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Arkansas Better Chance (ABC) Program Longitudinal Study 2009-2020

EXECUTIVE SUMMARY

The Arkansas Better Chance (ABC) program longitudinal study (2009-2020) reviews the changing circumstances and outcomes of participation in Pre-K services in Arkansas. The “core comparison” of this study is between ABC participants and students who had no known Pre-K participation but have similar household income levels. The results show that ABC participants generally have better attendance rates in kindergarten, elementary, and secondary school, as well as lower rates of chronic absenteeism, higher persistence, and higher proficiency percentages compared to students of similar socioeconomic status who had no known Pre-K services.¹

The core comparison shows that, in kindergarten, the ABC group had more average days present, fewer average days absent, and fewer average days unreported for the eleven-year study period compared to the no known Pre-K group. In FY20 the ABC group had 6.3 more days present, 1.4 fewer absences, and 4.9 fewer unreported days in kindergarten. The ABC group also showed a gain in elementary and secondary school attendance of 1.6 to 7.5 average total days present. Similarly, the core comparison shows ABC Gains in the form of lower chronic absenteeism in kindergarten for all three absenteeism calculations.

The core comparison also shows ABC gains in proficiency percentages for most years as well as retention rates. ABC proficiency gains ranged from 0.4% to 4.9% in reading and language arts, 1.2% to 5.5 in math and 0.6 to 2.5% in science in FY19. Improved rates of retention are observed for the ABC group in all years after the first year of kindergarten when compared to the group with no known Pre-K services. However, ABC students with Direct Certification and Free meal status who are chronically absent are less likely to score proficient on assessments compared to other ABC students who are not chronically absent.

Rates of persistence also differ according to the core comparison groups. The ABC core comparison group had 3.2 to 7.4 percentage points higher in-state (and 3.3 to 6.3 percentage points higher in-county) persistence compared to students with similar socioeconomic status who had no known Pre-K services.

The study also reviews the change over time in special education services for ABC participants. Among ABC students with early childhood special education designations, between 31.6% and 32.7% (Preschool Disabled) and between 26.4% and 17.1% (Speech/Language Impairments) continued to receive services 3 to 8 years after kindergarten.

The study examines changes in the type of Pre-K services used as well as changes in meal status designation for kindergarten students. Compared to a decade earlier, ABC participants in FY20 make up a larger share of DESE kindergarten enrollees and are more likely to have Direct Certification or free meal status. This data on Pre-K participation and meal status provide the context for the comparison scores that make up the bulk of the analysis.

¹ For both groups, the household socioeconomic status is accounted for by selecting only students with direct certification or free meal designation.

DATA HIGHLIGHTS

ABC Data Description

- ABC participants are highly likely to enroll in DESE kindergarten. 90% of ABC participants enrolled in DESE kindergarten in Arkansas.
- 43% of all DESE kindergarten students were ABC participants, steadily increasing from 38% in 2010 to 46% in 2020.
- 86.5% of ABC participants received full-time ABC services (7 hours or more per day).
- 38% of all DESE kindergarten student were full-time ABC participants (7 hours or more per day), steadily increasing from 31% in 2010 to 41% in 2020.

Meal Status

- The percent of all kindergarten students with direct certification and free lunch meal status has increased from 54% in FY10 to 60% in FY20
- ABC kindergarten students have higher rates of direct certification and free lunch meal status than Non-ABC students for all years FY10-20.
- Direct Certification and free lunch meal status has increased from 66% in FY10 to 70% in FY20 for ABC kindergarten students.

Kindergarten Attendance

- ABC participants were counted present for 2.6 additional days compared to Non-ABC participants in FY20. On average, ABC participants had more days present in kindergarten than Non-ABC participants for all years in FY10-20.
- Based on the relatively high number of days present for ABC participants, ABC students should have similarly fewer days reported absent. However, there was no significant difference in the Total Days Absent in kindergarten for ABC vs. Non-ABC students. This discrepancy is partially explained by missing or “unreported” records.
- An average of two days are unreported from the records for each Non-ABC student. It is unclear why Non-ABC students would have more unreported days than ABC students.

Meal Status and Kindergarten Attendance

- Kindergarten students with reduced meal status had the highest average Total Days Present. This group also has an average Total Days Absent situated between the lower and higher income meal statuses
- Direct Certification and Free meal status groups had the highest average kindergarten Total Days Absent and the lowest average Total Days Present.
- The highest income meal status, Full Price Paid, has the lowest average Total Days Absent, and the second highest average Total Days Present compared to all other meal statuses.
- There is a gain in Total Days Present for ABC participants compared to groups of similar socio-economic status students who didn’t participate in ABC. Between 3.5 and 4.9 additional days present have been identified for ABC free meal students compared to Non-ABC students who are also receiving free meals based upon household income
- The kindergarten average Total Days Present consistently shows a positive ABC Gain for all meal statuses except Full Price Paid. The Full Price Paid group is the smallest meal status group among ABC participants.

Pre-Kindergarten Participation

- Parent and guardian reports indicate that between 41% and 54% of kindergarten students have no known Pre-K participation, although participation in ABC is under-reported by parent/guardian for this data element.
- Among kindergarteners with direct certification or free meal status, those who participated in ABC had slightly more Total Days Present compared to students who participated in Other Pre-K options.

Attendance- Core Comparison – ABC vs No Known Pre-K

- Among kindergarteners with direct certification or free meal status;
 - Those who participated in ABC had 6.3 more Total Days Present on average compared to students who had no known Pre-K participation in FY20.
 - The ABC gain using the No Known Pre-K cohort (6.3 days present) is larger than the ABC gain using the Non-ABC cohort (4.7 days present) in FY20.
 - The ABC vs. No Known Pre-K comparison shows a negative ABC Gain of 1.4 to 2.0 days absent, which is 1.4 to 2.0 days fewer ABC absences for FY10-20.
 - The ABC vs. No Known Pre-K comparison shows a negative ABC Gain of 0.8 to 2.5 days unreported, which is 0.8 to 2.5 fewer days not reported as either present or absent for ABC for FY10-20.
- For the eleven-year study period, ABC direct certification or free meal kindergarteners had more average days present, fewer average days absent, and fewer average days unreported than No Known Pre-K for students who received free meals based upon household income.

Elementary and Secondary Attendance

- Most students who attended kindergarten in DESE remain in DESE schools throughout K-12. 86% of the research IDs present in FY10 kindergarten can be found ten years later in DESE schools during FY20.
- The beneficial gains of ABC (fewer absences and more days present) persist through elementary and secondary school years. The gains are generally strongest in kindergarten and decrease in subsequent years.
- Among students with direct certification or free meal status, there is an ABC Gain of 1.6 to 7.5 additional days of average total days present for ABC compared to No Known Pre-K.
- Among students with direct certification or free meal status, there is an ABC Gain of -0.3 to -2.0 days of absence, indicating fewer average total days absent for ABC compared to No Known Pre-K.

Chronic Absenteeism

- The core comparison groups reflect ABC Gains in the form of lower chronic absenteeism for all three absenteeism calculations for ABC vs. No Known Pre-K.
- Among kindergarteners with direct certification or free meal status;
 - There is an ABC Gain of 5.2 to 7.2 percent lower chronic absenteeism for ABC vs. No Known Pre-K for code CA10 (18 days or more absent).
 - There is an ABC Gain of 5.8 to 8.2 percent lower chronic absenteeism for ABC vs. No Known Pre-K for code CA15 (15 days or more absent).
 - There is an ABC Gain of 9.3 to 12.8 percent lower chronic absenteeism for ABC vs. No Known Pre-K for code CA160 (160 days or fewer present).

Assessment and Proficiency

- For most years, the core comparison groups reflect ABC Gains for in the form of higher proficiency percentages for reading and language arts, math, and science. These gains are among ABC vs. No Known Pre-K groups with direct certification or free meal status.
- Among direct certification or free meal status students in FY19;
 - The reading and language arts proficiency gains for ABC ranged from 4.9% (Kindergarten FY13) to 0.4% (Kindergarten FY15).
 - The math proficiency gains for ABC ranged from 5.5% (Kindergarten FY16) to 1.2% (Kindergarten FY11).
 - The science proficiency gains for ABC ranged from 2.5% (Kindergarten FY12) to – 0.6(Kindergarten FY11).
 - Kindergarten FY11 showed some of the lowest gains in all three proficiency categories and was the only cohort to have negative gains for some years.

Chronic Absenteeism and Proficiency

- Students who are chronically absent at least ten percent of the school year (18 or more days) are generally less likely to score proficient on assessments compared to students who are not chronically absent. These chronically absent students are:
 - 10% to 21% less likely to be proficient in Reading Language Arts (RLA) assessments beginning in third grade.
 - 10% to 21% less likely to be proficient in Math assessments beginning in third grade.
 - 10% to 20% less likely to be proficient in Science assessments beginning in third grade.
- The impact of chronic absenteeism on proficiency percentages extends to core ABC participants. ABC students with Direct Certification and Free meal status in kindergarten who are chronically absent are less likely to score proficient on assessments compared to other core ABC students who are not chronically absent. These chronically absent students are:
 - 4% to 16% less likely to be proficient in Reading Language Arts (RLA) assessments beginning in third grade.
 - 8% to 17% less likely to be proficient in Math assessments beginning in third grade.
 - 4% to 14% less likely to be proficient in Science assessments beginning in third grade

Special Education Early Childhood

- Among students with early childhood special education designations (Preschool Disabled), the first FY assessed (third grade) shows consistently lower rates of students continuing to receive special education services compared to subsequent years. This is mostly likely attributed to early childhood special education students who do not reach third grade in exactly three years.
- Receipt of special education services can also be broken down by program type. Among ABC students with early childhood special education designations (Preschool Disabled), between 31.6% and 32.7% continued to receive services 3 to 8 years after kindergarten.
- Among ABC students with early childhood special education designations (Speech/Language Impairments), between 26.4% and 17.1% continued to receive services 3 to 8 years after kindergarten.

