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LEGISLATIVE
FINANCE
COMMITTEE

Program
Evaluation
Unit

Program Evaluation: Prekindergarten Quality
and Educational Outcomes

June 10, 2020

Report #20-02

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State of New Mexico
**LEGISLATIVE FINANCE
COMMITTEE**

325 Don Gaspar, Suite 101 • Santa Fe, NM 87501
Phone: (505) 986-4550 • Fax (505) 986-4545

David Abbey
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June 10, 2020

Ms. Elizabeth Groginsky, Secretary
Early Childhood Education and Care Department
1120 Paseo De Peralta
Santa Fe, NM 87501

Dear Ms. Groginsky:

The Legislative Finance Committee (Committee) is pleased to transmit the evaluation, *Prekindergarten Quality and Educational Outcomes*. The evaluation examined prekindergarten program effectiveness, quality controls, and opportunities for program quality improvement. An exit conference was conducted with the Early Childhood Education and Care Department (ECECD), Children, Youth and Families Department, and Public Education Department to review the contents of the report.

The report will be presented as an informational item to the Committee on June 10, 2020. The Committee would like plans to address the recommendations within this report from ECECD within 30 days from the date of the hearing.

I believe this report addresses issues the Committee asked us to review and hope your department will benefit from our efforts. We very much appreciate the cooperation and assistance we received from your staff.

Sincerely,

A handwritten signature in cursive script that reads "David Abbey".

David Abbey, Director

Cc: Senator John Arthur Smith, Chair, Legislative Finance Committee
Representative Patricia A. Lundstrom, Vice-Chair, Legislative Finance Committee
Representative Christine Trujillo, Chair, Legislative Education Study Committee
Senator Mimi Stewart, Vice-Chair, Legislative Education Study Committee
Ms. Rachel Gudgel, Director, Legislative Education Study Committee
Ms. Debbie Romero, Acting Secretary, Department of Finance and Administration
Mr. John Bingaman, Chief of Staff, Office of the Governor
Dr. Ryan Stewart, Secretary, Public Education Department
Mr. Brian Blalock, Secretary, Children, Youth and Families Department

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Prekindergarten Improves Student Outcomes, but Quality Measurements Vary

With the graduation of the inaugural cohort of prekindergarten students tracked by LFC staff through high school graduation, New Mexico now has evidence prekindergarten programs improve student performance throughout the student’s public school tenure. Recent findings suggest that the 2006 inaugural New Mexico prekindergarten cohort had a four-year high school graduation rate of 80.2 percent, 6.5 percentage points higher than students who did not attend prekindergarten. Gains in graduation rates are even higher – 11 percentage points – for English learners and lower-income children, who attended prekindergarten. Additionally, prekindergarten reduces chronic absenteeism and the chance a child will be held back a grade, and improves the odds a child will exit special education services. Prekindergarten also provides a positive return on investment for New Mexico taxpayers, with the state earning \$6 for every dollar spent through tax revenue on the higher earnings of participants and reduced social costs. When combined with the K-5 Plus extended school year program, outcomes are even better for prekindergarten participants, although those programs are being canceled for 2020 because of coronavirus pandemic concern.

Prekindergarten programs must remain of high quality and use resources efficiently to preserve the positive impact they have on student performance, but measuring program quality is complicated. A primary determinant of prekindergarten quality is whether the children emerge ready for kindergarten or other school, yet New Mexico lacks a definition of school or kindergarten readiness. In addition, while prekindergarten funding of the programs – split between two agencies until July 1, 2020 – is being consolidated under the new Early Childhood Education and Care Department, administration and assessment will remain divided between the early childhood specialists transferred to ECECD from the Children, Youth and Families Department and the Public Education Department. Furthermore, the two agencies use different criteria for assessing programs, with the model used for contracted prekindergarten providers missing key elements. Finally, improving the workforce is key to improving quality; students taught by teachers with bachelor's degrees tend to fare better than those taught by teachers with lower credentials. However, only the Public Education Department requires teachers to have a bachelor’s degree.

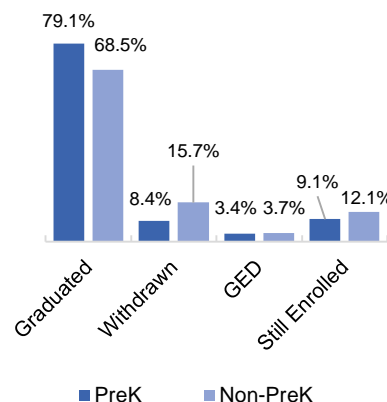
Similarly, dollars diverted from classrooms can impact the effectiveness of prekindergarten programs, and absent regulatory, statutory, or standardized administrative controls, a growing proportion of funding goes to administration.

Nevertheless, with the gains clearly demonstrated, the state is likely to benefit from expansion of both full-day and early prekindergarten for younger children and from improvements to both the assessment and funding of the programs.

Evaluation Objectives:

- Reassess the outcomes of New Mexico prekindergarten programs to determine effectiveness.
- Assess current quality controls.
- Assess opportunities to improve program quality.

Chart 1. Low-Income Student High School Graduation



Source: PED and LFC Files

Key Findings

Prekindergarten participation demonstrates improved social and academic outcomes, ultimately culminating in higher high school graduation rates; this impact is more pronounced among low-income and English learner students.

Full-day prekindergarten students of the 2018 school-year cohort outperformed half-day prekindergarten participants at a statistically significant level on beginning-of-year kindergarten assessments.

New Mexico prekindergarten shows a sizeable impact on students, with special needs students exiting services at higher rates, reduced grade retention, and improved attendance.

New Mexico prekindergarten has a benefit-to-cost-ratio of \$5.82 due to the increased tax revenue generated via the higher earnings of a high school graduate.

The Public Education Department (PED) and the early learning program moving to ECECD from the Children, Youth and Families Department (CYFD) have two different systems to measure and monitor prekindergarten program quality, and PED sets higher standards.

Key Recommendations

The Early Childhood Education and Care Department should

- Continue to improve the quality and quantity of data on prekindergarten programs, which will allow for more targeted analyses identifying successful prekindergarten classroom characteristics;
- Strategically expand full-day prekindergarten while coordinating with other early childhood programs, including Head Start to ensure the state is maximizing resources;
- Seek to strategically expand early prekindergarten (3-year-olds) while coordinating with other early childhood programs, including Head Start, to ensure the state is maximizing resources;
- Standardize quality rating systems among all prekindergarten programs to include the required use of a tool to assess teacher-child interaction;
- Ensure that prekindergarten assessment data from contracted providers eventually migrates to the public school before students enter kindergarten;
- Report aggregated prekindergarten observational tool assessment data annually to identify areas in need of high-quality prekindergarten programs throughout the state, as well as prekindergarten programs in need of additional professional development and technical assistance.

The Public Education Department should

- Reinstate and expand high-fidelity K-5 Plus programming as soon as possible.



Prekindergarten Participation Improves Test Scores and Graduation Rates

Positive experiences provide young children with a strong foundation for future learning, health, and behavior. High-quality prekindergarten enhances school readiness by supporting substantial early learning gains, and has impacts lasting far into later years of school and life.

New Mexico's state-funded prekindergarten program began in 2005, and the authorizing legislation noted “special needs are present among the state's population of 4-year-old children and those needs warrant the provision of pre-kindergarten programs; participation in quality pre-kindergarten has a positive effect on children's intellectual, emotional, social and physical development; and pre-kindergarten will advance governmental interests and childhood development and readiness” (Section 32A-23-2 NMSA 1978). At the time, the Legislature tasked the Public Education Department (PED) and the Children, Youth and Families Department (CYFD) to cooperatively develop prekindergarten as a voluntary program to address the total developmental needs of preschool children, including their physical, cognitive, social and emotional, health, nutritional, safety, and multicultural needs (Section 32A-23-4 NMSA 1978).

Since 2005, LFC evaluators have consistently found prekindergarten programs improve math and reading proficiencies for students in later years, lower special education and retention rates, and lessen the negative effects of mobility, or a student changing schools. However, rapidly expanding prekindergarten programs and changing standards and administration might hamper quality over time. This evaluation, therefore, is a review of outcomes and quality measures of the prekindergarten program.

Enrollment, Financing, and Program Administration

Prekindergarten is currently administered jointly by PED and CYFD but will be consolidated under the newly created Early Childhood Education and Care Department (ECECD) beginning July 1, 2020. Although many administrative functions will be consolidated into the new department, some administrative functions will remain at PED. Prekindergarten is available to families for half-day or extended-day services to 3- and 4-year-olds. In FY20, nearly 12.5 thousand children received some sort of prekindergarten service—10,827 4-year-olds; 1,497 3-year-olds; and 135 in a mixed 3- and 4-year-old classroom.

Even under the consolidated ECECD, state law dictates that “money appropriated for prekindergarten be divided equally between programs administered by the public schools and other programs licensed by the [Early Childhood Education and Care] department” (Section 32-A-23-9 NMSA 1978 Effective July 1, 2020).

Purpose of New Mexico Prekindergarten

- Increase statewide access to voluntary, quality New Mexico prekindergarten developmental readiness programs;
- Focus on enrolling new children and building community capacity;
- Provide developmentally appropriate activities for New Mexico children;
- Focus on school readiness;
- Expand early childhood community capacity.

Source: New Mexico Prekindergarten Program Standards 2019-2020

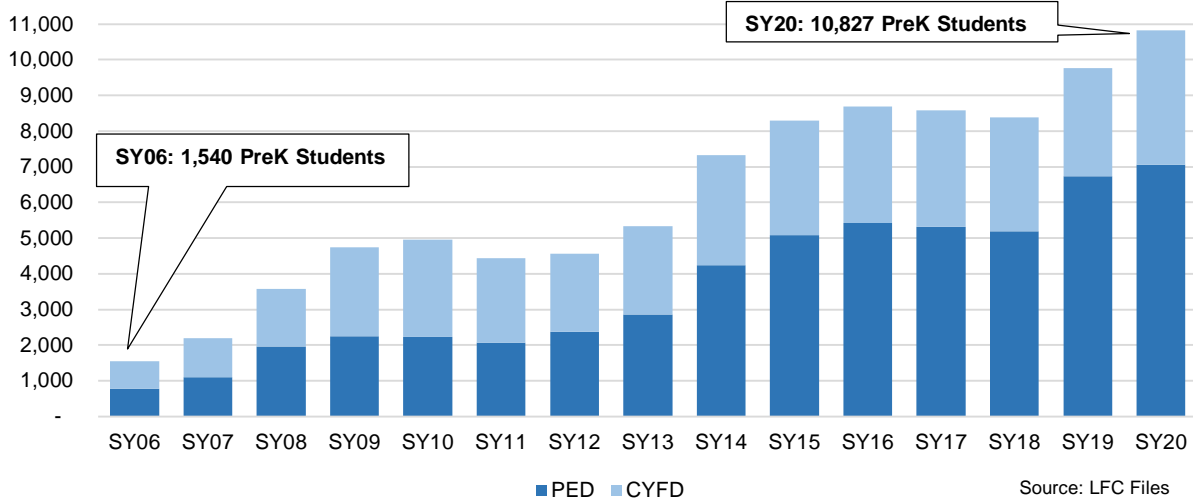
Prekindergarten Demographic Summary

Prekindergarten serves a greater percentage of minority and low-income students when compared with the demographics of the entire age cohort (see Appendix D for additional information):

- 81 percent of prekindergarten students were minorities in SY18, compared to 77 percent in age cohort;
- 84 percent of prekindergarten students were low-income in SY18, compared to 78 percent in age cohort.

