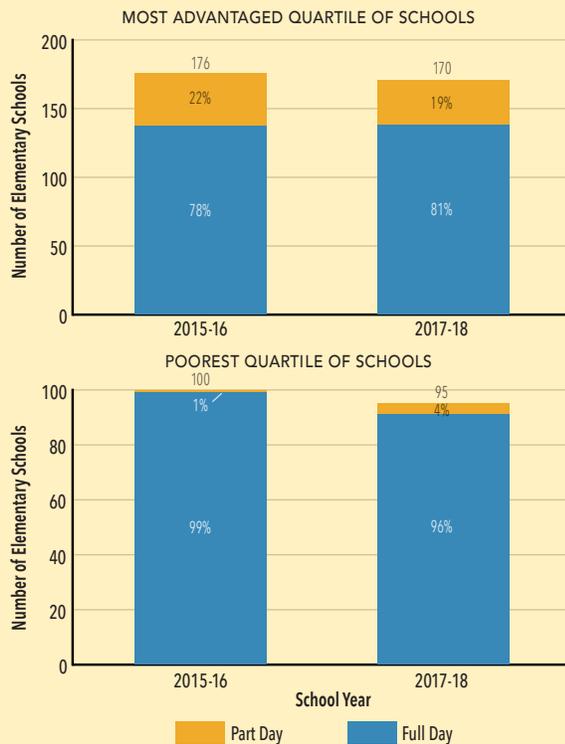


FIGURE 3 Distribution of full-day kindergarten offered among charter elementary schools by share of students FRPM-eligible, 2015-16 to 2017-18



Note: Student enrollments within the most economically advantaged one-fourth of the state's elementary schools (quartile 1) include 19% who are eligible for free or reduced-price meals (FRPM) on average. The corresponding share of FRPM students in the poorest one-fourth of schools (quartile 4) equals 92% on average.

Charter Schools Expand Rapidly

Charter schools display even greater interest in providing full-day K, observed across the state's colorful spectrum of local communities (Figure 3). Some 96% of all charter elementary schools in the poorest communities reporting complete data (quartile 4) offered full-day kindergarten in 2017-18. This share reaches 81% for charters serving the one-fourth most economically secure communities.

These numbers do not necessarily capture local variation in pent-up demand for full-day K among parents. That is, a school may operate one or two full-day K classrooms, yet remain unable to accommodate all families who seek this option. Additional research might gauge whether parents in poor or well-off communities seek easier access to full-day kindergarten, or whether they prefer part-day offerings.

Equally important, we do not know whether pent-up demand for full-day K varies by the social-class status of

communities. The fact that schools in better-off communities are less likely to offer full-day K may indicate softer demand, since these communities could allocate Local Control Funding or tax themselves to support this option. One parent may be better able, and prefer, to stay at home with their young child in better-off communities, an unaffordable luxury in working-class neighborhoods.

Still, it's a topic that deserves careful research, one that highlights the scarcity of data on pent-up demand for pre-k or full-day K options. The state would be ill-advised to build facilities in communities where parental demand remains soft. Nor would it be optimal to expand subsectors in advantaged communities, where state investment may be less likely to elevate children's early learning, an empirical question to which we return below.

Geographic Variability – District Priorities Matter

Placing elementary schools on maps, we can better visualize how a community's wealth is inversely related to the availability of full-day K. Let's first look at southern California – capturing Ventura and Los Angeles counties, south to Orange County – as displayed in Figure 4.