Retention

- Lower rates of retention are observed for ABC for Direct Certification and Free meal status in all years after the first year of kindergarten when compared to No Known Pre-K for Direct Certification and Free meal students.

Persistence

- Among Direct Certification plus Free meals students, those who participated in ABC had 3.2 to 7.4 percentage points higher statewide persistence rates compared to No Known Pre-K Direct Certification plus Free meals. There was no significant difference between all students and ABC Direct Certification plus Free meals calculations for persistence in the state.
- In-county persistence rates followed a similar pattern to in-state persistence. Among Direct Certification plus Free meals students, those who participated in ABC had 3.3 to 6.3 percentage points higher county persistence rates compared to No Known Pre-K Direct Certification plus Free meals. There was no significant difference between all students and ABC Direct Certification plus Free meals calculations for in-county persistence.

ABC DATA DESCRIPTION

DESE provided 365,514 records of ABC students for academic years 2009 through 2020. The deduplication process for these 365,514 records resulted in 233,922 individual students, with 223,836 noted as school age prior to August 1, 2020. The matching process for K-12 data reduced the number of individual students to 215,803 unique DESE research IDs, protecting student privacy.

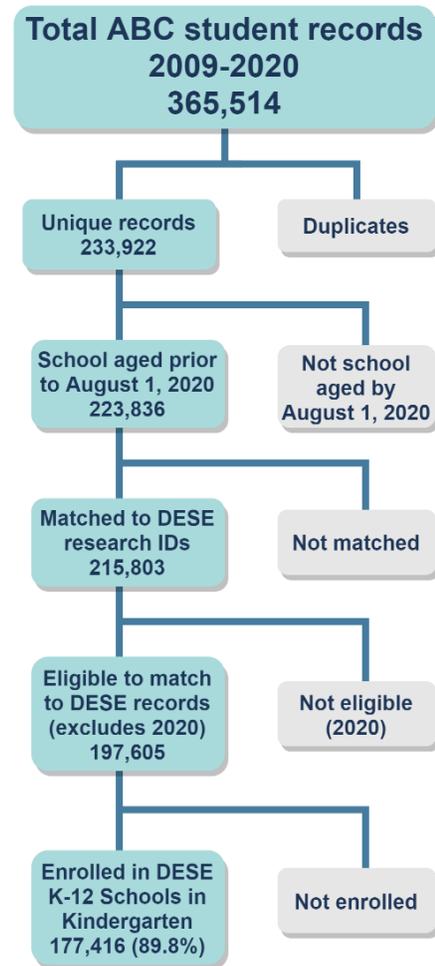
Section Highlights

- ABC participants are highly likely to enroll in DESE kindergarten. 90% of ABC participants enrolled in DESE kindergarten in Arkansas.
- 43% of all DESE kindergarten students were ABC participants, steadily increasing from 38% in 2010 to 46% in 2020.
- 86.5% of ABC participants received full-time ABC services (7 hours or more per day).
- 38% of all DESE kindergarten student were full-time ABC participants (7 hours or more per day), steadily increasing from 31% in 2010 to 41% in 2020.

ABC Pre-K Year	Participants
2009	15,341
2010	18,077
2011	18,156
2012	18,234
2013	18,041
2014	18,239
2015	17,893
2016	18,388
2017	18,412
2018	18,333
2019	18,491
2020	18,198
TOTAL	215,803

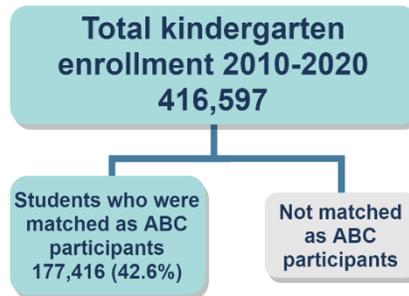
The student enrollment records for associated grades of K-12 for each of these ABC student years (2010-2020) were also provided by DESE with research IDs. The 2020 Pre-K Year (18,198) students were not eligible to match against kindergarten records of DESE academic year 2020, otherwise, 177,416 of the 197,605 eligible students were found enrolled in DESE K-12 schools in kindergarten. 177,416 is 89.8% of the 197,605 eligible ABC students.

- 90% of ABC participants enrolled in DESE kindergarten in Arkansas



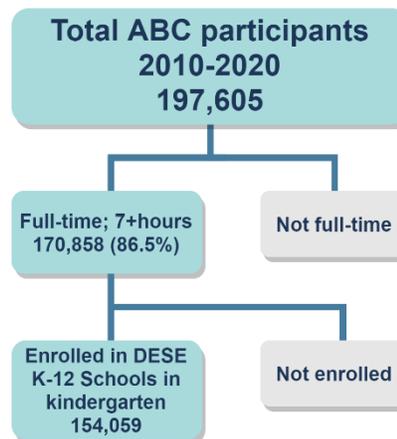
The total kindergarten enrollment for academic years 2010 through 2020 in the DESE data provided was 416,597. As previously stated, 177,416 ABC students were matched, representing 42.6% of the total DESE kindergarten enrollment for the eleven academic years 2010 through 2020 as ABC participants.

- 43% of all DESE kindergarten students were ABC participants, steadily increasing from 38% in 2010 to 46% in 2020

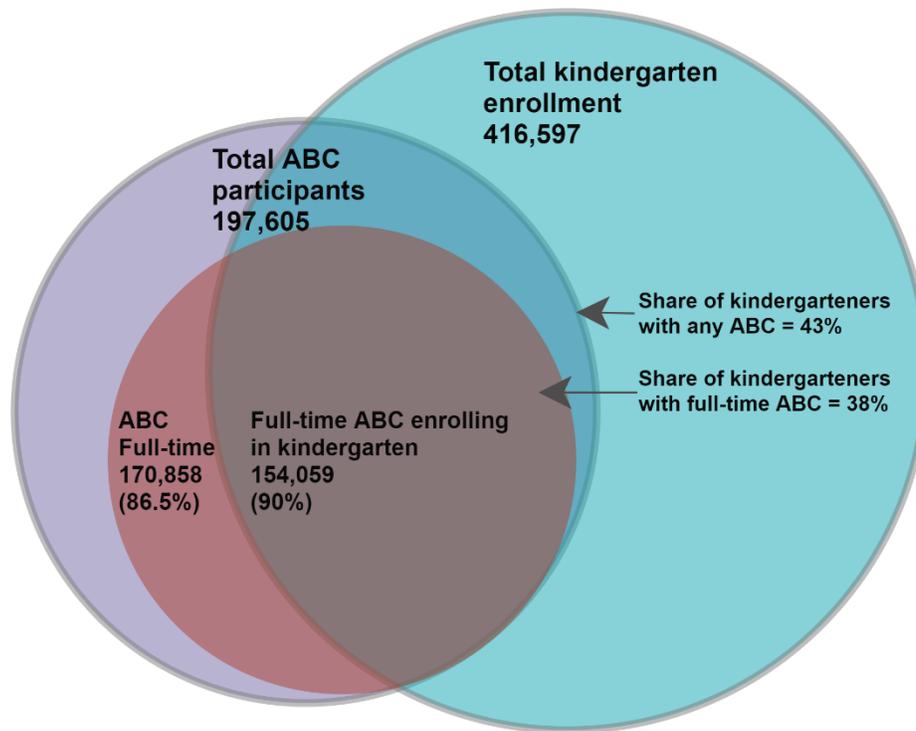


Participation in ABC includes children who receive part-time services (fewer than 7 hours per day, most often just 1 hour per day) and full-time services (7 hours or more per day). The number of ABC program full-time participants from 2009 to 2019 with 7 hours (or more) per day was 170,858. Because 197,605 ABC participants were previously identified, 170,858 as full-time (7 hours or more per day) ABC represents 86.5%. There were 154,059 of the 170,858 full-time participants from 2009 to 2019 matched to DESE kindergarten enrollment (90%). Compared to the full DESE enrollment for kindergarten, 37.8% were full-time ABC participants.

- 86.5% of ABC participants received full-time ABC services (7 hours or more per day)



- 90% of ABC full-time participants (7 hours or more per day) enrolled in DESE kindergarten in Arkansas
- 38% of all DESE kindergarten student were full-time ABC participants (7 hours or more per day), steadily increasing from 31% in 2010 to 41% in 2020.



REPORTING TERMS

ABC

Unless otherwise stated, references to Arkansas Better Chance (ABC) within this analysis specifically isolate full-time ABC participants (7 hours or more per day). While other children also received ABC services and are included in the ABC data sets provided, the evaluation of the ABC program focuses upon participants in the full-time ABC program.

FISCAL YEAR (FY)

Fiscal years referenced throughout this analysis are coded according to DESE standards. The fiscal year (FY) indicator references the number of years since academic year 1999-2000. As a result, this analysis focuses on FY10 through FY20. For quick reference, a lookup table has been provided.