Four-year-old enrollment in New Mexico prekindergarten has steadily increased from the program's inception in the 2005-06 school year (SY06) when 1,540 children participated. Between SY06 and SY13, prekindergarten enrollment between PED and CYFD was roughly evenly split. Beginning in SY14, enrollment began to skew more heavily toward PED. In SY20, nearly 65 percent of 4-year-old prekindergarten students were enrolled in a PED program.

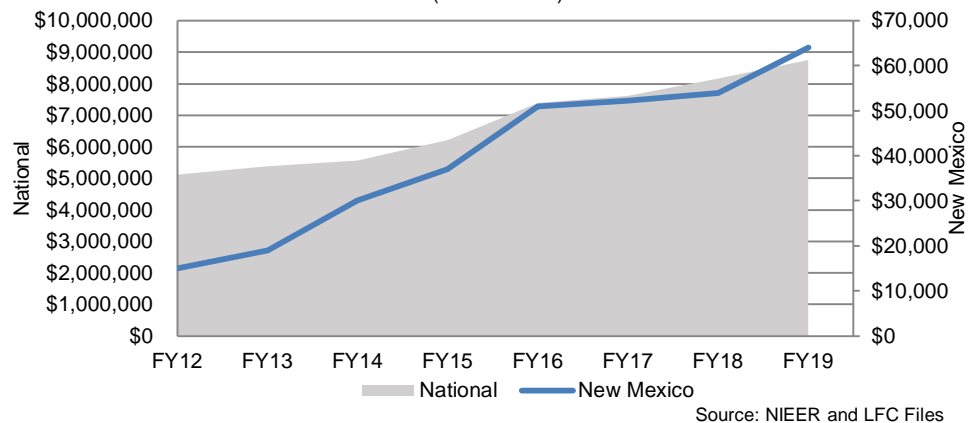
Chart 2. New Mexico Prekindergarten Enrollment (4-year-olds), SY06 – SY20



The FY21 budget appropriated \$8.4 million to ECECD to expand prekindergarten for 3- and 4-year-olds through private providers. Public schools also received an additional \$9.7 million in prekindergarten funding, of which \$7.1 million is to extend hours for 4-year-olds from half-day to full-day slots, bringing prekindergarten funding to \$106 million.

The Legislature has consistently increased appropriations to the program since FY12, and New Mexico is near the top third in terms of state spending. In 2019, the National Institute for Early Education Research (NIEER) ranked New Mexico 17th nationally for state spending per child enrolled in prekindergarten of \$6,060, an increase of \$215 per student from 2018, mostly due to expansion of full-day programs and a small rate increase.

Chart 3. Prekindergarten Appropriations in New Mexico and Nationally
(in thousands)



Nationally, average spending per child was \$5,374. This is an increase of \$183 over 2018 spending, or essentially flat when adjusting for inflation.

Access and Capacity

NIEER ranked New Mexico 13th for 4-year-old prekindergarten access, with 9,769 or 38 percent enrolled in 2019, and 1,131, or 5 percent of 3-year-olds enrolled (87 prekindergarten students were in mixed 3-and 4-year old classrooms). The percentage of New Mexico 3- and 4-year-olds enrolled in prekindergarten is 22 percent, or 10,987 children.

Table 1. State Prekindergarten Access by State

State	Access Ranking	Percentage of 3-year-olds Served	Percentage of 4-year-olds-served	Percentage of 3-& 4-year-olds served	Per Pupil Spending	Spending Ranking
Washington, D.C.	1	71%	87%	79%	\$18,669	1
Vermont	2	65%	78%	72%	\$6,807	11
Oklahoma	3	3%	76%	40%	\$4,264	27
Florida	4	0%	76%	37%	\$2,253	42
New Mexico	13	5%	38%	22%	\$6,060	17
National Average	N/A	6%	34%	20%	\$5,374	N/A

Source: NIEER State of Preschool Yearbook, 2019

New Mexico is moving to increase the number of full-day versus half-day slots, which has led to a decrease in overall slots. The number of 4-year-old budgeted slots went down as programs transitioned from half-day to full-day programs.

Table 2. Funding and Enrollment Levels for New Mexico CYFD and PED Prekindergarten

School Year	State Appropriations	Children Budgeted (Number of 4-year-olds)
2005-2006	\$4,950,000	1,540
2006-2007	\$7,990,000	2,194
2007-2008	\$13,998,886	3,570
2008-2009	\$19,290,300	4,745
2009-2010	\$19,842,400	4,693
2010-2011	\$15,331,380	4,435
2011-2012	\$14,319,300	4,559
2012-2013	\$19,214,600	5,331
2013-2014	\$27,280,800	7,674
2014-2015	\$39,554,300	8,297
2015-2016	\$47,107,100	8,690
2016-2017	\$45,013,065	8,588*
2017-2018	\$46,795,984	8,394*
2018-2109	\$54,907,036	9,769*

*Note: Reflects increasing numbers of children served in extended-day programs.
Source: PED/CYFD New Mexico Prekindergarten Annual Report

New Mexico is close to providing funding for all low-income 4-year-olds to receive at least some type of early childhood service through subsidies for childcare assistance, prekindergarten, or Head Start. Previous LFC analysis estimates the number of slots for 4-year-olds in FY20 would exceed 80 percent of the population when considering all program types. However some school districts are above even that threshold, with about one-third of districts at or above 100 percent capacity. PED established a minimum award equivalent to 10 child slots for very small districts, in order to fund a teacher. Some of these districts may have less than 10 children, which makes the district appear to be

The state will have to be strategic about where program growth for 3-year-olds occurs to avoid unnecessary competition among prekindergarten, Early Head Start, and child care providers.

funded above 100 percent. A 2019 LFC program evaluation identified issues with coordination and capacity across the early childhood education system finding New Mexico has lost federal dollars due to competition to serve 4-year-old children in some communities and due to a lack of program coordination among child care, prekindergarten and Head Start programs. Since the LFC evaluation was issued, the new department has been working on mapping out capacity and is attempting to address the coordination issue through new contracting practices. Strong coordination among agencies is necessary to maximize federal resources (Early Head Start and Head Start) and strategically target service gaps statewide to avoid crowding out federal funding streams, overbuilding capacity, or diminishing program quality.

Impact of COVID-19 Pandemic on New Mexico Prekindergarten

New Mexico schools were closed by executive order for the remainder of the school year on March 27, 2020. School districts were tasked with developing technology-based and non-technology-based continuous learning plans. PED's recommended instructional time for prekindergarten was 30 minutes per day. PED and CYFD released suggestions for family prekindergarten activities for each day of the school week and included the content areas of creativity; science; social emotional development; physical development and health and well-being; self; family; community; literacy; and math. The executive order does not address the coming school year, when schools will likely continue pandemic practices. However, continuing to provide prekindergarten students with only online instruction, might expose such young children to new risks, including delays in social emotional development.



Prekindergarten Remains a Cost-Effective Way to Improve Student Outcomes

Prekindergarten participants see improved student social and academic outcomes, ultimately culminating in higher high school graduation rates.

The inaugural New Mexico prekindergarten cohort, made up of children who attended prekindergarten in the 2005-06 school year (SY06), had a four-year high school graduation rate of 80.2 percent, 6.5 percentage points higher than nonprekindergarten participants. This difference is statistically significant after controlling for student demographic and school-level data (Appendix B). Additionally, prekindergarten students withdrew from high school at a noticeably lower rate of 8.5 percent compared with 12.7 percent (student transfers are not included).

Participation in prekindergarten corresponds with an 11 percentage point increase in high school graduation for English Learners (EL) and lower income students. Graduation rates of students who qualified for free and reduced-price lunch, or FRL, in SY19, showed that past prekindergarten participants had a graduation rate of 79.1 percent, while nonprekindergarten participants had a graduation rate of 68.5 percent, a 10.6 point difference. Among EL students (past or present), 82.7 percent of prekindergarten participants graduated, compared to 72 percent of nonprekindergarten participants.

Prekindergarten Impact Summary

- 6-to-1 return on investment
- Higher high school graduation rate: 80.2 percent vs. 73.7 percent
- 11 percent increase in graduation rates for English learners and low-income participants
- 50 percent reduction in grade retention
- 25 percent reduction in chronic absenteeism
- Higher rate of exiting special education

New Mexico's overall high school graduation rate was 74.9 percent for SY19, but prekindergarten students of this cohort graduated at a rate of 80.2 percent. While this is still below the national graduation rate of 85.3 percent, the observed increase in graduation rate suggests prekindergarten participation helps close the graduation rate gap, which has persisted in New Mexico.

Chart 4. Four-Year Graduation Rates for Cohort of 2019

(Prekindergarten Participants SY06)

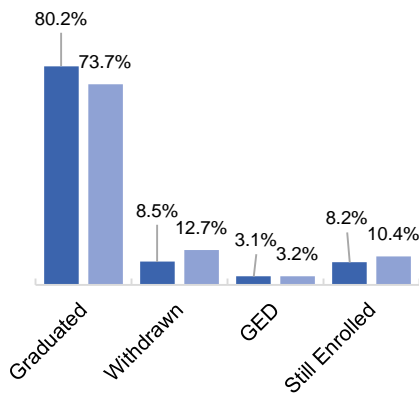


Chart 5. Low-Income Student High School Graduation

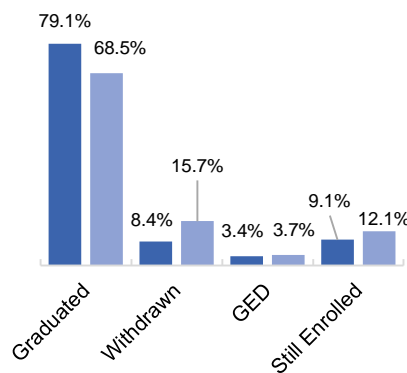
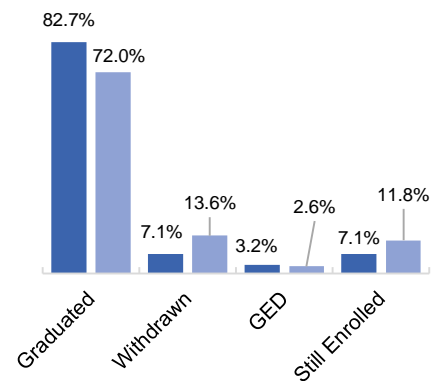