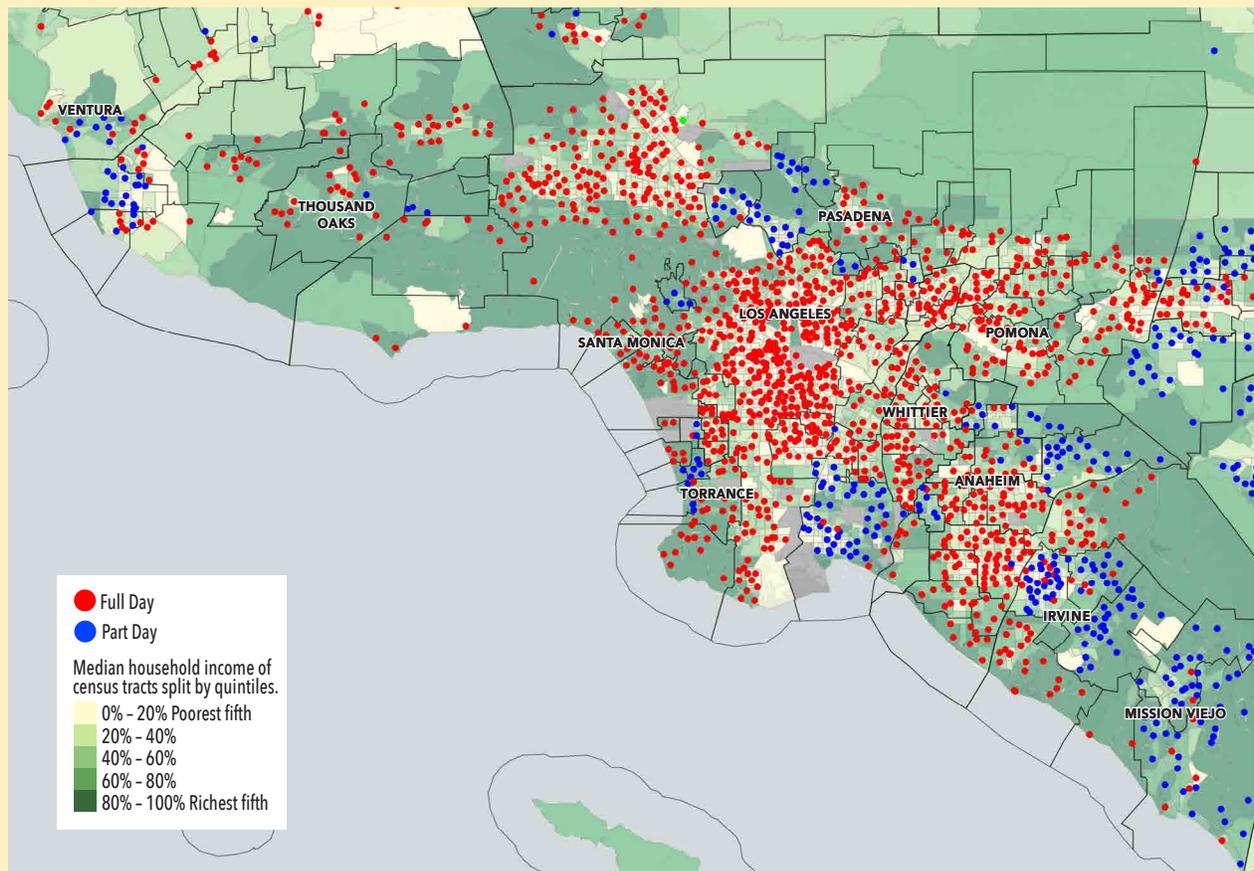
Each red dot signifies a traditional elementary school (excluding charters) that offered full-day K in 2017-18. Blue dots correspond to schools providing a part-day program, according to Department of Education data. We set the dots against varying shades of economic well-being for each school's census tract, gauged by the median household income of each tract. These geographic units are split into five quintiles, from the most affluent to the poorest fifth.

First, we see higher concentrations of full-day K programs mostly situated in tracts with lower household income, the lighter shaded areas. Part-day programs tend to be located in economically better-off communities (darker shaded). This pattern matches the distributional picture described in the earlier bar-charts.

Second, decisions made by district leaders matter. That is, dots signifying full-day K do appear in several middle-class and higher-income communities, where districts have apparently prioritized this option. Still, it's districts in lower-income communities that have generally opted to build-out their full-day K offerings.

Two additional maps – for the Bay Area and Fresno regions – appear below. These displays reveal the same pattern: full-day K is commonly available in lower-income communities,

FIGURE 4 Geographic location of regular elementary schools offering full or part-day kindergarten in southern California, 2017-18



relative to lesser incidence in better-off areas. You can examine these patterns for other regions by clicking: <https://joonho.shinyapps.io/Kindergartens-in-California/>.