Fiscal Year (FY)	Academic Year
10	2009-2010
11	2010-2011
12	2011-2012
13	2012-2013
14	2013-2014
15	2014-2015
16	2015-2016
17	2016-2017
18	2017-2018
19	2018-2019
20	2019-2020

CORE COMPARISON

In the core comparison, a phrase used throughout this analysis, the full-time participants in the ABC program which have the lowest socio-economic indicator (free meal status) are compared to student which received no known Pre-kindergarten services and are also in the lowest socio-economic indicator (free meal status). This comparison isolates the core difference in the two groups as the participation in ABC, while minimizing any difference which may be due to socio-economic factors. The evaluation of the ABC program is most valid when external factors are reduced in the calculations. ABC Gain is a calculation of a percentage associated with full-time ABC program participants with free meal status subtracting the percentage associated with no known Pre-kindergarten students with free meal status. A positive ABC Gain indicates a higher value for ABC. A negative ABC Gain indicates a lower value. ABC Gain is calculated for attendance days present, days absent, chronic absenteeism rates, assessment proficiency, and other measures in this analysis.

MEAL STATUS

Section Highlights

- The percent of all kindergarten students with direct certification and free lunch meal status has increased from 54% in FY10 to 60% in FY20
- ABC kindergarten students have higher rates of direct certification and free lunch meal status than Non-ABC students for all years FY10-20.
- Direct Certification and free lunch meal status has increased from 66% in FY10 to 70% in FY20 for ABC kindergarten students.

Student enrollment meal status allows for a comparison of similar socioeconomic statuses for ABC participants and their non-ABC counterparts in the DESE kindergarten records. Meal status shifted from three values (Free, Reduced, Full Price) until Fiscal Year (FY) 14, corresponding to academic year 2013-2014, to four values (Direct Certification, Free, Reduced, Full Price) beginning in FY15, academic year 2014-2015. Direct Certification is also a free meal status; however, the identification of qualifying students is performed at the state level by identifying the student’s household as participating in the Supplemental Nutrition Assistance Program (SNAP).

Free meals for students not identified through Direct Certification at the state level are possible through a free meal application process at the school level, completed by the parent or guardian. Both SNAP and free meal applications require household income to be below 130% of the national poverty level. Those students with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals. Incomes above 185 percent of the poverty level are classified as Full Price Paid meals. ABC household incomes shall not exceed 200 percent of the poverty level, allowing the lowest Full Price Paid households to qualify for ABC.

- Direct Certification meal status indicates SNAP participants in households with incomes below 130% of the poverty level
- Free meal status indicates households with incomes below 130% of the poverty level
- Reduced meal status indicates households with incomes from 130% to 185% of the poverty level
- Full Price Paid meal status indicates households with incomes above 185% of the poverty level
- ABC participants include households up to 200% of the poverty level

In order to provide a clearer view of free meal status across the transition years for DESE meal status from three values to four values, a combined value for all free meals (Direct Certification + Free) is calculated in the resulting tables as “DC+Free”.

Percent of national poverty level	Below 130%	130% to 185%	Above 185% to 200%	over 200%
Meal Status	Direct Certification or Free Meal	Reduced	Full-price	
ABC participation	Eligible			Not Eligible

MEAL STATUS – ALL KINDERGARTEN STUDENTS

Kindergarten meal status totals for all students the eleven years analyzed:

Fiscal Year	K Students	Direct Cert	Free	DC+Free	Reduced	Full Price Paid
10	39,041		54%	54%	9%	37%
11	36,084		53%	53%	9%	38%
12	35,899		54%	54%	9%	37%
13	39,560		54%	54%	9%	36%
14	38,557		53%	53%	9%	38%
15	37,252	33%	23%	56%	9%	36%
16	36,405	35%	22%	58%	8%	35%
17	35,999	33%	24%	57%	8%	35%
18	36,167	32%	25%	57%	8%	35%
19	35,733	30%	27%	57%	8%	35%
20	36,382	33%	26%	60%	7%	33%

MEAL STATUS – ABC KINDERGARTEN STUDENTS

Full-time ABC participants' meal status percentages

Fiscal Year	K Students	Direct Cert	Free	DC+Free	Reduced	Full Price Paid
10	12,220	0%	66%	66%	12%	22%
11	12,966	0%	65%	65%	12%	23%
12	12,378	0%	65%	65%	12%	22%
13	13,901	0%	64%	64%	12%	23%
14	13,932	0%	62%	62%	12%	26%
15	14,056	38%	26%	64%	12%	24%
16	14,655	42%	26%	68%	10%	23%
17	15,292	40%	28%	68%	10%	22%
18	15,007	37%	29%	67%	10%	23%
19	14,759	35%	31%	66%	10%	23%
20	14,893	40%	30%	70%	9%	21%

MEAL STATUS – NON-ABC KINDERGARTEN STUDENTS

All other kindergarten Non-ABC students (not full-time ABC participants) meal status

Fiscal Year	K Students	Direct Cert	Free	DC+Free	Reduced	Full Price Paid
10	26,821	0%	49%	49%	8%	43%
11	23,118	0%	47%	47%	7%	46%
12	23,521	0%	48%	48%	8%	45%
13	25,659	0%	49%	49%	8%	43%
14	24,625	0%	48%	48%	7%	45%
15	23,196	30%	21%	50%	7%	43%
16	21,750	31%	20%	51%	6%	43%

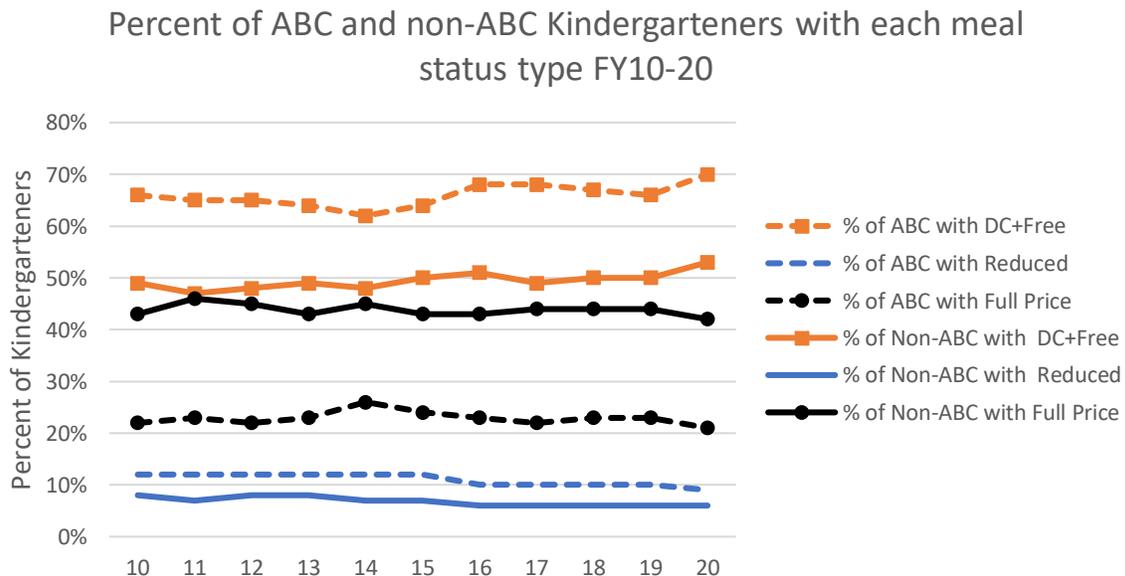
17	20,707	28%	21%	49%	6%	44%
18	21,160	27%	22%	50%	6%	44%
19	20,974	26%	23%	50%	6%	44%
20	21,489	29%	24%	53%	6%	42%

References to ABC participants and data identified as “ABC” throughout the remainder of this report are specifically ABC full-time participants receiving services 7 or more hours per day. Non-ABC is a descriptor for all other students in the DESE data.

Side-by-side comparison of meal status percentages for ABC and Non-ABC

Fiscal Year	ABC DC+Free	Non-ABC DC+Free	ABC Reduced	Non-ABC Reduced	ABC Full Price	Non-ABC Full Price
10	66%	49%	12%	8%	22%	43%
11	65%	47%	12%	7%	23%	46%
12	65%	48%	12%	8%	22%	45%
13	64%	49%	12%	8%	23%	43%
14	62%	48%	12%	7%	26%	45%
15	64%	50%	12%	7%	24%	43%
16	68%	51%	10%	6%	23%	43%
17	68%	49%	10%	6%	22%	44%
18	67%	50%	10%	6%	23%	44%
19	66%	50%	10%	6%	23%	44%
20	70%	53%	9%	6%	21%	42%

Because ABC participation includes households with up to 200% of the poverty level, the majority of ABC participants receive free meals (Direct Cert + Free), most recently, 70% in academic year 2019-2020. All other students also received free meals more often than reduced or full price, but at the lower rate of 53%.



KINDERGARTEN ATTENDANCE

Section Highlights

- ABC participants were counted present for 2.6 additional days compared to Non-ABC participants in FY20. On average, ABC participants had more days present in kindergarten than Non-ABC participants for all years in FY10-20.
- Based on the relatively high number of days present for ABC participants, ABC students should have similarly fewer days reported absent. However, there was no significant difference in the Total Days Absent in kindergarten for ABC vs. Non-ABC students. This discrepancy is partially explained by missing or “unreported” records.
- An average of two days are unreported from the records for each Non-ABC student. It is unclear why Non-ABC students would have more unreported days than ABC students.