Chart 6. EL Student High School Graduation



■ PreK ■ Non-PreK

Source: PED Data and LFC Analysis

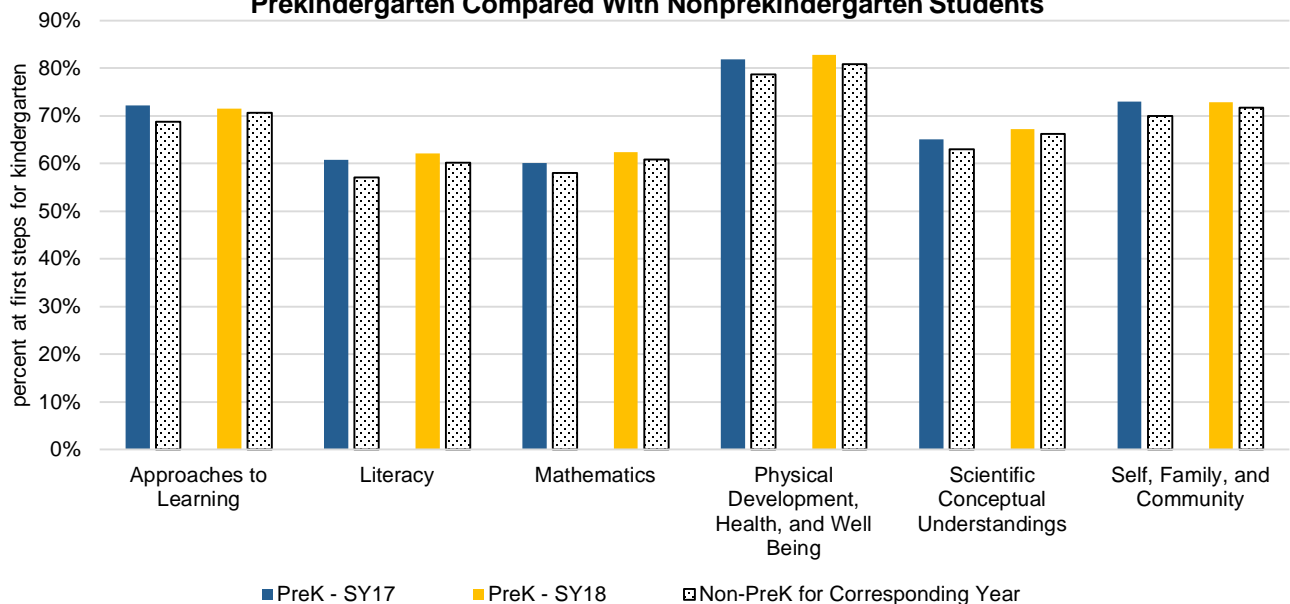
Prekindergarten’s contributions to increased high school graduation rates result in a 6-to-1 return on investment of taxpayer dollars. Using the FY20 extended day prekindergarten rate of \$7,000 per child and the Results First cost-benefit model maintained by New Mexico’s Legislative Finance Committee with technical assistance from the Pew MacArthur Results First Initiative, New Mexico prekindergarten has a benefit-to-cost-ratio of \$5.82.¹ The expected direct benefit to New Mexico taxpayers is over \$16 thousand, a benefit-to-cost-ratio of \$2.34 even before accounting for benefits accrued directly to the prekindergarten participant or other beneficiaries. The majority of benefits realized by New Mexico taxpayers stem from increased tax revenue via the higher earnings of high school graduates, reduced expenditures on crime related matters, and healthcare savings associated with higher education levels.

Children who participate in prekindergarten have higher academic test scores throughout their time in school.

Prekindergarteners were better prepared for kindergarten than children who did not attend prekindergarten. This advantage stretched across all six kindergarten observation tool (KOT) domains and was even more pronounced for low-income students. It should be noted that the nonprekindergarten group may have attended Head Start, child care, or private programs (see Appendix B for additional discussion of methodology and study limitations). Prekindergarten impact on Istation scores has been previously discussed in the [2019 Early Childhood Accountability Report](#).²

The kindergarten observation tool (KOT) is a PED assessment to measure learning readiness for children as they enter kindergarten.

Chart 7. Beginning of Year KOT Proficiencies, Prekindergarten Compared With Nonprekindergarten Students



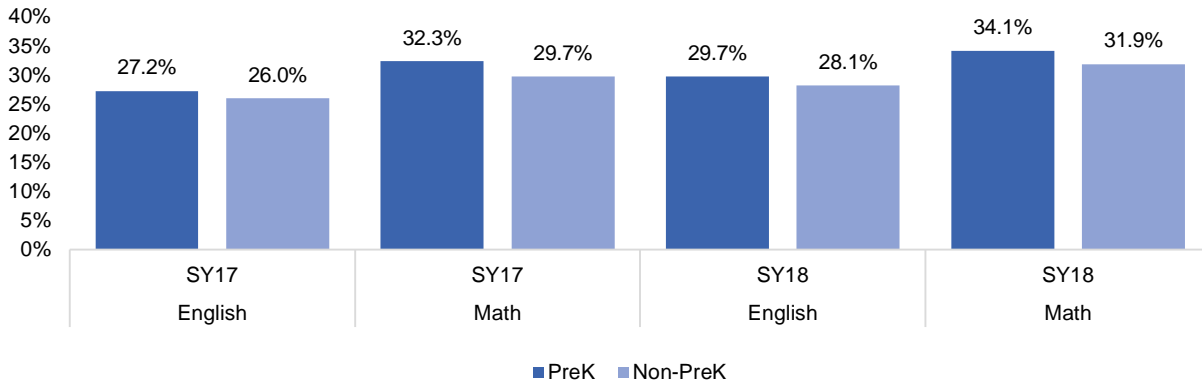
Source: PED Data and LFC Analysis

¹ For more information on the Legislative Finance Committee’s Results First Initiative see a publication from the Pew MacArthur Results First Initiative https://www.pewtrusts.org/~media/assets/2014/08/nm_results_first_brief_final.pdf

² A correlation analysis between the Istation and KOT assessments was performed and showed a moderately positive correlation exists between the two assessments.

Prekindergarten participation is associated with higher levels of proficiency on third-grade PARCC tests. Students who attended prekindergarten in SY13 and SY14 scored more proficient on English and math PARCC tests than nonprekindergarten students. The proficiency difference between groups was greater for math in both years, with past prekindergarten students being 2.2 percentage points higher in SY17 and 2.6 percentage points higher in SY18. All differences between prekindergarten and nonprekindergarten third-grade PARCC proficiencies were found to be statistically significant.

Chart 8. Third Grade PARCC Proficiencies by Prekindergarten Participation, SY17 and SY18



Source: PED Data and LFC Analysis

There is some evidence prekindergarten can help narrow the achievement gap through middle school. Middle school students tend to have higher reading and math skills if they participated in prekindergarten. Twenty-seven percent of past (SY09 cohort) prekindergarten students who are low-income (FRL) were proficient in reading in the eighth-grade, compared with 22 percent of students who were also FLR but did not participate in prekindergarten. A similar trend is observable in math proficiencies in the eighth-grade (disregarding the noticeable decrease in eighth-grade math proficiencies for all groups analyzed). Thirteen percent of past prekindergarten students were proficient in math by the eighth-grade, compared with 10 percent of nonprekindergarten students. The prekindergarten impact is statistically significant when controlling for student demographics and school-level data (Appendix B), but the effect is relatively small (under 1 percent).

Chart 9. Percent Proficient, Reading (SY09 Prekindergarten Age Cohort)

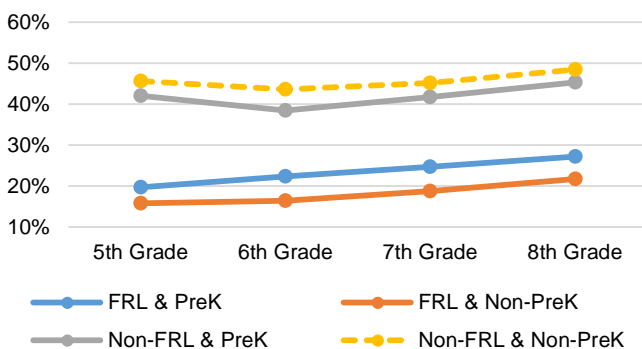
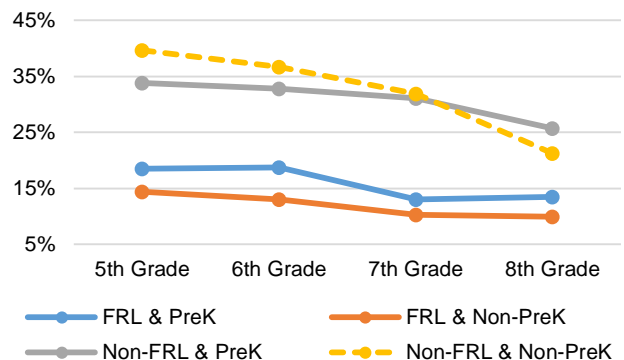
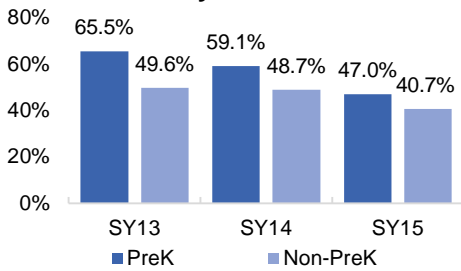


Chart 10. Percent Proficient, Math (SY09 Prekindergarten Age Cohort)



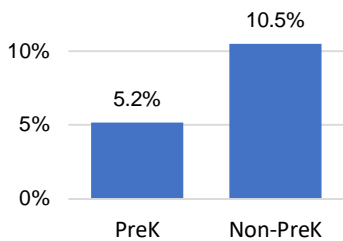
Source: PED Data and LFC Analysis

Chart 11. Special Education Exits by 3rd Grade



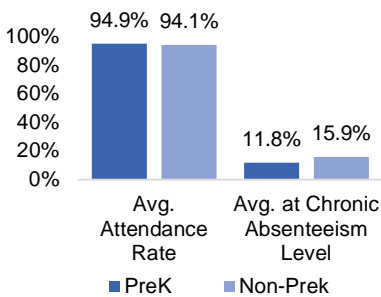
Source: PED Data and LFC Analysis

Chart 12. Grade Retention SY08--SY19



Source: PED Data and LFC Analysis

Chart 13. Attendance SY08--SY19



Source: PED Data and LFC Analysis

Prekindergarten significantly impacts the identification of students with special needs, reduces grade retention, and improves attendance.

A secondary benefit of prekindergarten is the opportunity for students with special needs to receive earlier developmental screening and begin receiving special education resources when appropriate. For the New Mexico prekindergarten cohort years of SY13, SY14, and SY15, special education students who attended prekindergarten exited special education by third-grade at a statistically significant higher rate than those who did not attend prekindergarten. The prekindergarten cohort of SY15 had 617 students identified as requiring special education, comprising about 9 percent of all prekindergarten students. By the third-grade, 290 of these students (47 percent) were no longer identified as needing special education.

Prekindergarten is associated with a 50 percent reduction in grade retention. An analysis of all New Mexico prekindergarten participants shows about 5 percent were held back a grade at some point, compared with over 10 percent for nonprekindergarten students. This difference is statistically significant after controlling for student demographics and school-level characteristics. Lower grade retention for prekindergarten participants could also be a contributing factor to the gains seen for prekindergarten participants in high school graduation.

Chronic absenteeism rates among prekindergarten participants are 25 percent lower. While overall average school attendance rates between past prekindergarten students and their peers are not substantially different, the difference in the rate of chronic absenteeism between the two groups is noticeable. Sixteen percent of nonprekindergarten students averaged an attendance rate below 90 percent, representing chronic absenteeism, compared with roughly 12 percent for past prekindergarten students.

Prekindergarten effects are further amplified with full-day programs and when combined with early prekindergarten and K-5 Plus extended learning.