Early Spread of Full-Day Kindergarten

Prior research details the earlier rise of full-day K in urban areas and southern states, compared with limited availability in suburban schools. Nearly three-fifths of all 5-year-olds attended full-day K nationwide by the year 2000. Full-day programs may have spread more widely across cities due to higher maternal employment rates (and thus demand for full-day), along with anti-poverty initiatives from the 1960s forward, including Head Start and Title I funding for urban schools.

In California, accelerating growth of full-day K occurred about a generation ago. The percentage of kindergartners enrolled in full-day programs (in public schools) climbed from 11% in 2000-01 to 43% less than a decade later, reported by the Public Policy Institute of California.⁴

The rise of Local Control Funding since 2013, along with state financing of Transitional Kindergarten, have spurred urban and some suburban districts to extend early education options to additional children. District leaders in Long Beach and Los Angeles, for instance, have utilized greater budget discretion to invest in full-day pre-k and TK.

2. SPREAD OF TRANSITIONAL KINDERGARTEN

The California legislature decided in 2010 that young children turning 5-years-of-age between September 1st and December 1st should no longer enter regular kindergarten, but instead move into Transitional Kindergarten classrooms. In 2015, an *Expanded TK* option was financed by the legislature, allowing districts to collect limited state revenue for 4-year-olds who turn 5 between December 2nd and late March of each year.

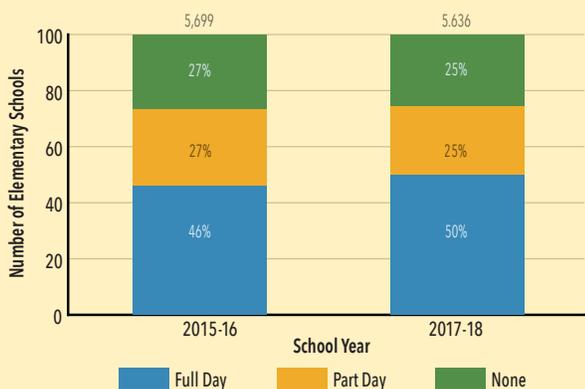
State dollars flow to districts only after a child turns 5, so other funding is required upfront. Still, nearly 100,000

children – 4 years old at entry to TK or ETK classrooms – were enrolled by 2018-19, supported by almost \$1 billion in annual state funding.

Distribution of Transitional Kindergarten

Data reported by districts to the Department of Education allow tracking of growth in TK offerings over the past three years, as displayed in Figure 5. Half the state’s elementary schools provided TK full day in 2017-18; another one-fourth offering a half-day TK program. The remaining one-fourth did not operate any TK classrooms. Availability of full-day TK has crept upward since 2015-16.

FIGURE 5 Percentage of traditional elementary schools (excluding charter schools) that offer full or part-day Transitional Kindergarten, 2015-16 to 2017-18

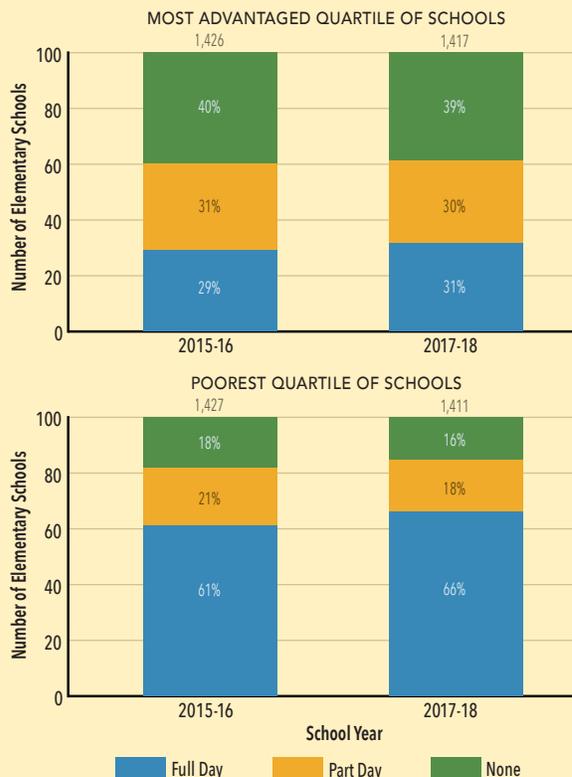


TK appears to be progressively distributed among schools, more readily available in the quartile of schools with the highest share of FRPM-eligible children, compared with schools in economically better-off communities (Figure 6). Nearly two-thirds of elementary schools in the poorest quartile provided full-day TK in 2017-2018; another 18% offered part-day TK. The remaining 16% did not provide TK.