DESE data provided two data fields related to total day of attendance in an academic year. “Total Days Present” and “Total Days Absent” are reported for each DESE student. The academic year is a total of 178 days in Arkansas. Students attending two or more schools in an academic year have had their “Total Days Present” and “Total Days Absent” records at each school summed to represent their academic year in a single attendance record.

FY	Kindergarten Enrolled	Attendance Recorded	% with Attendance	Average Total Days Present	Average Total Days Absent
10	39,041	33,023	84.6%	162.3	10.7
11	36,084	30,628	84.9%	164.8	10.2
12	35,899	31,052	86.5%	164.0	9.2
13	39,560	34,169	86.4%	163.4	10.1
14	38,557	33,208	86.1%	160.5	9.7
15	37,252	31,156	83.6%	162.2	10.0
16	36,405	30,388	83.5%	162.5	9.9
17	35,999	30,183	83.8%	162.5	10.1
18	36,167	30,463	84.2%	161.2	10.9
19	35,733	30,195	84.5%	162.1	10.8
20	36,382	30,700	84.4%	164.4	8.4

ABC - DAYS PRESENT

Calculations for Total Days Present and Total Days Absent for attendance can be separated for ABC participants and Non-ABC participants. The “ABC Gain” will be a positive or negative number representing the difference between ABC and Non-ABC, in terms of days. A positive ABC Gain indicates that ABC participants attended more days.

Kindergarten Average Total Days Present for ABC vs. Non-ABC

FY	ABC	Non-ABC	ABC Gain
10	163.7	161.7	1.9
11	166.3	163.9	2.4

12	165.3	163.4	1.9
13	165.7	162.2	3.5
14	162.1	159.7	2.4
15	163.4	161.4	2.0
16	163.6	161.7	1.8
17	163.5	161.8	1.7
18	161.7	160.9	0.9
19	163.3	161.3	2.0
20	165.9	163.3	2.6

There is a significant difference in average Total Days Present in kindergarten between ABC and Non-ABC. On average, ABC kindergarten students attend two additional days of school instruction as compared to Non-ABC students, most recently 2.6 additional days in FY30.

ABC - DAYS ABSENT

Kindergarten Average Total Days Absent for ABC vs. Non-ABC

FY	ABC	Non-ABC	ABC Gain
10	10.7	10.7	0.0
11	10.4	10.1	0.3
12	9.2	9.2	0.1
13	10.1	10.1	-0.1
14	9.6	9.7	-0.1
15	9.9	10.1	-0.2
16	9.9	9.9	-0.1
17	10.1	10.2	-0.1
18	10.9	10.9	0.0
19	10.9	10.7	0.1
20	8.4	8.5	-0.1

There is no significant difference in the Total Days Absent in kindergarten for ABC vs. Non-ABC students. It is unclear how there can be no difference in Total Days Absent when there is a two day difference in Total Days Present. Conceptually, students who are not present should be absent those days. If ABC students are present two additional days compared to Non-ABC, then Non-ABC students should be recorded as absent two additional days compared to ABC. In these calculations, an average of two days are missing from the records for each Non-ABC student. To address the apparent missing days, a third variable is calculated within this research for each student.

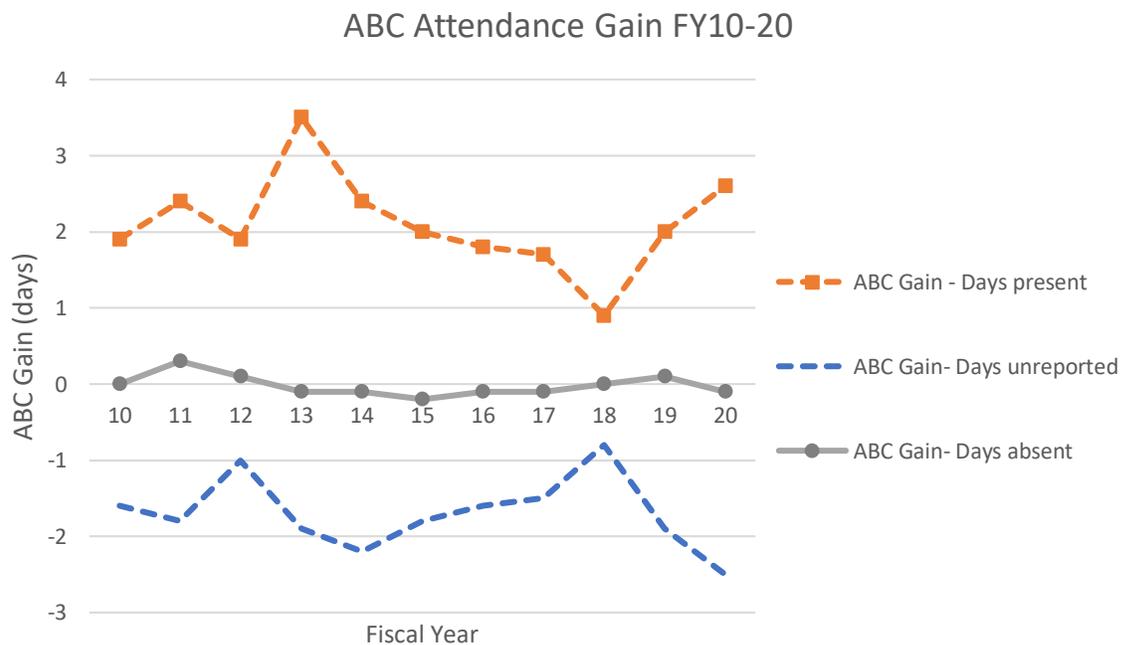
ABC - DAYS UNREPORTED

The total number of school days per year is 178 as mandated in Arkansas. The Total Days Absent plus Total Days Present for each student may be less than 178 days, therefore, a value for Total Days Unreported has been calculated. Total Days Unreported is an additional research variable, not included in the DESE research data, representing the difference between the mandated 178 school days and the number of days reported in Total Days Present and Total Days Absent.

Kindergarten Average Totals Days Unreported for ABC vs. Non-ABC

FY	ABC	Non-ABC	ABC Gain
10	5.1	6.8	-1.6
11	4.5	6.3	-1.8
12	6.1	7.2	-1.0
13	5.1	7.0	-1.9
14	6.8	9.0	-2.2
15	5.0	6.8	-1.8
16	5.1	6.7	-1.6
17	4.9	6.4	-1.5
18	5.6	6.4	-0.8
19	4.3	6.2	-1.9
20	4.0	6.5	-2.5

These Total Days Unreported averages reflect the apparent missing days in the 178 day school year. Because the average Total Days Absent were nearly identical for ABC vs. Non-ABC, it is the larger positive ABC Gain in average Total Days Present for ABC which has been countered by the negative ABC Gain for average Total Days Unreported. Based upon the 178 day school year, a negative ABC Gain for Total Days Unreported indicates fewer ABC unreported days.



MEAL STATUS AND KINDERGARTEN ATTENDANCE

Section Highlights

- Kindergarten students with reduced meal status had the highest average Total Days Present. This group also has an average Total Days Absent situated between the lower and higher income meal statuses
- Direct Certification and Free meal status groups had the highest average kindergarten Total Days Absent and the lowest average Total Days Present.
- The highest income meal status, Full Price Paid, has the lowest average Total Days Absent, and the second highest average Total Days Present compared to all other meal statuses.
- There is a gain in Total Days Present for ABC participants compared to groups of similar socio-economic status students who didn't participate in ABC. Between 3.5 and 4.9 additional days present have been identified for ABC free meal students compared to Non-ABC students who are also receiving free meals based upon household income
- The kindergarten average Total Days Present consistently shows a positive ABC Gain for all meal statuses except Full Price Paid. The Full Price Paid group is the smallest meal status group among ABC participants.

The differences between ABC and Non-ABC for kindergarten attendance indicated a positive ABC Gain in days present, no significant difference in days absent, and a negative ABC Gain for days unreported (fewer unreported days for ABC). Because ABC represents households up to 200% of poverty level, but non-ABC includes all students, with no limits on household income in the Full Price Paid meal status. The impact of ABC in attendance is better understood when isolating and comparing groups of similar socio-economic status, in this case, student meal status.

DAYS PRESENT x MEAL STATUS

Kindergarten Average Total Days Present for All Students by Meal Status

FY	Direct Cert	Free	Reduced	Full Price
10		159.7	166.2	164.9
11		162.3	167.7	167.2
12		162.1	166.9	165.9
13		162.0	167.4	165.0
14		159.0	164.3	161.7
15	160.4	160.6	165.5	163.8
16	160.4	160.7	166.0	164.7
17	159.9	161.6	166.2	164.6
18	157.6	160.1	165.0	164.2
19	159.2	161.6	164.6	164.3
20	161.8	163.8	168.2	166.4

With respect to the student meal status, the highest kindergarten average Total Days Present is consistently the Reduced category, which represents less than 10% of the kindergarten student population (7% to 9% for

FY10-FY20). Beginning with FY15 and the introduction of Direct Certification for free meals, an increase in average Total Days Present occurs as household income increases. Households participating in SNAP have the lowest average for Total Days Present. Free meal status is second lowest, for those households which do not participate in SNAP, but also qualify for free meals. Reduced meal status has the highest average Total Days Present, and a higher household income qualification than Direct Certification and Free. The Full Price Paid meal status represents 35% to 38% of the kindergarten meal status and demonstrates a slightly lower average Total Days Present than the Reduced meal status.