New Mexico implemented the K-3 Plus program – an extended school year program for kindergarten through third-grade students – in 2007 to address the achievement gap of at-risk students. The Legislature later expanded the program to fourth and fifth grades (K-5 Plus). Both prekindergarten and “Plus” programs seek to supplement classroom time, especially for at-risk students who tend to start kindergarten developmentally and academically behind their peers.

When coupled, the two programs seem to be amplifying students' academic performance over time. On third-grade PARCC math assessments, past prekindergarten participants had significantly higher proficiency levels compared with students who were only K-3 Plus participants. In measuring math proficiency, the effect is also amplified by the number of years a student participates in K-3 Plus, with one-year participants being 27 percent proficient and four-year participants nearing 35 percent proficiency. In reading proficiency, past prekindergarten participants enrolled in K-3 Plus have greater proficiencies than their nonprekindergarten peers, with the exception of students who participated in K-3 Plus for four years.

Chart 14. Prekindergarten and K-3 Plus Impact, Third-Grade Reading Proficiency

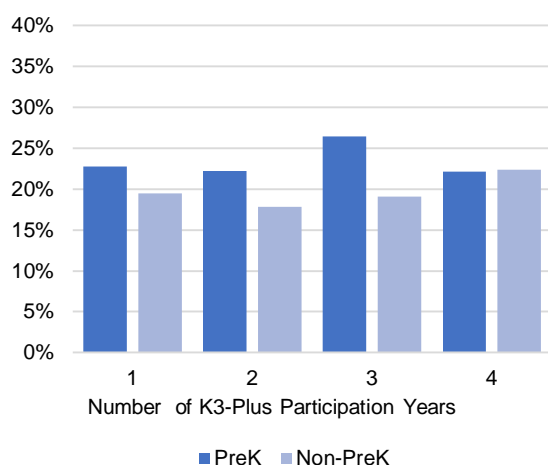
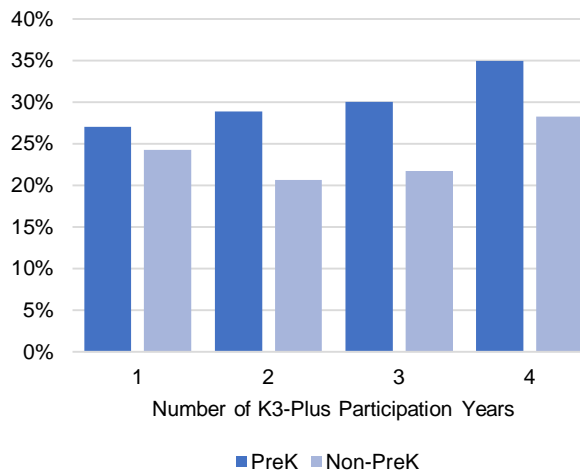


Chart 15. Prekindergarten and K-3 Plus Impact, Third-Grade Math Proficiency



Source: PED Data and LFC Analysis

Gains experienced by recent participants in prekindergarten and K-5 Plus programs are in jeopardy as a result of PED cancelation of K-5 Plus programming due to the COVID-19 pandemic. After the governor closed public schools as a necessary response to the pandemic in mid-March, guidance from PED directed schools to only provide a maximum of 30 minutes of virtual instruction to prekindergarteners per day for the remainder of the school year. As a result, most prekindergarteners will at best learn only a small fraction of what they otherwise would have during the final eight weeks of school.

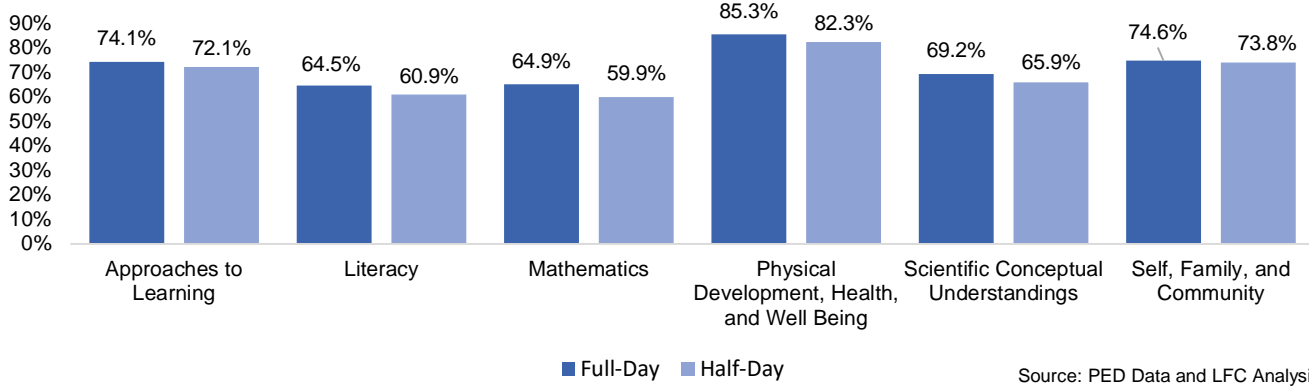
K-5 Plus or other extended learning time programs could have helped make up this lost time for prekindergarteners entering kindergarten in the fall. However, on May 20, 2020, the Public Education Department canceled all K-5 Plus leading into the 2020-2021 school year, despite plans already in place in several districts, including Albuquerque Public Schools, to run K-5 Plus programs starting late summer.

Full-day prekindergarten programs are associated with better KOT outcomes than half-day programs. Full-day prekindergarten students of the SY18 cohort outperformed half-day prekindergarten participants at a statistically significant level on KOT assessments. The average KOT proficiency difference was roughly 3 percentage points across all domains.

Summary of Prekindergarten Programmatic Elements

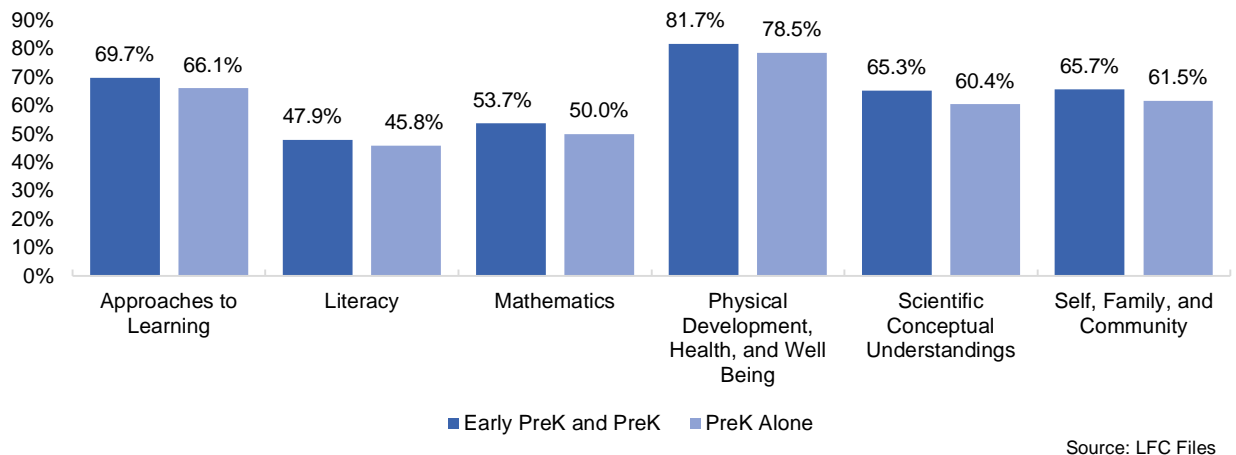
- Full-day prekindergarten is associated with higher assessment outcomes.
- Combined participation in early prekindergarten (3-year-olds) and prekindergarten (4-year-olds) is associated with improved KOT performance.
- Prekindergarten appears to amplify the benefit of K-5 Plus as measured by third-grade reading and math proficiency scores.

Chart 16. Full-Day vs. Half-Day Prekindergarten (SY18), KOT Proficiencies (SY19)



Students who attended both early prekindergarten (for 3-year-olds) and regular prekindergarten had greater KOT scores than students who only attended prekindergarten. While prekindergarten participation is associated with increased kindergarten KOT performance, this improvement appears to be amplified when combined with early prekindergarten participation. Students who participated in early prekindergarten in SY17 and regular prekindergarten in SY18 achieved higher levels of KOT proficiency in every category compared with students who participated in only prekindergarten. However, the differences between the two groups for the majority of KOT domains were only marginally statistically significant. Interestingly, the domains of “literacy” and “mathematics” were not found to have statistically significant differences.

Chart 17. Additive Impact of Early Prekindergarten (SY17) and Prekindergarten (SY18)



Recommendations

The Early Childhood Education and Care Department should

- Continue to improve data quality and collection of prekindergarten programs, which will allow for more targeted analyses identifying prekindergarten classroom characteristics leading to success;
- Strategically expand full-day prekindergarten while coordinating with Head Start and other early childhood programs to ensure the state is maximizing resources;
- Seek to strategically expand early prekindergarten while coordinating with other early childhood programs including Head Start to ensure the state is maximizing resources.

The Public Education Department should

- Reinstate and expand high-fidelity K-5 Plus programming as soon as possible. Within this, PED should consider providing school districts with the option to move forward with 2020 K-5 Plus programming and extended school year programs provided the district has a plan in place to follow best practices and Centers for Disease Control and Prevention guidance to ensure safety.

Prekindergarten Programs Have Varying Measurements, Criteria, and Definitions of Quality

Quality measurement helps early childhood educators better understand how to improve prekindergarten.

While prekindergarten remains a powerfully effective program in improving the academic and social success of children in New Mexico, there is still considerable variation in the way it is delivered. The spread of programming across the public school system and private providers, and past split governance between two separate state agencies have resulted in a bifurcated prekindergarten system that may offer varying levels of quality.

One of the most important tasks for the new Early Childhood Education and Care Department will be standardizing, measuring, monitoring, and improving the quality of prekindergarten across both the public school system and among contract providers. This will be increasingly important as prekindergarten expands to reach more and younger children, and from half-day to full-day programs.

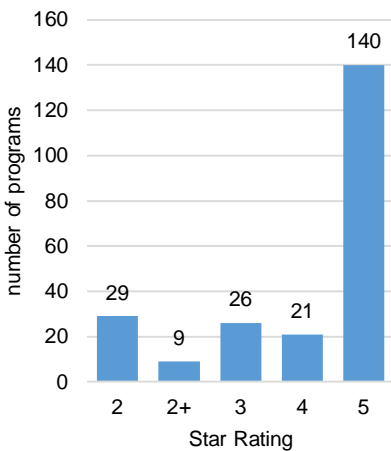
New Mexico has had standard early learning guidelines since 2014, but measurement of prekindergarten quality varies between public school and private providers.

PED, CYFD and the Department of Health (DOH) collaborated to develop *New Mexico Early Learning Guidelines: Birth through Kindergarten* in 2014 to guide early childhood programming at all three agencies. As part of a federal Race to the Top grant in 2015, PED and CYFD used those early learning guidelines as a jumping-off point to develop a quality rating system for their prekindergarten programs. Both rating systems are called Focus, but they vary in important ways.

Fundamentally, the system allows two programs – one privately contracted and another based in a public school – to both achieve a high, five-star rating while differing in the quality of their programs. This creates confusion for providers and parents and inconsistencies that may dilute the educational outcomes for students in the future.