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 provides full-day TK, another 30% provide part-day TK, and two-fifths have yet to open TK classrooms. We do not know how these patterns may differ if data were available on enrollment rates and the daily attendance of children.

This progressive distribution of TK may help narrow disparities in early learning – if we assume that exposure to Transitional Kindergarten by disadvantaged children yields discernible benefits. The initial evaluation of TK’s

FIGURE 6 Distribution of Transitional Kindergarten among traditional elementary schools by share of students FRPM-eligible, 2015-16 to 2017-18



Note: Student enrollments within the most economically advantaged one-fourth of the state’s elementary schools (quartile 1) include 19% who are eligible for free or reduced-price meals (FRPM) on average. The corresponding share of FRPM students in the poorest one-fourth of schools (quartile 4) equals 92% on average.

short-term effects on participating children, conducted by the American Institutes of Research in San Mateo, offers empirical support for this assumption.⁵

3. GAUGING DEMAND FOR FULL-DAY KINDERGARTEN

Gov. Newsom has proposed \$750 million in one-time funding to further expand full-day K, beginning in 2019-20. This would, if approved by the legislature, augment an initial allocation of \$100 million in facilities dollars, dedicated to full-day K (approved for the 2018-19 fiscal year).

Legislative leaders may weigh this priority against facilities needs in the pre-k sector, given interest in expanding access for 3 and 4-year-olds. The governor also includes \$245 million in one-time funding for pre-k facilities, along with expansion of licensed child-care homes, which might help ease the state’s shortage of infant and toddler care.

Little is known about the overall level of pent-up demand for full-day K, or variation in family preferences among California's diverse neighborhoods. We earlier mentioned how lower supply of full-day K in better-off areas may reflect softer demand, relative to lower-income areas where parents can ill-afford to stay home with a young child, forgoing jobs and wages.

Another (inexact) barometer of pent-up demand for full-day K stems from asking, Which school districts are bidding for newly available facilities dollars? The Office of Public School Construction (OPSC) received initial bids from a variety of districts for state matching dollars, provided by the \$100 million approved earlier. A total of 73 districts seek funding for 279 school-level projects – either new construction or renovation – to provide full-day K.