Without further investigation, it is not possible to ascertain the reasons for a reduction in average Total Days Present for Full Price Paid students. Potentially reasonable explanations may include the highest income level households' ability to take vacations or afford additional medical services which would decrease the average days present in the academic year.

DAYS ABSENT x MEAL STATUS

Kindergarten Average Total Days Absent for All Students by Meal Status

FY	Direct Cert	Free	Reduced	Full Price
10		12.1	9.7	9.0
11		11.6	9.4	8.6
12		10.4	8.4	7.7
13		11.3	9.4	8.6
14		11.0	8.7	8.1
15	12.3	10.1	9.1	8.2
16	11.9	9.8	8.8	8.3
17	12.2	10.2	9.1	8.4
18	13.4	10.9	10.0	9.1
19	13.4	10.6	9.7	9.0
20	10.3	8.3	7.5	7.0

The highest kindergarten average Total Days Absent corresponds to the lowest household incomes for Direct Certification and Free meal statuses. Unlike the average Total Days Present, the Reduced meal status has an average Total Days Absent situated between the lower and higher income meal statuses. The highest income meal status, Full Price Paid, has the lowest average Total Days Absent, compared to all other meal statuses.

DAYS UNREPORTED x MEAL STATUS

Kindergarten Average Total Days Unreported for All Students by Meal Status

FY	Direct Cert	Free	Reduced	Full Price
10		7.6	3.2	5.3
11		6.5	3.1	5.2
12		7.5	4.7	6.4
13		6.7	3.0	6.1
14		8.5	5.3	8.6
15	5.6	7.7	3.6	6.4

16	6.1	7.9	3.6	5.6
17	6.3	6.7	3.0	5.3
18	7.3	7.2	3.3	5.0
19	5.9	6.1	3.9	5.0
20	6.3	6.2	2.5	4.9

Total Days Unreported is the calculated value for all other days in the 178 day school year which are not accounted by Total Days Present and Total Days Absent. As in the average Total Days Present, the Reduced meal status stands out from the other meal statuses, but the percentage of students included for Reduced meal status is less than 10% of the kindergarten population. An additional day (or two) is common for lower income meal statuses when compared to the Full Price average days unreported.

The differences in attendance by meal status for all students have been quantified, but the potential impact of ABC participation has not yet been included in the analysis. Further separation of the calculated averages for attendance in kindergarten by both meal status and ABC participation may show differences between ABC and Non-ABC students.

ABC - DAYS PRESENT x MEAL STATUS

Kindergarten Average Total Days Present by Meal Status for ABC vs. Non-ABC

FY	ABC Direct Cert	Non-ABC Direct Cert	ABC Free	Non-ABC Free	ABC Reduced	Non-ABC Reduced	ABC Full Price	Non-ABC Full Price
10			162.6	157.9	167.0	165.7	164.6	165.0
11			165.1	160.2	169.4	166.2	168.1	167.0
12			164.4	160.5	168.0	166.0	166.2	165.9
13			164.7	160.1	168.4	166.6	167.8	164.2
14			161.6	157.1	165.1	163.5	161.9	161.6
15	162.6	158.8	164.2	157.8	166.6	164.5	162.3	164.3
16	162.1	159.0	164.2	157.6	167.6	164.2	163.8	164.9
17	161.5	158.2	164.7	158.4	166.7	165.6	164.0	164.8
18	158.6	156.7	163.0	157.4	166.4	163.5	163.1	164.6
19	161.0	157.5	164.1	159.3	165.8	163.2	164.5	164.3
20	163.9	159.8	166.9	161.2	169.4	167.0	167.0	166.2

ABC - DIRECT CERTIFICATION FOR FREE MEALS

Kindergarten Average Total Days Present by Direct Certification Meal Status for ABC vs. Non-ABC

FY	ABC Direct Cert	Non-ABC Direct Cert	ABC Gain
15	162.6	158.8	3.8
16	162.1	159.0	3.1
17	161.5	158.2	3.4

18	158.6	156.7	1.9
19	161.0	157.5	3.5
20	163.9	159.8	4.1

Direct Certification for free meal status was not implemented until FY15, academic year 2014-2015. During FY15 to FY20, Direct Certification represents approximately 60% of students receiving free meals.

ABC - FREE MEALS

Kindergarten Average Total Days Present by Free Meal Status for ABC vs. Non-ABC

FY	ABC Free	Non-ABC Free	ABC Gain
10	162.6	157.9	4.7
11	165.1	160.2	4.9
12	164.4	160.5	3.9
13	164.7	160.1	4.5
14	161.6	157.1	4.5
15	164.2	157.8	6.4
16	164.2	157.6	6.6
17	164.7	158.4	6.3
18	163.0	157.4	5.5
19	164.1	159.3	4.8
20	166.9	161.2	5.7

Beginning with academic year 2014-2015 (FY15), free meal status does not include Direct Certification. Prior to FY15, 100% of students receiving free meals are included. Approximately 40% of students receiving free meals are included during FY15 to FY20.

ABC - DIRECT CERTIFICATION + FREE MEALS

Kindergarten Average Total Days Present by Direct Cert. plus Free Meal Status for ABC vs. Non-ABC

FY	ABC DC+Free	Non-ABC DC+Free	ABC Gain
10	162.6	157.9	4.7
11	165.1	160.2	4.9
12	164.4	160.5	3.9
13	164.7	160.1	4.5
14	161.6	157.1	4.5
15	163.2	158.4	4.8
16	162.9	158.5	4.4
17	162.8	158.3	4.5
18	160.5	157.0	3.5

19	162.4	158.3	4.1
20	165.1	160.4	4.7

Direct Certification for free meal status was not implemented until FY5, academic year 2014-2015. Prior to FY5, these results are identical to FY10 to FY14 for Free Meals (before Direct Certification). This table provides an overview for 100% of free meal students in each year.

The greatest ABC Gain in kindergarten average Total Days Present is found within the 100% free meal status groupings. Between 3.5 and 4.9 additional days present have been identified for ABC free meal students compared to Non-ABC students who are also receiving free meals based upon household income.

ABC - REDUCED MEALS

Kindergarten Average Total Days Present by Reduced Meal Status for ABC vs. Non-ABC

FY	ABC Reduced	Non-ABC Reduced	ABC Gain
10	167.0	165.7	1.3
11	169.4	166.2	3.1
12	168.0	166.0	2.1
13	168.4	166.6	1.8
14	165.1	163.5	1.6
15	166.6	164.5	2.1
16	167.6	164.2	3.5
17	166.7	165.6	1.1
18	166.4	163.5	2.9
19	165.8	163.2	2.6
20	169.4	167.0	2.4

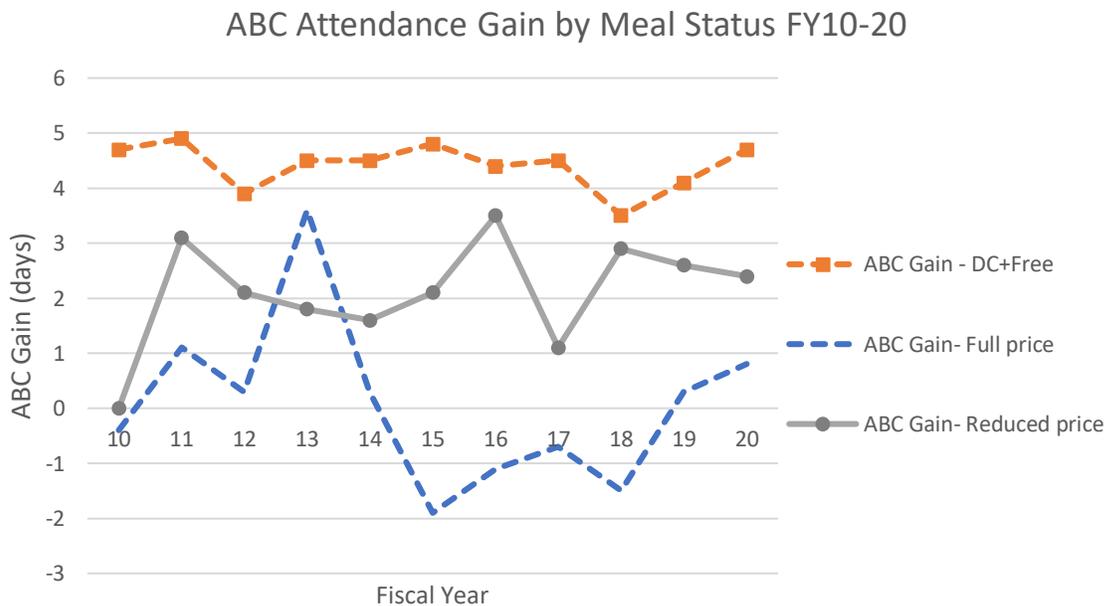
ABC – FULL PRICE PAID MEALS

Kindergarten Average Total Days Present by Full Price Paid Meal Status for ABC vs. Non-ABC

FY	ABC Full Price	Non-ABC Full Price	ABC Gain
10	164.6	165.0	-0.4
11	168.1	167.0	1.1
12	166.2	165.9	0.3
13	167.8	164.2	3.6
14	161.9	161.6	0.3
15	162.3	164.3	-1.9
16	163.8	164.9	-1.1
17	164.0	164.8	-0.7
18	163.1	164.6	-1.5
19	164.5	164.3	0.3
20	167.0	166.2	0.8

The kindergarten average Total Days Present consistently shows a positive ABC Gain for all meal statuses except Full Price Paid. The ABC Gain differences between ABC and Non-ABC for Full Price Paid vary (positive and negative) by year for Full Price Paid students. As a reminder, ABC represents households up to 200% of poverty level, while Full Price Paid represents households above 185% of poverty level with no upper limit on household income. Only a small portion of Full Price Paid meal status qualifying income, from 185% to 200% of poverty level, is shared by both groups. It is not possible, given these data sets, to subdivide Non-ABC Full Price Paid students into those which are 185% to 200% of poverty level and equivalent to ABC, and those other Full Price Paid students which are above 200% of poverty level and dissimilar to ABC. The ABC and Non-ABC groupings for Full Price Paid meal status are dissimilar based upon the range of household incomes included, and direct comparison between the groups is not equivalent.