CYFD's Focus system does not measure key teacher-child interactions that lead to improved educational outcomes for children. CYFD's Focus system contains five “star” levels – one star indicates the program meets basic licensing requirements and five stars is the highest score. LFC staff have questioned the validity of CYFD's Focus system as a tool to measure the educational quality of early childhood programs, however. Most recently, a December 2019 LFC program evaluation of childcare assistance found that CYFD's Focus system did not quantify teacher-child interactions, which lead to improved educational outcomes for children. The evaluation also found that children who attended higher-rated childcare programs did not have educational outcomes different from their peers in lower-rated programs. As a result, LFC staff recommended CYFD instead use a validated assessment of teacher-child interactions and classroom environment, such as the classroom assessment scoring system (CLASS) used in the Head Start program or the early childhood environment rating scale (ECERS). Nevertheless, CYFD

Chart 18. Of the 225 CYFD Prekindergarten Classrooms, 62 Percent Have a Five-Star Rating



Source: CYFD (2019)

continues to use the Focus system to rate the quality of its childcare and prekindergarten programs. Notably, Head Start uses CLASS scores as a transparency and management tool. Anyone can find recent CLASS scores for a Head Start program on the internet, and those scores are factored into future federal funding decisions. Additionally, teachers inform parents about the purpose and results of screenings and assessments and discuss the child's progress. Parents have an opportunity to provide feedback on curricula and materials.

In November 2017, PED created its own Focus system, and CYFD stopped requiring the use of nationally validated tools of prekindergarten quality. PED still requires the use of ECERS in its prekindergarten programs and CYFD's move away from using ECERS and CLASS is quite recent. Until 2016, PED and CYFD worked off of common "essential elements" of measurement for their Focus programs, including criteria that required prekindergarten programs to use CLASS or ECERS as part of continuous quality improvement to achieve five-star status. In other words, teachers and prekindergarten programs administrators would use the results of the ECERS or CLASS to identify weaknesses, inform their professional development, and generally improve their prekindergarten teaching and environment. However, in 2017, PED released its own set of Focus essential elements that still included use of ECERS, and CYFD stopped requiring the use of ECERS and CLASS.

Instead of the two- to five-star rating system, PED's Focus system simply outlines criteria for a five star program, and the department gave all of its prekindergarten programs in schools two years, beginning in SY19, to meet those five star standards. As a part of making all its public school prekindergarten programs five star programs, it purchased licenses to both train teachers and to administer the ECERS assessment.

Though CYFD and PED programs use the same student assessment tool, assessment data from CYFD programs is not passed on to a student's later kindergarten teacher.

While information from tools like ECERS is important in gauging the quality of the classroom environment and is predictive of later education attainment of students in those classrooms, prekindergarten programs must also assess the progress of individual students. Since SY18, all New Mexico prekindergarten programs have used the Prekindergarten Observational Tool assessment for this purpose. The assessment is a sister to the PED's Kindergarten Observational Tool assessment and is performed three times a year for full-day programs and twice a year for half-day programs during a prekindergartener's school year to gather information on what children know and can do at the time of prekindergarten entry and document their growth over the prekindergarten year(s).¹

At PED prekindergartens, information from the preschool observational tool assessment is logged into a system that communicates with PED's larger student data system. As such, the prekindergarten assessment scores are available to a public school teacher on day one of kindergarten – allowing the teacher to quickly understand what skills the student has mastered and where to focus instructional attention.

School Readiness as Defined by the Louisiana Early Childhood Education Act (2012)

At the beginning of kindergarten, it is expected children will demonstrate

- » Cognitive abilities, which include knowledge and skills in
 - early literacy and
 - basic numeracy concepts;
- » Basic science concepts, such as making observations, exploring the world using their senses, and using appropriate scientific vocabulary related to topics;
- » Basic social studies concepts, such as self-awareness and their relationship to family and community, and an awareness of money and time;
- » Response to and participation in music, movement, visual and dramatic arts experiences and activities;
- » Abilities, either assisted or unassisted, that show an awareness of health, hygiene, and environmental hazards, in addition to gross and fine motor skills;
- » Social and emotional competencies, including self-regulation, self-identity, self-reliance, respect for others, and interpersonal skills;
- » Approaches to learning, such as reasoning and problem-solving, engagement, persistence, and eagerness to learn.

This is not the case with students that attend a CYFD prekindergarten. Even though prekindergarten students are assessed with the same preschool observational tool in both CYFD and public school programs, the assessment information from the CYFD programs is never transmitted into the PED student data system, and thus, is not available to that student's subsequent kindergarten teacher.

New Mexico lacks statutory definitions of school readiness, 3-year-old prekindergarten programs, and full-day prekindergarten programs.

Although the Prekindergarten Act has served the state well, it does not reflect current practice, including definition or guidance around newer programming, such as full-day prekindergarten and 3-year-old programming. It also does not provide definitions for commonly discussed goals, such as school readiness.

Quality in kindergarten through third grade is most often defined in terms of teachers or schools or student academic success. However, New Mexico does not have a definition or goal for kindergarten readiness.

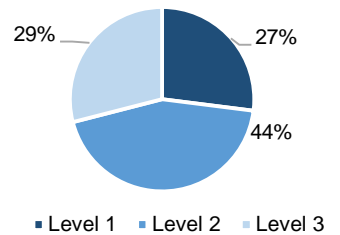
Fourteen states have a statutory definition of school readiness, with many referencing language and literacy, cognition and general knowledge, and many of the measures outlined in New Mexico's early learning guidelines. New Mexico's Prekindergarten Act states "Prekindergarten will advance governmental interests and childhood development and readiness." However, it does not define "readiness" (Section 32A-23-2 (c) NMSA 1978). Changes to the Act requires that departments implementing prekindergarten programs share performance data, including the percentage of students who enter kindergarten developmentally prepared for it, needing special services, and proficient in reading and mathematics. This still falls short of defining kindergarten readiness.

In response, ECECD may want to consider collaborating with the Legislature to define school readiness and set goals for the state's consolidated prekindergarten program. The department already has a standardized preschool observational tool assessment that could be used as a base for measurements of readiness. For example, in Texas, "school readiness refers to a child being able to function competently in a school environment in the areas of early language and literacy, mathematics, and social skills as objectively measured by state-approved assessment instruments" (Texas Administrative Code, Title 19, Part 2, Chapter 102, Subchapter AA, Rule §102.1002) and the state of Louisiana (see side bar).

Workforce requirements vary for teachers in CYFD and PED prekindergarten programs, likely affecting quality.

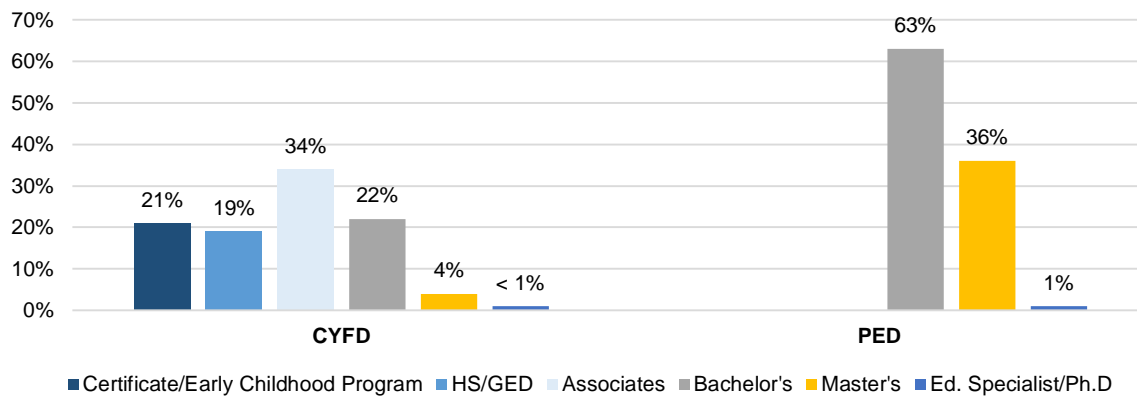
Quality in early education lies in the interactions that occur between teachers and students. However, the quality of a teacher, judged by their education level, varies from program to program. Most notably, lead teachers with PED must have a bachelor's degree, but CYFD programs require only a high school diploma. As a result, only about one-quarter of CYFD prekindergarten teachers hold a bachelor's degree or higher.

Chart 19. PED Prekindergarten Teachers by License Level, SY19



Source: PreK Annual Report 2018—2019

Chart 20. Prekindergarten Teacher Education, SY19



Source: PreK Annual Report 2018—2019 and LFC Files

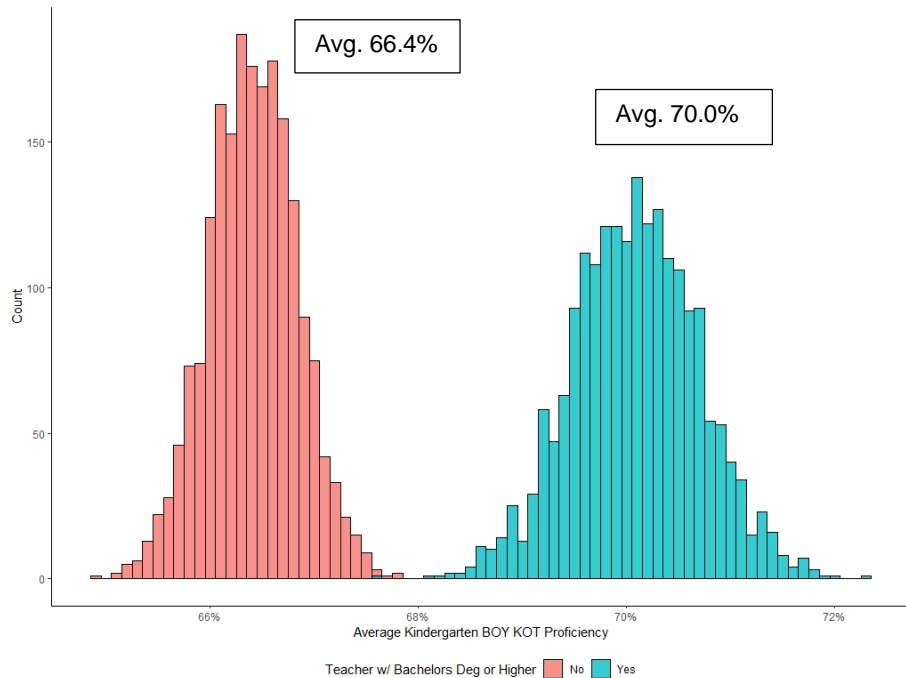
Table 3. Teacher Qualifications

Lead Teacher Qualifications	
PED	CYFD
Bachelor's degree	New Mexico child development certificate (four required courses)
New Mexico Early Childhood Teaching License (birth-grade three; birth-prekindergarten; prekindergarten-grade three)	Complete six credit-bearing college course hours annually toward a bachelor's degree in early childhood education
Educational Assistant Qualifications	
PED	CYFD
Associate's degree in early childhood education	Working toward completing the four required courses to obtain a New Mexico Child Development Certificate
Hold Level III educational assistant license from PED	Successfully complete six credit-bearing college course hours annually toward an associate of arts degree in early childhood education
Any educational assistant who does not currently possess an associate's degree in early childhood education must provide evidence of completion of a minimum of six college credit hours toward the degree annually	

Source: New Mexico Prekindergarten Program Standards 2019-2020

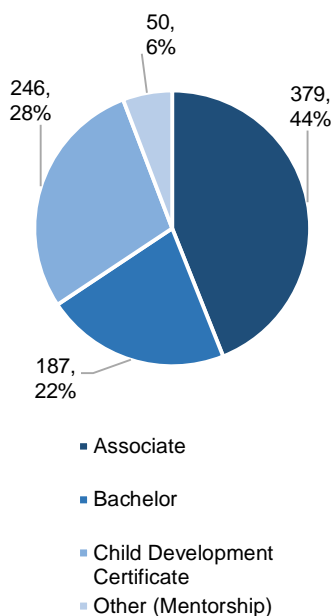
Data for students taught by prekindergarten teachers with bachelor's degrees or a prekindergarten-related certificate suggests higher student performance. Prekindergarten students that were taught by a teacher with a bachelor's degree or higher had slightly higher average kindergarten assessment scores (KOT) than students who had preschool teachers without bachelor's degrees (70 percent versus 66 percent proficient).