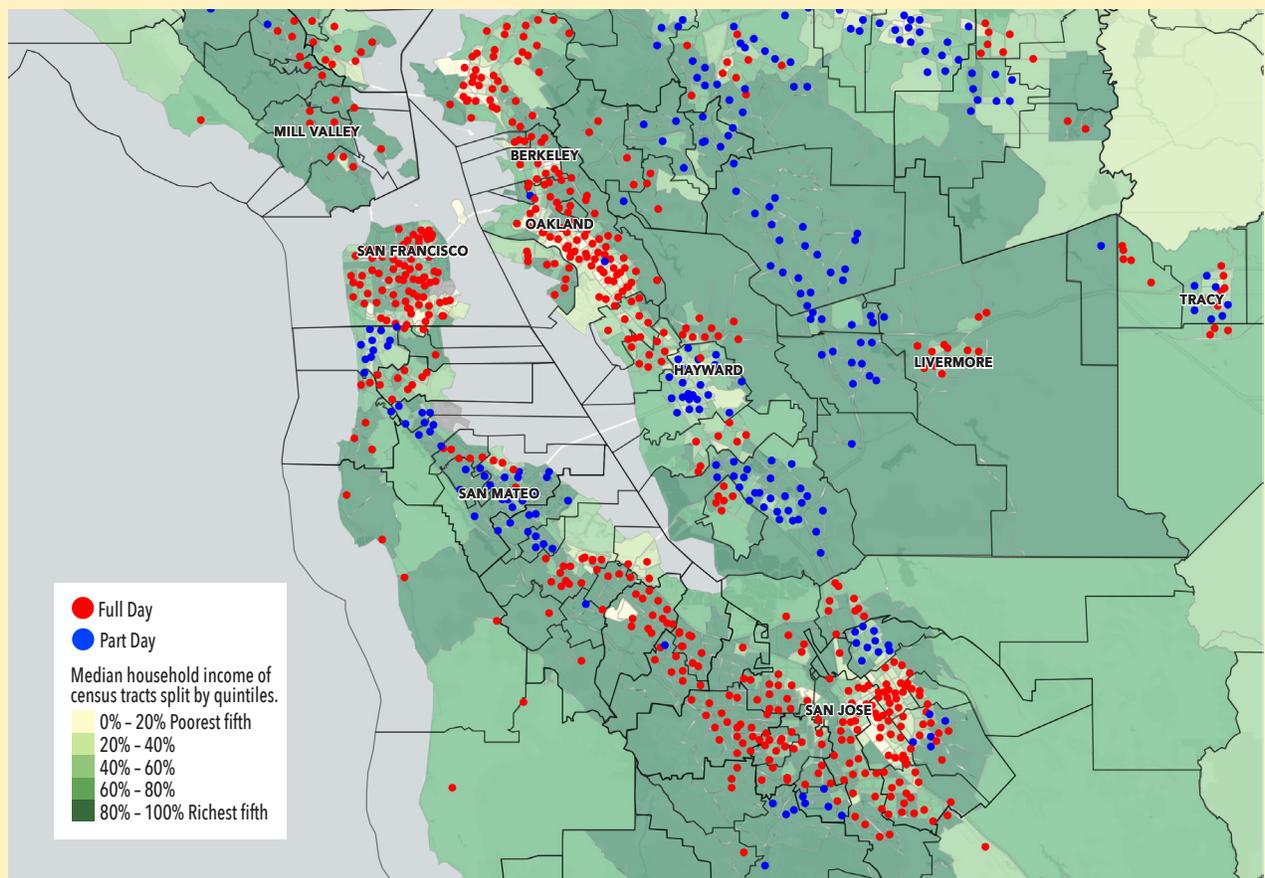
The state matches local funding for new construction (50% share) or renovation (60% share). Districts that claim financial hardship can ask for a larger state match, depending on the

district's current bonding authority and cash reserves. Enabling legislation for the \$100 million in full-day K facilities incents participation by districts with economic hardship or schools serving high shares of FRPM-eligible students⁶

Our analysis of OPSC data shows that financial hardship is claimed by districts for 53 of the 279 school projects that would provide full-day K. Overall, enrollments include at least three-fifths FRPM students within 70% of the proposed school projects (182).

The Legislative Analyst reports that three-fourths of the districts applying for facilities dollars already provide full-day K. Districts with aging facilities may require support to renovate and modernize classrooms that serve 4 or 5-year-olds enrolled in kindergarten or TK. Still, it's not clear how funding districts that already offer full-day K would advance the policy goals of widening access or narrowing disparities in children's early learning.

FIGURE A Geographic location of regular elementary schools offering full or part-day kindergarten in the San Francisco Bay Area, 2017-18



4. WEIGHING POLICY OPTIONS FOR EARLY EDUCATION FACILITIES

Gauging unserved family demand for full-day K offers one criterion for weighing this policy option against other proposals. We have seen how large shares of elementary schools already offer full-day K, especially in low-income communities – the very same areas that often host scarce availability of quality pre-k programs. We know that less than half the state’s 3 and 4-year-olds gain access to any preschool organization, based on Berkeley’s earlier analysis with the American Institutes of Research.⁷

Does Full-Day Kindergarten Make a Difference?