The ABC vs. Non-ABC comparisons are most valid when the students have similar individual and group characteristics. Direct Certification, Free, and Reduced meal statuses are equivalent for ABC and Non-ABC with respect to the associated qualifying household income levels. It is unknown whether the distributions of actual household incomes for ABC and Non-ABC are similar, because ranges of incomes are allowed within each of these meal status determinations. For instance, free meal status requires household income below 130% of poverty level. It is possible that free meal groupings may be heavily skewed toward households below 100% of poverty level for either ABC or Non-ABC, while the other could be heavily skewed toward households much closer to 130% of poverty level. This type of skewness, if it were to occur, could impact the comparison of ABC to Non-ABC for free meal status. Because all household incomes below 130% of poverty level are qualified for free meal status, additional subcategorization (or identification of skewness) for actual distributions below 130% within each group is not possible with the research data provided.



PRE-KINDERGARTEN PARTICIPATION

Section Highlights

- Parent and guardian reports indicate that between 41% and 54% of kindergarten students have no known Pre-K participation, although participation in ABC is under-reported by parent/guardian for this data element.
- Among kindergarteners with direct certification or free meal status, those who participated in ABC had slightly more Total Days Present compared to students who participated in Other Pre-K options.

In 2003, the Arkansas Legislature made a commitment to expand early childhood education to serve low-income three and four-year old children in areas at high risk for academic failure with high quality Pre-kindergarten services. Besides ABC, it is important to recognize that other high quality Pre-kindergarten services may be included in the Non-ABC group of kindergarten students.

To further investigate the impact of ABC services upon kindergarten attendance, an analysis of ABC compared to students qualified for ABC services who did not receive any Pre-kindergarten services would be useful. The identification of students receiving no Pre-kindergarten (No Pre-K) services utilizes the DESE Pre-School (Kindergarten) indicator (ST0105) provided for each student, as reported by the parent/guardian.

DESE Pre-School indicator (ST0105)

Pre-School (Kindergarten) Indicator for All Kindergarten Students

FY	A	C	E	EC	H	NA	O	P	PS
10	24%	0%	0%	1%	9%	41%	5%	13%	6%
11	22%	1%	0%	2%	8%	42%	4%	13%	7%
12	23%	0%	0%	2%	8%	45%	4%	12%	6%
13	23%	1%	0%	2%	8%	46%	4%	11%	6%
14	23%	0%	0%	2%	7%	45%	4%	12%	7%
15	22%	1%	0%	2%	6%	48%	4%	10%	7%
16	22%	0%	0%	2%	6%	50%	4%	9%	7%
17	23%	0%	0%	2%	5%	49%	4%	9%	7%
18	22%	0%	0%	2%	5%	52%	3%	10%	6%
19	26%	0%	0%	2%	4%	52%	2%	9%	6%
20	24%	0%	0%	2%	4%	54%	3%	8%	5%

A = ABC
 C = 21st Century Community Learning Center
 E = Even start
 EC= Early Childhood Special Ed
 H = Head Start
 NA = Not Applicable
 O = Other
 P = Private Preschool
 PS = Public School Pre School

Participation in ABC is under-reported by parent/guardian for this data element. Known participation in ABC full-time (at least 7 hours per day) has been identified from the ABC

historical records. Despite the inconsistency in the identification of ABC participants by parent/guardian, the best available information to identify students which did not receive Pre-kindergarten services is the “Not Applicable” value of the DESE Pre-School (Kindergarten) indicator (ST0105). Between 41% and 54% of kindergarten students have been noted as “NA” or Not Applicable for Pre-school and may be relabeled as “No Known Pre-K”. A new category for “Other Pre-K” can be created including all other Pre-school services

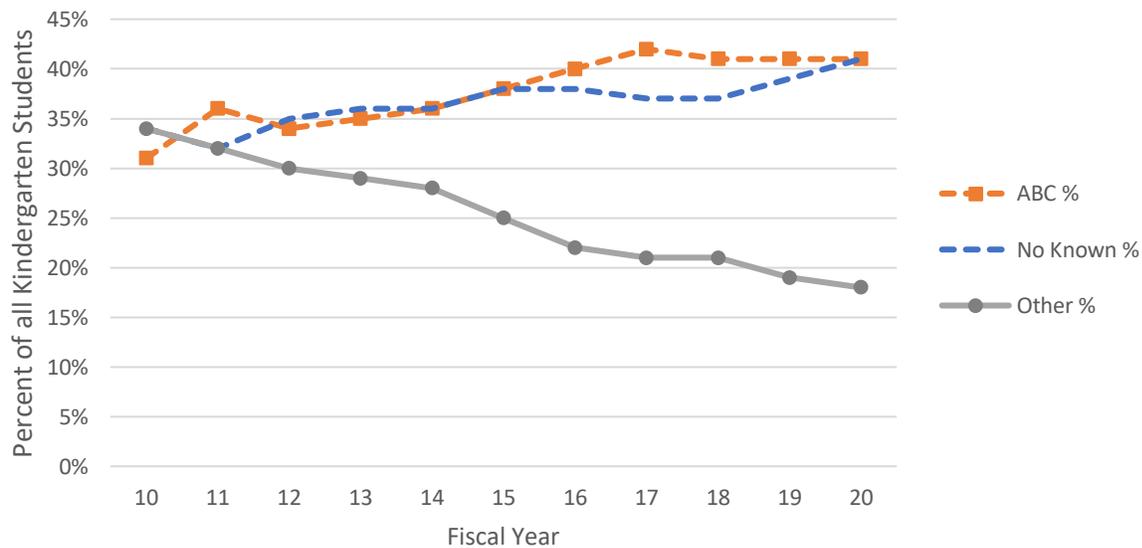
indicated which are not ABC. Three categories of Pre-K cohorts subdivide student populations for comparisons: ABC, Other Pre-K, and No Known Pre-K.

PK Cohort - DESE Pre-School indicator (ST0105) with Known ABC Participation

Kindergarten Student Counts and Percentages for Pre-Kindergarten Cohort Categories

FY	K Students	ABC	ABC %	Other Pre-K	Other %	No Known	NK %
10	39,041	12,220	31%	13,410	34%	13,411	34%
11	36,084	12,966	36%	11,424	32%	11,694	32%
12	35,899	12,378	34%	10,830	30%	12,691	35%
13	39,560	13,901	35%	11,291	29%	14,368	36%
14	38,557	13,932	36%	10,635	28%	13,990	36%
15	37,252	14,056	38%	9,201	25%	13,995	38%
16	36,405	14,655	40%	7,978	22%	13,772	38%
17	35,999	15,292	42%	7,395	21%	13,312	37%
18	36,167	15,007	41%	7,637	21%	13,523	37%
19	35,733	14,759	41%	6,929	19%	14,045	39%
20	36,382	14,893	41%	6,608	18%	14,881	41%

Percent of Kindergarten Students by Cohort Categories



This PK Cohort indicator with three categories for ABC, Other Pre-K, and No Known Pre-K allows for the isolation of areas of particular interest with respect to meal status. Both the Direct Certification and Free meal status indicators represent household incomes up to 130% of poverty level.

Kindergarten Average Total Days Present for Direct Certification plus Free Meals for ABC vs. Other Pre-K

FY	ABC DC+Free	Other DC+Free	ABC Gain
10	162.6	161.0	1.6
11	165.1	162.5	2.6
12	164.4	162.9	1.5
13	164.7	162.5	2.1
14	161.6	160.1	1.5
15	163.2	162.2	1.0
16	162.9	161.3	1.6
17	162.8	162.3	0.5
18	160.5	160.9	-0.4
19	162.4	161.9	0.6
20	165.1	164.4	0.8

A slight ABC Gain is observed for most years compared to Other Pre-K, which includes any of the non-ABC Pre-school services identified in DESE Pre-School indicator (ST0105), as reported by parent/guardian. The various types and percentages of services within the category of Other Pre-K programs does not provide a consistent comparison to the ABC program.

ATTENDANCE - CORE COMPARISON - ABC vs. NO KNOWN PRE-K

Section Highlights

- Among kindergarteners with direct certification or free meal status;
 - Those who participated in ABC had 6.3 more Total Days Present on average compared to students who had no known Pre-K participation in FY20.
 - The ABC gain using the No Known Pre-K cohort (6.3 days present) is larger than the ABC gain using the Non-ABC cohort (4.7 days present) in FY20.
 - The ABC vs. No Known Pre-K comparison shows a negative ABC Gain of 1.4 to 2.0 days absent, which is 1.4 to 2.0 days fewer ABC absences for FY10-20.
 - The ABC vs. No Known Pre-K comparison shows a negative ABC Gain of 0.8 to 2.5 days unreported, which is 0.8 to 2.5 fewer days not reported as either present or absent for ABC for FY10-20.
- For the eleven-year study period, ABC direct certification or free meal kindergarteners had more average days present, fewer average days absent, and fewer average days unreported than No Known Pre-K for students who received free meals based upon household income.