Figure 1. Kindergarten Preparedness among SY18 CYFD Prekindergarten Participants by Prekindergarten Teacher Education Level - Simulation Model (2,000 Runs)



Source: CYFD Workforce Data and LFC Files

Chart 21. Degrees Sought by Active Scholars, CYFD Scholarship, 2019



Source: Region IX

Among prekindergarten teachers without bachelor's degrees, holding a prekindergarten-related certificate is associated with slightly higher student performance. For the two-thirds of CYFD prekindergarten teachers without a bachelor's degree in SY18, about 35 percent had a prekindergarten related certificate (45-hour certificate, child development certificate, or child development associate credential). About 65 percent of KOT indicators registered as proficient for the cohort associated with teachers with a certificate but no bachelor's degree, compared with 64 percent proficiency for students whose prekindergarten teacher had neither a bachelor's degree nor certificate. It is important to note that CYFD's workforce data is based on self-reporting, and it is possible more prekindergarten teachers hold certificates than data indicate.

Head Start tracks and sets targets to improve workforce qualifications through center-based monitoring. The federal Head Start program asks programs to submit a program information report that provides comprehensive data on services staff, children, and families. Head Start also sets targets for some of these metrics. For example, providers report the degrees and certifications awarded to early childhood educators and has set a target that at least 50 percent of all preschool teachers in Head Start programs have a bachelor's degree in child development or a related field. Similar tracking within prekindergarten programs could help provide an accurate picture of the workforce and help the ECECD set targets for the workforce.

CYFD has an existing scholarship program for prekindergarten teachers, but only about 20 percent of students are pursuing a bachelor's degree. Despite the increased performance of teachers with bachelor's degrees, a 2019 early childhood needs assessment commissioned by PED, CYFD, and the Department of Health noted that the only real growth in early childhood higher education in New Mexico was from nondegree programs. From FY15 to

FY18, certificates grew by 40 percent, but the number of associate's degrees was essentially flat. There was a 24 percent increase in bachelor's degrees, but this obscures the small absolute numbers—only 93 were awarded in FY18.

Noting this lack of performance from higher education, ECECD may want to consider how to best support existing prekindergarten teachers in attaining bachelor's degrees. An existing CYFD scholarship program pays 100 percent of tuition and 50 percent of textbook costs for teachers working toward their certificate, associate's degree, or bachelor's degree. However, in 2019, only about 20 percent of students receiving the scholarship were bachelor's degree students. ECECD may want to work with the department on program modifications targeting bachelor's students over students pursuing lower degrees.

High and growing levels of administrative spending warrant monitoring to ensure it results in improved student outcomes.

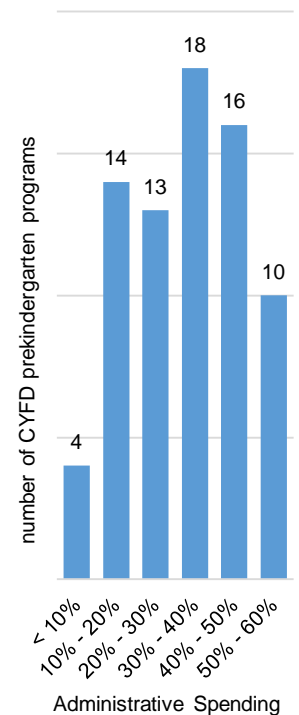
Legislators and education advocates are increasingly interested in the amount of state appropriations that make it "to the classroom," as opposed to being used for administrative overhead. For the first time, the General Appropriation Act of 2020 directs PED to reject the budgets of schools that spend less than 80 percent (large districts) or less than a standard deviation from their peers (smaller districts) on instruction. No such requirement to limit administrative spending exists for the state's prekindergarten program.

While some administrative expenditures may improve the quality of a prekindergarten program, this impact is not guaranteed. As such, ECECD will need to be vigilant in monitoring the return on investment in student educational gains from high levels of spending on professional development and on administrative overhead.

Half of CYFD prekindergarten programs spend at least a third of their funding on administrative overhead costs. Analysis of 75 CYFD prekindergarten programs' FY20 budgets showed the average program, as well as median program, spent about 33 percent of its budget on administrative overhead (see Appendix B for administrative overhead calculation methodology). While the amount varies by the size of the program, the average overhead amount per program is about \$75 thousand. The budgeted overhead percentage ranges between 5 percent and 58 percent.

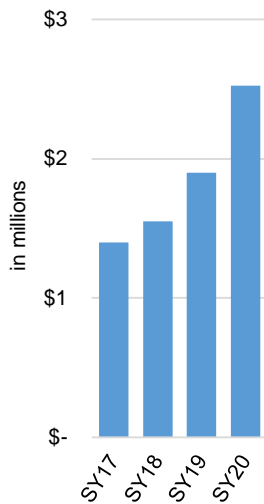
Reining in administrative overhead spending to 33 percent for CYFD programs exceeding the median and average percentage would translate to savings, or reallocation toward direct-costs, of \$800 thousand per year. A target of 25 percent overhead would translate to \$1.65 million per year.

Chart 22. Administrative Spending by CYFD Prekindergarten Programs, FY20 Budgeted



Source: SHARE, LFC Files

Chart 23.
Prekindergarten
Coaching Support and
Training Spending



Source: LFC Files

PED spending on prekindergarten coaching and support has grown 81 percent since SY17. Two contracts have been executed by PED for SY20 to provide prekindergarten consultation services. One contract is with the University of New Mexico for slightly under \$1.4 million, and the second is with the Central Region Educational Cooperative (CREC) for \$1.7 million. However, \$575 thousand of the contracted amounts were dedicated to start-up costs including furniture, learning materials, and supplies for prekindergarten classrooms. This brings actual prekindergarten coaching and support costs to slightly more than \$2.5 million for SY20.

The coaching and support costs per prekindergarten classroom amounted to nearly \$6,000 in SY17, with 236 classrooms in 146 schools receiving the consulting services. While services were provided to 379 prekindergarten classrooms in 221 schools in SY20 (classroom growth of 61 percent between SY17 and SY20), a per classroom cost could not be calculated given the inability to disaggregate SY20 expenditures into the necessary categories. The SY20 CREC contract also included support for special education preschool classrooms, special education teachers who work across the early childhood system, Head Start classrooms, Title 1 preschool support to implement Focus, tribal programs, and a summer institute offering all required training, now occurring virtually due to COVID-19.

Recommendations

The Early Childhood Education and Care Department should

- Create a workgroup to examine changes that need to be made to the Prekindergarten Act with plans to address the following:
 - Defining school readiness;
 - Aligning the Prekindergarten Act to reflect current practice and new programming being administered but not currently represented in the act, such as 3-year-old programming and full-day programming;
 - Defining and setting limits to administrative spending;
- Standardize a quality rating systems among all prekindergarten programs and include the required use of ECERS, CLASS, or other valid and reliable tool that assesses teacher-child interaction;
- Once a new and valid quality assessment tool is established, share metrics with parents annually, similarly to those shared in Head Start (assessment scores, proportion of teachers with a bachelor’s degree, child progress);
- Ensure prekindergarten observational tool assessment data from contracted providers migrates to the public school before a student enter kindergarten;
- Report aggregated prekindergarten observational tool assessment data annually to identify areas throughout the state in need of high-quality prekindergarten programs, as well as prekindergarten programs in need of additional professional development and technical assistance.



MICHELLE LUJAN GRISHAM
GOVERNOR

HOWIE MORALES
LIEUTENANT GOVERNOR



ELIZABETH GROGINSKY
CABINET SECRETARY

JOVANNA ARCHULETA
ASSISTANT SECRETARY for Native American
Early Childhood Education and Care

DR. JENNIFER DURAN-SALLEE
DEPUTY SECRETARY

June 8, 2020

David Abbey, Director
Legislative Finance Committee
325 Don Gaspar, Suite 101
Santa Fe, NM 87501

Dear Director Abby,

Thank you for the opportunity to respond to the June 2020 Program Evaluation: Prekindergarten Quality and Education Outcomes report. We want to thank your evaluation team for their professionalism, collaborative approach and thoroughness in conducting this evaluation. As you know, this administration is deeply committed to building an equitable early childhood system, prenatal to age five, in New Mexico that embraces continuous quality improvement through enhanced use of data, targeted professional development, training and technical assistance and implementation of best practices and research-based strategies that improve outcomes for all New Mexico families and young children.

We are very pleased to see the short and long-term impacts of the New Mexico Prekindergarten program on student outcomes. In particular, the findings that participation in Prekindergarten resulted in reduced grade retention and chronic absenteeism and that special education exit rates were higher for students who participated in Prekindergarten. The long-term finding that the 2006 inaugural New Mexico prekindergarten cohort had a four-year high school graduation rate of 80.2 percent, which was 6.5 percent higher than students who did not attend prekindergarten. As your evaluation found, the gains in graduation rates were 11 percent higher for participants who were English Language Learners and for children from low-income families. Overall, the New Mexico prekindergarten has a benefit-to-cost-ratio of \$5.82 due to increased tax revenue generated via the higher earnings of a high school graduate.

Please see below the Early Childhood Education and Care's response to the Findings and Recommendations in the June 2020 Program Evaluation: Prekindergarten Quality and Education Outcomes report.

Finding 1. Prekindergarten Remains a Cost-Effective Way to Improve Student Outcomes

Recommendations:

The Early Childhood Education and Care Department should

- Continue to improve data quality and collection of prekindergarten programs, which will allow for more targeted analyses identifying prekindergarten classroom characteristics leading to success;
- Strategically expand full-day prekindergarten while coordinating with Head Start and other early childhood programs to ensure the state is maximizing resources;
- Seek to strategically expand early prekindergarten while coordinating with other early childhood programs including Head Start to ensure the state is maximizing resources.

PO Drawer 5619
Santa Fe, New Mexico 87502-5619

The Public Education Department should

- Reinstating and expanding high-fidelity K-5 Plus programming as soon as possible. Within this, PED should consider providing school districts with the option to move forward with 2020 K-5 Plus programming and extended school year programs provided the district has a plan in place to follow best practices and Center for Disease Control and Prevention guidance to ensure safety.