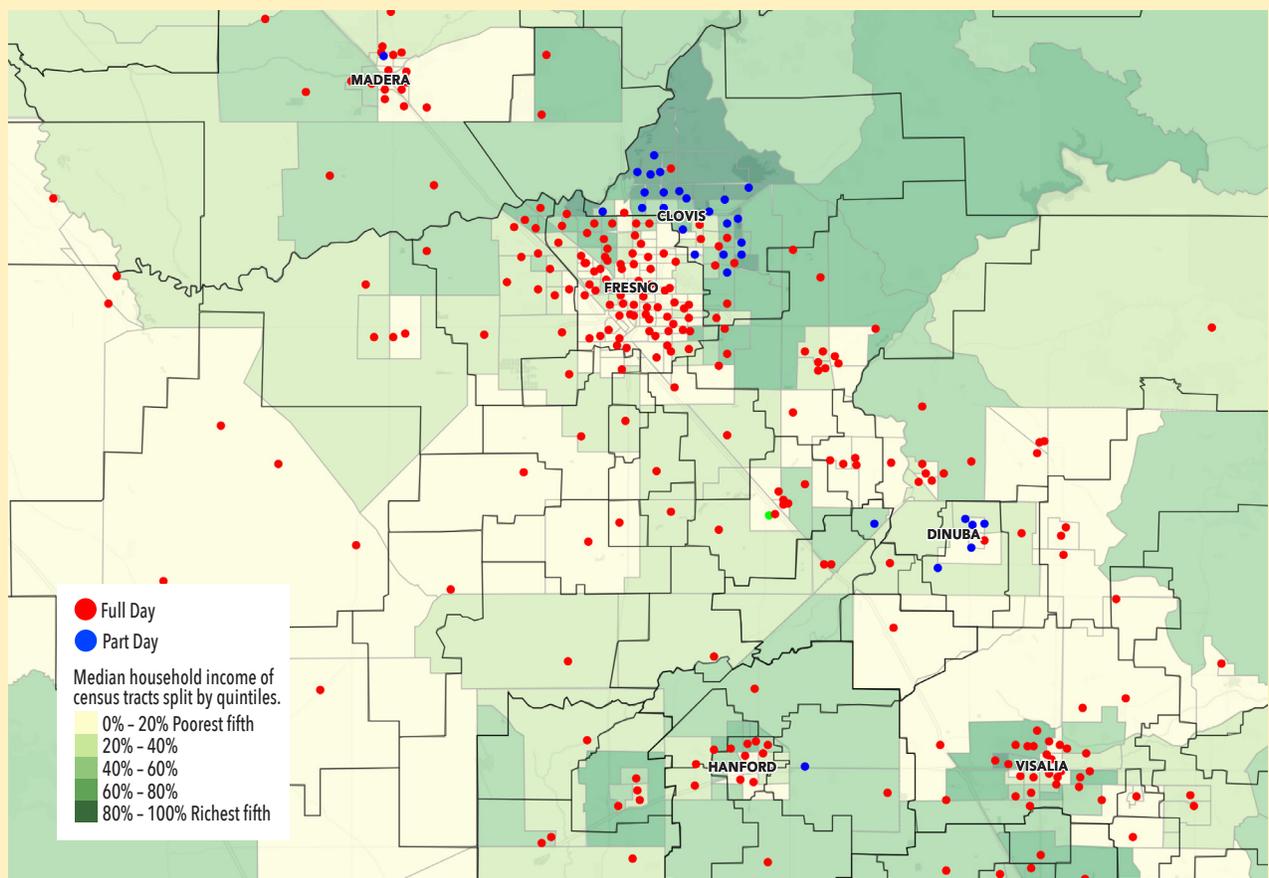
Another criterion for weighing alternative strategies is to ask, does full-day K discernibly raise children’s early learning, compared with intervening earlier through infant-toddler or pre-k efforts? The field may shy away from pitting these priorities against one another. If affordable and high-quality

programs can be pieced together at each age, we may observe cumulative benefits for children before they enter first grade.⁸ On the other hand, within fixed state resources, the governor and legislative leaders must set priorities among differing budget proposals.

Empirical findings are accumulating nationwide on the comparative effects of full-day K, relative to children attending half-day programs. In short, full-day K shows modest advantages, boosting children’s cognitive, preliteracy, and math outcomes, relative to half-day programs. Children attending full-day K achieve about one-fifth to one-third of a standard deviation higher, on average, compared with part-day attendees, at the end of the kindergarten year.

This magnitude of effects resembles the benefits accruing to children who attend quality preschool. Earlier research also reveals that children attending full-day K classrooms spend about 30% more time on preliteracy activities and 46% more time on math concepts, relative to peers in

FIGURE B Geographic location of regular elementary schools offering full or part-day kindergarten in the Fresno region, 2017-18



half-day programs.⁹ A portion of similar studies also shows that gains persist into elementary school for some children, while longer-term effects are difficult to discern.