The closest comparison available for full-time ABC participants with free meal status and the group of students who are most similar is the No Known Pre-K with free meal status. This comparison of ABC to No Known Pre-K is the core comparison in this analysis. For both groups, the household socio-economic indicator of meal status is equivalent, the kindergarten entry years are equivalent, the fundamental difference in the two groups is whether the student attended ABC as a full-time participant or attended no Pre-school services, according to the data self-reported by the parent/guardian.

CORE COMPARISON – DAYS PRESENT

Kindergarten Average Total Days Present for Direct Certification plus Free Meals for ABC vs. No Known Pre-K

FY	ABC DC+Free	No Known DC+Free	ABC Gain
10	162.6	155.1	7.5
11	165.1	158.2	6.9
12	164.4	158.6	5.8
13	164.7	158.4	6.3
14	161.6	155.2	6.4
15	163.2	156.2	7.0
16	162.9	157.0	5.9
17	162.8	156.2	6.6
18	160.5	155.2	5.3
19	162.4	156.8	5.6

20	165.1	158.8	6.3
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Previously, ABC vs. Non-ABC for Direct Certification plus Free Meal status in FY20 reflected an ABC Gain of 4.7 days present. Using the No Known Pre-K cohort category, the ABC Gain in FY20 increases from 4.7 days to 6.3 days present for ABC vs. No Known Pre-K, and similar increases are evident for other years.

CORE COMPARISON – DAYS ABSENT

Kindergarten Average Total Days Absent for Direct Certification plus Free Meals for ABC vs. No Known Pre-K

FY	ABC DC+Free	No Known DC+Free	ABC Gain
10	11.4	13.4	-2.0
11	11.1	12.7	-1.6
12	9.8	11.5	-1.6
13	10.7	12.3	-1.6
14	10.3	12.0	-1.7
15	10.6	12.5	-1.9
16	10.5	12.0	-1.5
17	10.7	12.5	-1.9
18	11.7	13.3	-1.6
19	11.6	13.1	-1.5
20	8.9	10.2	-1.4

As a reminder, the average Total Days Absent for ABC vs. Non-ABC ranged from -0.2 to 0.3 days, which was not an indication of significant difference. This core comparison of ABC vs. No Known Pre-K for Direct Certification and Free meal status shows a negative ABC Gain of 1.4 to 2.0 days, which is 1.4 to 2.0 days fewer absences for ABC.

CORE COMPARISON – DAYS UNREPORTED

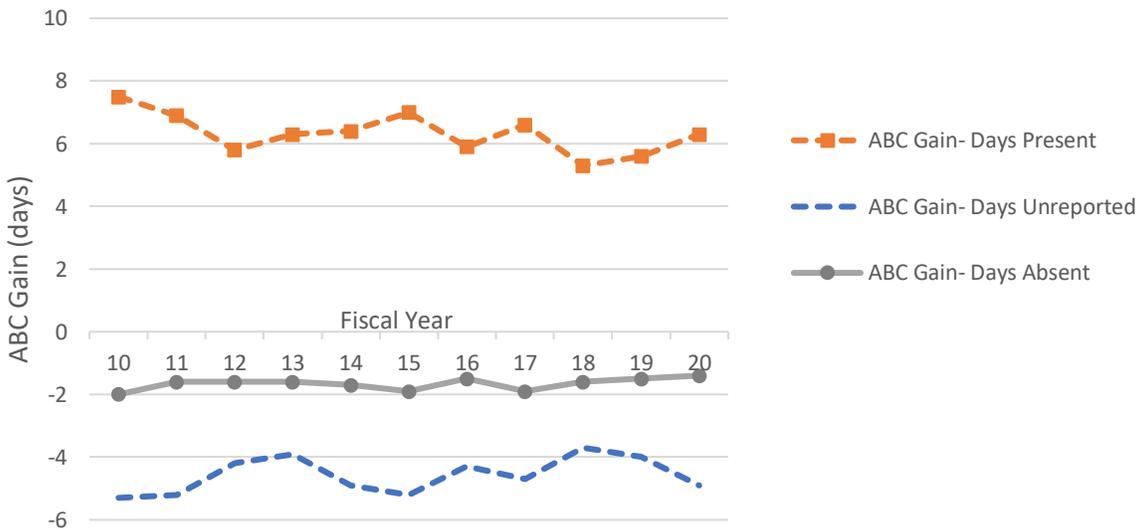
Kindergarten Average Total Days Unreported for Direct Certification plus Free Meals for ABC vs. No Known Pre-K

FY	ABC DC+Free	No Known DC+Free	ABC Gain
10	5.4	10.7	-5.3
11	4.6	9.8	-5.2
12	6.2	10.4	-4.2
13	5.2	9.1	-3.9
14	6.6	11.4	-4.9
15	4.5	9.7	-5.2
16	5.1	9.4	-4.3
17	5.0	9.7	-4.7

18	6.1	9.8	-3.7
19	4.4	8.4	-4.0
20	4.3	9.3	-4.9

Total Days Unreported is an additional research variable, not included in the DESE research data, calculating the difference between the mandated 178 school days and the number of days reported in Total Days Present and Total Days Absent. A negative ABC Gain of 0.8 to 2.5 days was observed for ABC vs. Non-ABC. This core comparison of ABC vs. No Known Pre-K for Direct Certification and Free meal status shows a negative ABC Gain of 3.7 to 5.3 days, which are fewer days unreported for ABC.

Kindergarten Average Attendance for ABC vs. No Known Pre-K (Among Direct Certification plus Free Meals)



CORE COMPARISON – KINDERGARTEN SUMMARY

All beneficial observations between ABC and Non-ABC are increased by the core comparison of ABC vs. No Known Pre-K for free meal status (Direct Certification + Free), for the eleven years of kindergarten data. ABC has more average days present, fewer average days absent, and fewer average days unreported than No Known Pre-K for students receiving free meals based upon household income.

ELEMENTARY AND SECONDARY ATTENDANCE

Section Highlights

- Most students who attended kindergarten in DESE remain in DESE schools throughout K-12. 86% of the research IDs present in FY10 kindergarten can be found ten years later in DESE schools during FY20.
- The beneficial gains of ABC (fewer absences and more days present) persist through elementary and secondary school years. The gains are generally strongest in kindergarten and decrease in subsequent years.
- Among students with direct certification or free meal status, there is an ABC Gain of 1.6 to 7.5 additional days of average total days present for ABC compared to No Known Pre-K.
- Among students with direct certification or free meal status, there is an ABC Gain of -0.3 to -2.0 days of absence, indicating fewer average total days absent for ABC compared to No Known Pre-K.

The continued enrollment of kindergarten students in DESE allows for a count of students in each subsequent year. Students who did not attend kindergarten in DESE schools have been excluded from subsequent year counts. This analysis represents a longitudinal view of kindergarten students, rather than including students who transferred into DESE schools in later grade levels after attending kindergarten elsewhere.

Student Counts By Fiscal Year

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	33,023	31,646	30,961	30,425	30,024	29,265	29,071	28,849	28,813	28,699	28,466
11		30,628	29,440	28,689	28,262	27,501	27,351	26,972	26,830	26,789	26,549
12			31,052	29,732	29,023	28,073	27,598	27,185	26,928	26,868	26,685
13				34,169	33,064	31,715	31,034	30,648	30,294	30,106	29,813
14					33,208	31,522	30,766	30,227	29,939	29,702	29,278
15						31,156	30,173	29,420	29,034	28,838	28,502
16							30,388	29,286	28,786	28,303	27,967
17								30,183	29,125	28,529	28,005
18									30,463	29,442	28,704
19										30,195	29,189
20											30,700

Most students who attended kindergarten in DESE remain in DESE schools throughout K-12. These counts decrease with each subsequent academic year. Of the 33,023 research IDs present in FY10 kindergarten, 28,466 (86.2%) can be found ten years later in DESE schools during FY20. Those 28,466 students in FY20 may not have attended all years in DESE schools. A consistent decline is observed in the counts presented, even after including students who transferred back into DESE in a subsequent year. The net students per year declines, compared to those same students' enrollment during kindergarten.

Average Total Days Present

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	162.3	166.1	166.0	166.1	163.3	165.4	165.6	165.5	163.7	163.9	164.9
11		164.8	166.3	165.9	163.4	165.4	166.2	165.8	165.3	164.7	166.6
12			164.0	165.5	162.8	165.3	165.9	165.8	165.1	165.4	167.0
13				163.4	162.1	164.8	165.8	165.5	165.2	165.3	167.7
14					160.5	163.6	165.1	165.6	164.9	165.2	167.8
15						162.2	164.3	164.9	164.6	165.2	167.8
16							162.5	164.2	164.0	165.2	167.8
17								162.5	163.2	164.5	167.4
18									161.2	163.8	167.1
19										162.1	166.1
20											164.4

There are 66 average Total Days Present calculations presented in the table for kindergarten to subsequent years. The results ranging from a low average of 160.5 days to a high average of 167.8 days present.