ECECD Response:

ECECD will strategically expand full-day prekindergarten in coordination with other early childhood education and care programs. ECECD will review and revise the prekindergarten application to include questions on the provision of prekindergarten in the community of the applicant that specifically focus on enhanced coordination and collaboration. ECECD will continue to convene prekindergarten providers on a regular basis, including Head Start and tribal early education partners, to ensure New Mexico is effectively leveraging all federal, state and local resources and improving collaboration.

The Public Education Department is strongly recommending locally-funded summer programming for districts and charters that will help to address remediation and foundational academic standards for the incoming school year. In addition to continuing to advocate and support the Extended Learning Time Program, PED is recommending an extended calendar for all schools and districts Pre-K through 12th grade, in addressing comprehensive learning loss as well as strong socio-emotional supports that will be needed for school year 2020-2021.

Finding 2. Prekindergarten Programs Have Varying Measurements, Criteria, and Definitions for Quality

Recommendations:

The Early Childhood Education and Care Department should

- Create a workgroup to examine changes that need to be made to the Prekindergarten Act with plans to address the following:
 - Defining school readiness;
 - Aligning the Prekindergarten Act to reflect current practice and new programming being administered but not currently represented in the act, such as 3-year-old programming and full-day programming; and
 - Defining and setting limits to administrative spending.
- Standardize a quality rating system among all prekindergarten programs and include the required use of ECERS, CLASS, or other valid and reliable tool that assesses teacher-child interaction;
- Once a new and valid quality assessment tool is established, share metrics with parents annually, similarly to those shared in Head Start (assessment scores, proportion of teachers with a bachelor's degree, child progress);
- Ensure prekindergarten observational tool assessment data from contracted providers migrates to the public school before a student enters kindergarten;
- Report aggregated prekindergarten observational tool assessment data annually to identify areas throughout the state in need of high-quality prekindergarten programs, as well as prekindergarten programs in need of additional professional development and technical assistance.

ECECD Response:

ECECD looks forward to working with the LFC, the Early Care and Education Advisory Council, and other key stakeholders to define school readiness and identify a holistic measure of school readiness that can be used to inform and improve the state's early childhood system. ECECD is planning to align Senate Bill 22 to reflect Prekindergarten current practices and new programming opportunities. ECECD will conduct an analysis of administrative spending of private sector Prekindergarten programs and provide additional guidance and develop budget forms that clearly delineate administrative expenditures from other expenditures.

ECECD is committed to aligning the quality rating system across the public and private sector Prekindergarten programs. Additionally, ECECD will explore the feasibility of using the Environment Rating Scale (ERS), the Classroom Assessment and Scoring System (CLASS) or other valid, reliable and research-based assessments that measure the quality of teacher-child interaction.

ECECD will work with PED to implement the use of a unique identifier for each child enrolled in prekindergarten. This will enable the state to track the progress of all prekindergarten students as they enter the public education system. In addition, ECECD will utilize aspects of the kindergarten observation tool (KOT) data as a measure for student's readiness for Kindergarten. The New Mexico Kindergarten Observation Tool (NM KOT), rubric rating of "First Steps for K" indicates the child is ready for kindergarten in six domains of development, Physical Development, Literacy, Mathematics, Scientific Conceptual Understanding, Self, Family, and Community (Social-emotional) and Approaches to Learning (social-emotional). This is a shared measure for both public and private funded prekindergarten programs.

Again, we are grateful for the partnership and collaboration on this report and look forward to working together to ensure our youngest learners have access to high-quality early education.

Sincerely,



Elizabeth
Cabinet Secretary

Appendix A. Evaluation Scope and Methodology

Evaluation Objectives.

- Reassess the outcomes of New Mexico prekindergarten programs to determine program effectiveness.
- Assess current quality controls and quality control effectiveness.
- Assess opportunities to improve program quality.

Scope and Methodology.

- Reviewed:
 - Applicable statute and administrative code.
 - LFC file documents.
 - Agency policies and procedures, and data for prekindergarten programs.
 - National, international, and local best practices.
 - Financial data from SHARE.
 - Relevant performance measures, administrative data, and related documents.
- Analyzed data from ECECD, CYFD, and PED.
- Conducted site visits and interviewed appropriate staff.
 - The evaluation team visited prekindergarten programs.
 - The evaluation team also met with ECECD, PED and CYFD staff and school district staff.
- Researched evaluation reports from other states and national groups as well as academic literature.

Evaluation Team.

Janelle Taylor Garcia, Ph.D., Lead Program Evaluator
 Nathan Eckberg, Esq., Program Evaluator
 Jacob Rowberry, Program Evaluator

Authority for Evaluation. LFC is authorized under the provisions of Section 2-5-3 NMSA 1978 to examine laws governing the finances and operations of departments, agencies, and institutions of New Mexico and all of its political subdivisions; the effects of laws on the proper functioning of these governmental units; and the policies and costs. LFC is also authorized to make recommendations for change to the Legislature. In furtherance of its statutory responsibility, LFC may conduct inquiries into specific transactions affecting the operating policies and cost of governmental units and their compliance with state laws.

Exit Conferences. The contents of this report were discussed with the Secretary of the Early Childhood Education and Care Department and staff, Public Education Department staff, and Children, Youth and Families Department staff on June 3, 2020.

Report Distribution. This report is intended for the information of the Office of the Governor, Department of Finance and Administration, Office of the State Auditor, and the Legislative Finance Committee. This restriction is not intended to limit distribution of this report, which is a matter of public record.



Jon Courtney, Ph.D.
 Deputy Director for Program Evaluation

Appendix B. Methodologies Used in Analyses

The methodology employed in this evaluation builds upon prior LFC data collection efforts and analysis of New Mexico prekindergarten programs developed in recent years and applies a statistically rigorous framework (multilevel modeling) to further evaluate prekindergarten’s impact on various social and educational outcomes. The statistical method used allows for factors likely influencing outcomes (FRL status, EL status, school attended, etc.) to be controlled for, therefore isolating the prekindergarten effect. The data used in the evaluation spans between SY06 (inaugural New Mexico prekindergarten cohort) and SY19 and is comprised of numerous unique datasets (prekindergarten enrollment data, student demographic data, student assessment/test data), merged together by unique student identification numbers. LFC’s Program Evaluation Unit was recently awarded the 2020 National Legislative Program Evaluation Society (NLPES) Excellence in Research Methods Award for the 2019 report *Childcare Assistance Effectiveness*. This evaluation uses the same multilevel modeling technique as the recognized study.

Data Set Development.

1. Merged PED and CYFD prekindergarten enrollment data (SY06 – SY19) with educational outcome data (graduation data, Kindergarten ECOT data, PARCC and TAMELA test data).
 - a. Nonprekindergarten student educational outcome data were retained to enable group comparisons.
2. Merged PED student demographic data, using year of educational outcome of that analysis.

Individual data sets were compiled for specific analyses run. Each dataset includes the following information for each student:

- Student ID number, prekindergarten participation data, school and school district, demographic information (e.g. race/ethnicity, FRL level, EL), school-level data

Statistical Analysis

LFC staff analyzed the cohorts of New Mexico prekindergarten students, comparing various educational outcomes while controlling for student and school characteristics including race/ethnicity, FRL status, EL status, and school. The procedure used for the educational outcome analyses in the report was considered by the researchers to be best practice and of the highest rigor based on an academic literature review. This program evaluation employed multilevel modeling, also known as hierarchical linear modeling (HLM). The description below outlines the model and final results as reported in the program evaluation.

Group-Level Random Intercept Model. Using a group-level random based intercept model, group-level (schools) and individual-level (students) variables were controlled for as covariates during the various educational outcome analyses. Based on exploratory data analysis and existing academic research, certain school-level variables help explain variability in intercepts across schools. In the model, the following school-level variables were created: percentage of FRL students, percentage minority students, and percentage EL students. At the individual-level, prekindergarten participation, race/ethnicity, FRL status, and EL status were included as variables.

$$Y_{ij} = \gamma_{00j} + \gamma_{01} FRL_mean_j + \gamma_{02} EL_mean_j + \gamma_{03} MinorityStatus_mean_j + \gamma_{04} PreKParticipation_{ij} + \gamma_{05} FRL_{ij} + \gamma_{06} EL_{ij} + \gamma_{07} RaceEthnicity_{ij} + u_{0j} + \epsilon_{ij}$$

Potential Limitations and Future Directions

Selection bias into a prekindergarten program is a potential concern, however, controlling for school- and individual-level variables through multilevel modeling alleviates this concern to some extent. Nevertheless, there may be unobservable characteristics of prekindergarten students that act as a confounder. One such hypothetical is that families of prekindergarten students are more proactive and engaged in their children's early childhood

education. To the extent the families of prekindergarten students are engaging in educational and developmental activities at a higher rate than nonprekindergarten families, the prekindergarten effect may be overestimated as home learning activities are being credited to prekindergarten programs. Conversely, it is plausible that families whose children are not in prekindergarten compensate for the lack of prekindergarten through increased home learning activities (e.g., higher parental/family engagement of nonprekindergarten students during summer before Kindergarten entry). If this were true, the prekindergarten impact would be understated. An additional potential confounder that could lead to prekindergarten's impact being underestimated is if students in the nonprekindergarten group attend Head Start, child care, or a private program.

The potential limitations of this program evaluation are consistent with any quasi-experimental research design. When feasible and appropriate, utilizing randomized control trials in New Mexico prekindergarten programming greatly improves the validity of research findings. Short of that, expanding data collection efforts on prekindergarten program participants would enable a more robust set of control variables, minimizing the potential for unobserved confounders.

Workforce Simulation Model

A simulation model was used for the analysis of CYFD prekindergarten teacher degree level on student assessment outcomes given certain dataset limitations. The CYFD workforce data was provided at the site-level, not allowing for a data linkage between individual prekindergarten teachers and students. In an effort to circumvent this limitation, the simulation model assigns treatment (e.g., prekindergarten teacher with bachelor's degree) randomly to students based on the known distribution at the site-level (provided data). For example, if 80 percent of prekindergarten teachers at a specific site have bachelor's degrees, 80 percent of students at that site will randomly be assigned treatment. After treatment assignment, a comparison of group means (e.g., student proficiency percentage) is possible. As is standard in simulation modeling, this procedure is repeated numerous times to alleviate concerns about the makeup of treatment and nontreatment groups not being representative of the true population. For this evaluation, the simulation model is based on two thousand individual model runs.

Administrative Overhead Calculation Methodology for CYFD Prekindergarten Programs

LFC staff accessed NM Pre-K Program Invoices for FY20 for CYFD prekindergarten providers using SHARE. Program expenditure reports were attached to the invoices and LFC staff used "Account Description (Line Items from Budget)" and "Approved FY20 Budget" fields and amounts to calculate administrative overhead. The "Account Description" categories considered by LFC staff included: Maintenance, Other Operating Costs, Other Costs, and Capital Outlay (Start Up & Safety). Employee-Salaries, Employee-Related Benefits, Employee In-State-Travel, Supplies-Education, and Supplies-Other were considered direct prekindergarten costs and not administrative overhead. Excluded from the calculation was Transportation for Children.

It was noted by ECECD that direct instructional/educational costs are sometimes embedded with Other Operating Costs and Other Costs. If this is the case, calculated administrative overhead percentages could be overstated. However, absent additional expenditure and/or budget data, the amounts shown in the program expenditure reports cannot be disaggregated.