Larger gains in cognitive and early-literacy domains are typically found for children from disadvantaged families after attending full-day K, compared with weaker effects for middle-class or affluent youngsters (consistent with the pre-k literature). Full-day K also appears to buoy young children with disabilities, especially when skilled aides are present in the classroom with the lead teacher.¹⁰ Scholars have yet to establish whether benefits observed from full-day K (or TK) are conditioned by disadvantaged children's prior exposure to pre-k.

Effects of full-day K on children's social skills are small to nil, as found in carefully designed studies.¹¹ When the Los Angeles Unified School District began to move toward full-day K, the Public Policy Institute of California estimated modest effects, even for disadvantaged children (although district efforts to improve quality soon followed).¹²

Whether full-day K lifts children raised in poor communities may depend on such gains in quality and staffing levels. One concern with TK is that 24 children – many 4 years-of-age – are served by a single teacher, compared with the State Preschool Program, which maintains a staffing ratio of eight children per adult.

Spread Expanded TK to Lift Children?

The odds that full-day K will narrow disparities in children's early learning – gaps that remain unusually wide in California by 5 years-of-age relative to other states – depend on whether the state focuses new facilities dollars on disadvantaged families.¹³ The first-round bids for facilities dollars reveal the eagerness of some districts in better-off communities to expand full-day options.

Extending Transitional Kindergarten or Expanded TK – serving additional 4-year-olds in lower-income communities – offers another policy option. Recall that one-third of elementary schools in the poorest one-fourth of schools has yet to provide full-day TK. Expanded TK has taken hold in many school districts that serve low-income families.

Additional funding for 4-year-olds through TK or Expanded TK could accomplish multiple policy priorities, expressed by the legislature and governor: widening access to pre-k for 4-year-olds from disadvantaged families, expanding kindergarten, and improving pre-k quality. The magnitude of TK's benefits for children could rise by adding a classroom

aide to assist lead teachers (as proposed by Assembly-member McCarty).

Four-year-olds enrolled in Expanded TK currently draw only partial state funding, after they turn 5 prior to late March. Districts growing-out Expanded TK must currently find Head Start or State Preschool Program dollars to co-finance these TK children, prior to their turning 5.

Focusing expansion of TK and Expanded TK on schools that serve disadvantaged children would move the state closer to universal pre-k and offer a reasonable bet that disparities in early learning would be narrowed. This option may also forestall the state's overall decline in K-12 enrollment, which will otherwise undercut the Proposition 98 budget guarantee for public school spending, as detailed in a prior Berkeley brief.¹⁴

Key Decision Points

Overall, the legislature and governor must decide on which children and communities should receive priority for new facilities dollars. Policy leaders aim to narrow wide disparities in children's early health and learning. But proposals vary in their likelihood of achieving this goal.

DECISION POINTS FOR POLICY MAKERS

- How to balance facilities expansion between full-day K and preschool programs, taking into account differences in present availability and pent-up demand among families.
- How to grant school districts flexibility in using new funding, for example, to renovate or modernize kindergarten classrooms, rather than building new facilities.
- Considering how facilities for Transitional Kindergarten, including Early TK, might serve additional 4-year-olds within the Prop 98 funding guarantee.
- Moving facilities funding to local agencies – shaping how many additional children and families can be served – while crafting long-term funding, perhaps within a Pre-K to 12 school facilities bond.
- Learn from which districts express demand for full-day K facilities dollars, and consider the organizing capacity of districts and CBOs that serve disadvantaged children and families.

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Settling on the optimal balance between growing pre-k and full-day K–splitting funding among school districts and community-based programs – remains another key decision for policy makers.

Finally, there's the question of how much flexibility to grant school districts as new facility dollars become available. Still-growing school districts – many in the Central Valley and outlying commuter towns – may prefer to expand part-day K or TK. Meanwhile, districts in the state's metropolitan areas along the coast face declining enrollments, along with steadily falling fertility rates. These districts, faced with aging facilities, may prefer renovation dollars in order to expand Transitional Kindergarten or pre-k classrooms for disadvantaged children.

So, the governor and legislature must decide how to best target facilities funding – honest to their priority placed on reducing inequities – while being responsive to the vastly differing conditions that face the state's diverse families.