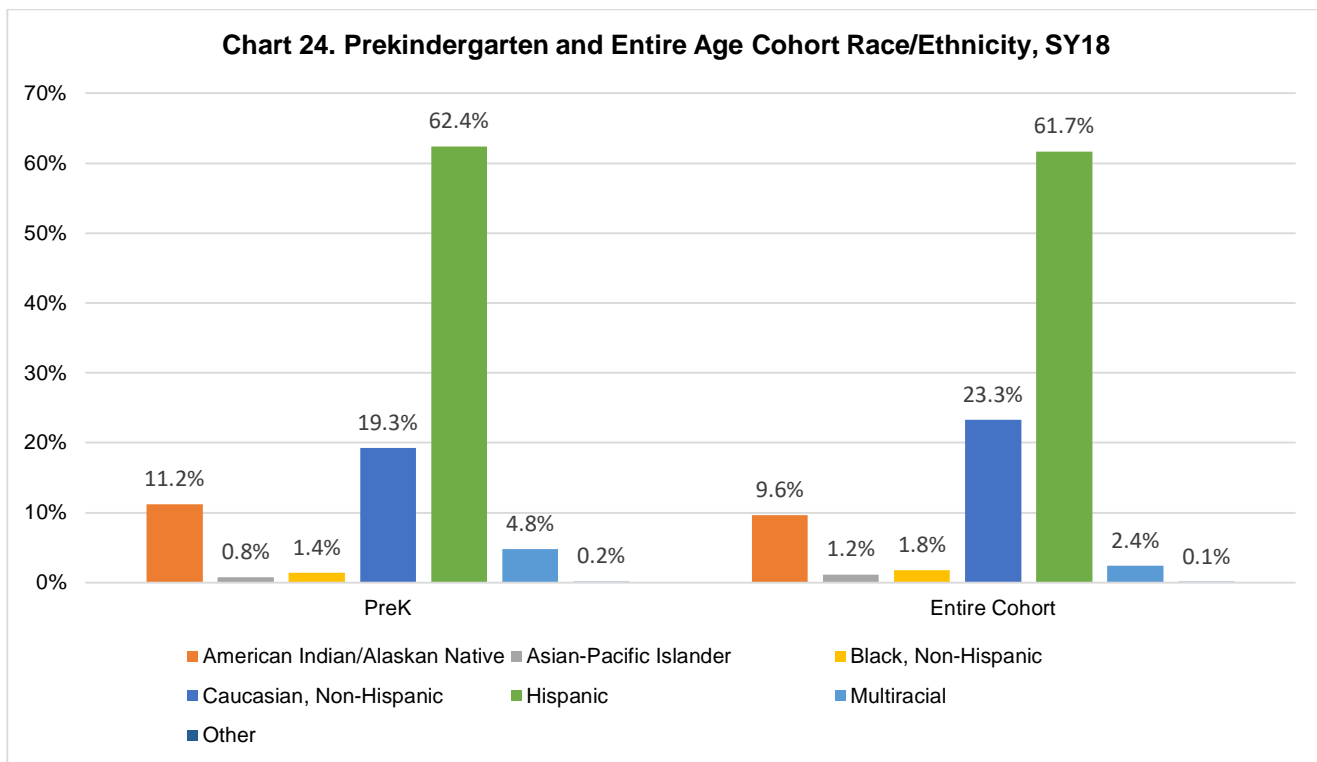
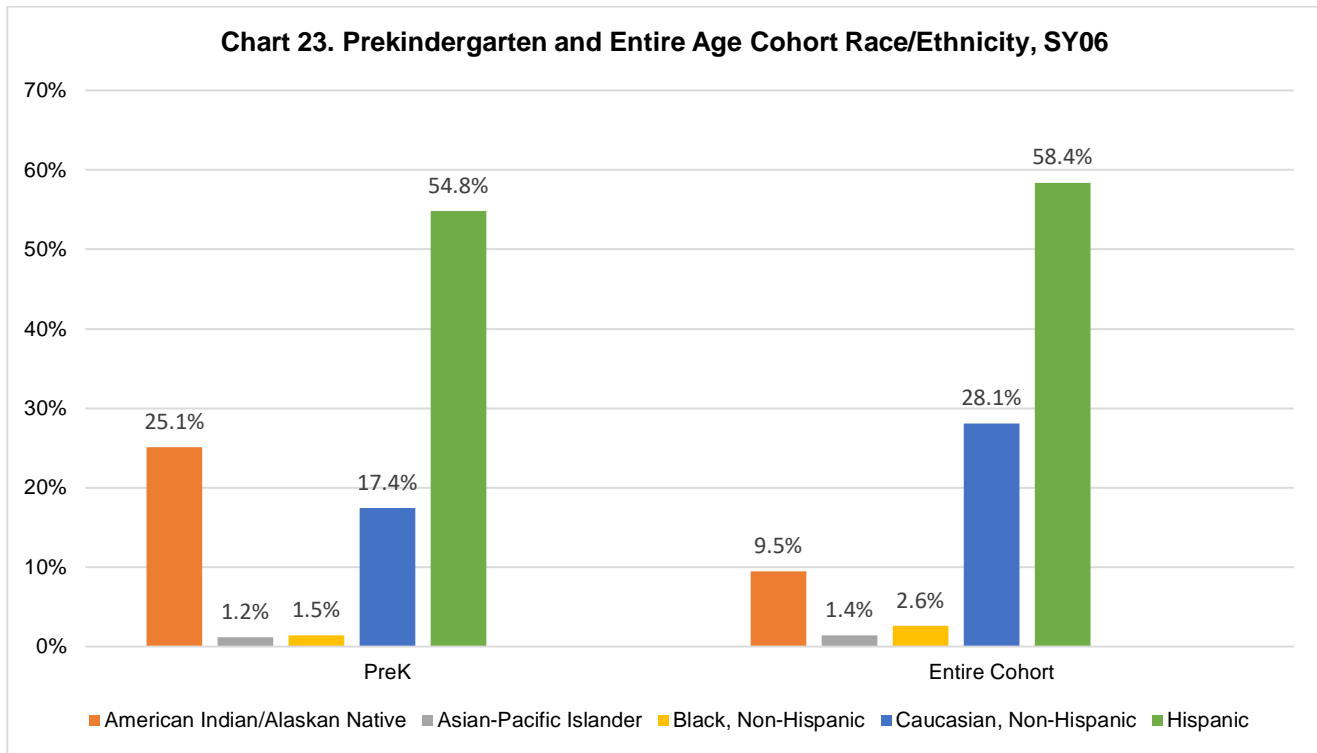
Appendix C. Results First Cost-Benefit Analysis Results

Expected Case	
Benefits to Participants	\$13,832
Benefits to Taxpayers	\$16,362
Other Beneficiaries	\$10,550
Other Indirect Benefits	\$0
Total Benefits	\$40,743
Cost (Net)	\$7,000
Benefits - Costs (NPV)	\$33,743
Benefits / Costs (Ratio)	\$5.82

Dollar Year: 2018

Deadweight Cost of Taxation Included: No

Appendix D. Prekindergarten Demographics



Appendix E. State Statutory Definitions of School Readiness

State	Statutory Definition of School Readiness
Alabama	
Alaska	
Arizona	
Arkansas	
California	
Colorado	Physical well-being and motor development, social and emotional development, language and comprehension development, and cogitation and general knowledge (Colo. Reve. State. Ann. 22-7-1004)
Connecticut	
Delaware	Five domains of school readiness be measured within the school readiness assessment, including: language & literacy, cognition & general knowledge, approaches toward learning, physical well-being & motor dev., & social emotional dev. (Del. Code Ann. Tit. 14, 151)
D.C.	"A child's mastery of approved early-learning standards in language and literacy, mathematical thinking, social emotional dev., scientific inquiry, social studies, approaches to learning & health." (DC Code Ann. 38-271.01)
Florida	
Georgia	
Hawaii	
Idaho	
Illinois	Address language & literacy dev., cognition and math, approaches toward learning & social emotional development. These measures inform the Kinder entrance assessment. (Ill. Admin. Code tit. 23, 1.420)
Indiana	
Iowa	
Kansas	

	School readiness means a student is "ready to engage in and benefit from early learning experiences that best promote the student's success." (704 KY. Admin. Regs. 5:070)
Kentucky	
Louisiana	School readiness means that "children are intellectually prepared for school, but also that they are socially & emotionally prepared for success in the classroom." (28 La Admin. Code Pt CLIX, 701)
Maine	
Maryland	"School readiness means the stage of early development that enables an individual child to engage in and benefit from early learning experiences. As a result of family nurturing & interactions with others, a young child in this stage has reached certain levels of social & emotional development, cognition & general knowledge, language development, & physical well-being & motor development. School readiness acknowledges individual approaches toward learning as well as the unique experiences & backgrounds of each child"
Massachusetts	
Michigan	
Minnesota	"School readiness is defined as the child's skills, knowledge, & behaviors at kindergarten entrance in these areas of child development: social; self-regulation; cognitive, including language, literacy, and mathematical thinking; and physical." (Minn. Stat. Ann. 124D.141)

Mississippi	
Missouri	
Montana	
Nebraska	
Nevada	
New Hampshire	
New Jersey	
New Mexico	
New York	
North Carolina	The kindergarten entrance assessment addresses give domains of school readiness: "language & literacy development, cognition & general knowledge, approaches toward learning, physical well-being & motor development, & social & emotional development." The assessment produces quantitative data on each of readiness factors to inform instructional strategies. (N.C. Gen. Stat. Ann. 115C-83.5).
North Dakota	
Ohio	
Oklahoma	
Oregon	The kindergarten entrance assessment measures school readiness, which may include physical & social-emotional development, early literacy, language & cognitive skills, & logic & reasoning. (Or. Admin. R. 581-022-2130).
Pennsylvania	
Rhode Island	
South Carolina	Under the S.C. First Steps to School Readiness program, school readiness is defined as the level of child development necessary to ensure early school success as measured in the following domains: physical health & motor skills, emotional & social competence, language & literacy development, and mathematical thinking & cognitive skills. School readiness is supported by the knowledge & practices of families, caregivers, healthcare providers, educators, and communities.
South Dakota	
Tennessee	
Texas	The state defines school readiness as a child being able to function competently in a school environment in the areas of early language and literacy, mathematics, and social skills. School readiness is measured by state-approved assessment instruments. (19 Tex. Admin. Code 102.1002).

Utah	The state has a school readiness programs. The programs must have elements of content knowledge and skill development in oral language, phonics, alphabet and word knowledge, prewriting, book & print awareness, numeracy, creative arts, science & technology, and social studies, health & safety. (Utah Code Ann. 53A-1b-105).
Vermont	
Virginia	
Washington	
West Virginia	The state defines school readiness as a process of assuring children have access the best available resources prior to first grade. This process includes activities that support health & physical development, social & emotional development, language & communication development, cognitive & general knowledge, & individual approaches to learning. (W. Va. Code R. 126-28-3).
Wisconsin	
Wyoming	
Source: State Kindergarten-Third Grade Policies. Education Commission of the States (ECS), June 2018	

ⁱ New Mexico Public Education, <https://webnew.ped.state.nm.us/wp-content/uploads/2018/09/ECOT-SRCL.pdf>