THE BERKELEY THINK TANK ON EARLY CHILDHOOD POLICY

Policy thinkers and seasoned practitioners have come together to delineate feasible policy options for equalizing access to quality child care and pre-k providers. Scholars at Berkeley's Institute of Human Development facilitate deliberations of the 17-member Think Tank Panel.

The panel aims to synthesize key pieces of evidence regarding demographic trends, enrollment in extant programs, and dimensions of quality that elevate children's early growth and learning. Then, we put forward realistic policy options, estimate costs, and focus on trade-offs – based on core principles and always thinking long term. Broad consensus among stakeholders is required to boldly move forward. Our North Star shines bright: seeking to build an easily accessed set of quality early-childhood options for California's families.

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ENDNOTES

1 See "trailer bill" control language put forward by the Administration for the FY20 budget: http://www.dof.ca.gov/Budget/Trailer_Bill_Language/documents/ChildCareandEarlyLearning.pdf. Details on proposed allocation of the \$750 million for full-day kindergarten appears: http://www.dof.ca.gov/Budget/Trailer_Bill_Language/documents/2019-20EducationOmnibusTrailerBill.pdf.

2 California Basic Educational Data System (CBEDS). Special thanks for Jonathan Isler and his office for answering endless technical questions. <https://www.cde.ca.gov/ds/dc/cb/>.

3 Cortez, S., & Li, A. (2019). Early education analysis, 2019-20 budget. Sacramento: Office of the Legislative Analyst. Online: https://lao.ca.gov/Publications/Report/3956#Full.2011Day_Kindergarten_Expansion_1.

4 Cannon, J., Jacknowitz, A., Painter, G., & McConville, S. (2009). Full-day kindergarten in California: Lessons from Los Angeles. San Francisco: Public Policy Institute of California.

5 Manship, K. et al. (2017). The impact of transitional kindergarten on California students. San Mateo, CA: American Institutes of Research. Online: <https://www.air.org/system/files/downloads/report/Transitional-Kindergarten-Final-Report-June-2017.pdf>.

6 Office of Public School Construction (2018). Access to full-day kindergarten facilities grant program funding. Sacramento. Online: <https://www.dgs.ca.gov/OPSC/Services/Page-Content/Office-of-Public-School-Construction-Services-List-Folder/Access-Full-Day-Kindergarten-Facilities-Grant-Program-Funding>.

7 Manship, K., Jacobson, L., & Fuller, B. (2018). Achieving fair access to early education: Fewer children, regional gaps across California. Berkeley: Early Childhood Think Tank.

8 The research community is beginning to gauge whether the quality of program exposure for toddlers, for instance, conditions the long-term effects of pre-k. For review of this accumulation-of-benefits argument see: Jenkin, J. et al. (2018). Do high-quality kindergarten and first-grade classrooms mitigate preschool fadeout? *Journal of Educational Effectiveness*, 11, 339-374.

9 Denton, K., West, J., & Walston, J. (2003). Reading – Young children's achievement and classroom experiences: Findings from the Condition of Education, 2003. Washington, DC: National Center for Educational Statistics.

10 Gottfried, M., & Le, V. (2016). Full versus part-day kindergarten for

children with disabilities: Effects on academic and socio-emotional outcomes. *American Educational Research Journal*, 53, 708-744. Gottfried, M. (2018). Teacher's aides in kindergarten: Effects on achievement for students with disabilities. *Journal of Educational Research*, 111, 620-630.

11 The most recent meta-analysis of sound empirical studies that take into account parents' prior selection into full-day kindergarten: Cooper, H. et al. (2010). Effects of full-day kindergarten on academic achievement and social development. *Review of Educational Research*, 80, 34-70.

12 Cannon, Jacknowitz, Painter & McConville, S. (2009).

13 Research by Sean Reardon and colleagues details how children's early cognitive and preliteracy skills in California lag behind other states, before they enter kindergarten. Reardon, S., Doss, C., Gagné, J., Gleit, R., Johnson, A., & Sosina, V. (2018). A portrait of educational outcomes in California. Stanford, CA: School of Education.

14 Shelton, G., Hajela, A., & Fuller, B. (2019). Financing early care and education in California: Revenue options. Berkeley: University of California Early Childhood Think Tank.