CORE COMPARISON – DAYS PRESENT – ALL ACADEMIC YEARS

The core comparison of ABC vs. No Known Pre-K for free meal status (Direct Certification + Free) can be extended to all available academic years of data.

ABC - Yearly Average Total Days Present for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	162.6	165.7	164.8	165.4	162.9	164.4	164.6	163.7	161.7	161.3	162.4
11		165.1	165.5	164.9	162.2	163.6	164.9	164.2	163.0	162.5	164.1
12			164.4	166.5	162.0	164.3	165.0	164.9	164.0	163.8	165.7
13				164.7	162.0	164.1	165.4	164.9	164.5	164.5	167.0
14					161.6	163.1	164.2	164.4	163.9	164.9	166.9
15						163.2	163.9	164.7	163.8	164.4	167.2
16							162.9	163.7	163.5	164.8	167.1
17								162.8	162.9	163.7	166.9
18									160.5	163.1	166.6
19										162.4	165.8
20											165.1

No Known Pre-K - Yearly Average Total Days Present for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	155.1	160.8	162.5	161.8	158.9	161.8	161.8	161.8	158.9	158.6	159.0
11		158.2	161.7	162.2	159.3	161.4	162.7	162.0	161.3	160.4	161.7

12			158.6	161.3	158.6	161.1	162.0	161.9	161.1	161.4	162.9
13				158.4	158.2	160.6	162.6	161.3	161.9	161.8	164.6
14					155.2	158.9	160.0	161.7	161.6	161.6	165.4
15						156.2	159.1	160.4	160.8	162.0	165.1
16							157.0	159.3	160.5	162.1	165.2
17								156.2	157.4	159.8	163.3
18									155.2	158.9	162.9
19										156.8	161.6
20											158.8

ABC Gain - Yearly Average Net Days Present for Direct Certification plus Free Meals vs. No Known Pre-K
(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	7.5	4.9	2.3	3.6	3.9	2.7	2.8	1.9	2.7	2.7	3.4
11		6.9	3.8	2.6	2.9	2.2	2.2	2.2	1.8	3.0	2.3
12			5.8	5.2	3.4	3.2	2.9	3.5	3.0	2.4	2.7
13				6.3	3.7	3.4	2.8	3.6	2.7	2.8	2.4
14					6.5	4.2	4.3	2.7	2.4	3.3	1.6
15						7.4	4.7	4.3	3.0	2.4	2.1
16							5.9	4.5	3.5	2.7	1.9
17								6.6	5.5	3.9	3.6
18									5.3	4.2	3.8
19										5.6	4.2
20											6.3

The core comparison groups reflect ABC Gain of 1.6 to 7.5 additional days of average total days present for ABC compared to No Known Pre-K. The ABC Gain is highest in the kindergarten year and generally decreases in subsequent years. All 66 combinations of kindergarten and subsequent year show a positive ABC Gain for additional days present for ABC when compared to No Known Pre-K.

CORE COMPARISON – DAYS ABSENT – ALL ACADEMIC YEARS

ABC - Yearly Average Total Days Absent for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	11.4	9.8	8.4	8.7	8.3	8.7	8.9	9.2	10.8	10.8	9.2
11		11.1	9.0	9.2	8.5	8.9	8.7	9.2	10.2	10.6	8.6
12			9.8	9.9	8.8	8.8	8.7	9.0	10.1	9.9	8.0
13				10.7	9.0	9.0	8.7	8.9	9.8	9.8	7.5
14					10.3	9.9	9.2	9.1	10.1	9.9	7.5
15						10.6	9.6	9.3	10.1	9.8	7.2
16							10.5	9.7	10.6	9.7	7.1

17								10.7	11.0	10.2	7.4
18									11.7	10.8	7.7
19										11.6	8.0
20											8.9

No Known Pre-K - Yearly Average Total Days Absent for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	13.4	11.8	9.9	9.8	9.5	10.0	10.0	10.4	12.0	11.8	10.1
11		12.7	10.5	10.5	9.4	9.7	9.3	9.6	10.7	10.9	8.9
12			11.5	11.5	10.0	10.1	9.8	9.9	11.2	10.9	8.9
13				12.3	10.5	10.3	10.0	9.9	10.7	10.6	8.1
14					12.0	11.3	10.3	10.1	11.1	10.6	8.3
15						12.5	11.0	10.6	11.3	10.8	7.8
16							12.0	11.2	11.5	10.6	7.8
17								12.5	12.7	11.6	8.4
18									13.3	12.0	8.7
19										13.1	9.5
20											10.2

ABC Gain - Yearly Average Net Days Absent for Direct Certification plus Free Meals vs. No Known Pre-K
(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	-2.0	-1.9	-1.5	-1.1	-1.2	-1.3	-1.1	-1.2	-1.3	-1.0	-0.9
11		-1.6	-1.5	-1.2	-0.9	-0.8	-0.6	-0.4	-0.5	-0.3	-0.3
12			-1.6	-1.6	-1.3	-1.3	-1.0	-0.9	-1.1	-0.9	-0.9
13				-1.6	-1.5	-1.3	-1.3	-0.9	-0.9	-0.9	-0.7
14					-1.7	-1.5	-1.0	-0.9	-1.0	-0.7	-0.8
15						-1.9	-1.4	-1.3	-1.3	-1.0	-0.6
16							-1.5	-1.5	-1.0	-0.9	-0.7
17								-1.9	-1.7	-1.4	-1.0
18									-1.6	-1.2	-1.0
19										-1.5	-1.5
20											-1.4

The core comparison groups reflect ABC Gain of -0.3 to -2.0, indicating fewer days of average total days absent for ABC compared to No Known Pre-K. The ABC Gain is lowest in the kindergarten year and generally increases in subsequent years. All 66 combinations of kindergarten and subsequent year show a negative ABC Gain, indicating fewer days absent for ABC when compared to No Known Pre-K.

CORE COMPARISON – DAYS UNREPORTED – ALL ACADEMIC YEARS

ABC - Yearly Average Total Days Unreported for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	5.4	5.0	6.5	5.7	7.3	5.3	5.0	5.5	6.1	6.4	6.7
11		4.6	6.3	6.3	7.7	5.9	4.8	5.0	5.3	5.5	5.9
12			6.2	5.1	7.7	5.4	4.9	4.5	4.4	4.9	4.8
13				5.2	7.5	5.4	4.4	4.6	4.2	4.3	4.1
14					6.6	5.4	5.0	4.9	4.4	3.8	4.1
15						4.5	5.0	4.4	4.5	4.2	4.0
16							5.1	5.0	4.2	4.0	4.3
17								5.0	4.5	4.6	4.3
18									6.1	4.6	4.2
19										4.4	4.7
20											4.3

No Known Pre-K - Yearly Average Total Days Unreported for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	10.7	8.0	8.1	7.9	10.1	6.7	6.7	6.3	7.5	8.1	9.2
11		9.8	8.7	7.7	9.7	7.2	6.4	6.7	6.4	7.1	7.8
12			10.4	8.3	9.9	7.3	6.7	6.6	6.2	6.2	6.6
13				9.1	9.8	7.5	6.0	7.2	5.8	6.0	5.7
14					11.4	8.3	8.3	6.7	5.6	6.4	4.8
15						9.7	8.3	7.4	6.1	5.7	5.5
16							9.4	7.8	6.3	5.6	5.4
17								9.7	8.2	7.1	6.8
18									9.8	7.5	6.9
19										8.4	7.4
20											9.3

ABC Gain - Yearly Average Net Days Unreported for Direct Certification plus Free Meals vs. No Known Pre-K

(Rows: Kindergarten year; Columns: subsequent years)

FY	10	11	12	13	14	15	16	17	18	19	20
10	-5.3	-3.0	-1.5	-2.2	-2.8	-1.4	-1.6	-0.7	-1.4	-1.7	-2.5
11		-5.2	-2.4	-1.5	-2.0	-1.3	-1.6	-1.7	-1.1	-1.7	-1.9
12			-4.2	-3.2	-2.2	-1.9	-1.8	-2.1	-1.8	-1.4	-1.8
13				-3.9	-2.2	-2.1	-1.5	-2.6	-1.7	-1.7	-1.6
14					-4.9	-2.8	-3.2	-1.8	-1.3	-2.6	-0.7
15						-5.2	-3.3	-3.0	-1.6	-1.5	-1.6

16							-4.3	-2.8	-2.1	-1.6	-1.1
17								-4.7	-3.8	-2.5	-2.5
18									-3.7	-2.9	-2.8
19										-4.0	-2.7
20											-4.9

The core comparison groups reflect ABC Gain of -0.7 to -5.3, indicating fewer average days unreported for ABC compared to No Known Pre-K. The ABC Gain is lowest in the kindergarten year around -4.0 to -5.0 and generally stabilizes in subsequent years between -1.0 and -3.0. All 66 combinations of kindergarten and subsequent year show a negative ABC Gain, indicating fewer days unreported for ABC when compared to No Known Pre-K.

CHRONIC ABSENTEEISM

Section Highlights

- The core comparison groups reflect ABC Gains in the form of lower chronic absenteeism for all three absenteeism calculations for ABC vs. No Known Pre-K.
- Among kindergarteners with direct certification or free meal status;
 - There is an ABC Gain of 5.2 to 7.2 percent lower chronic absenteeism for ABC vs. No Known Pre-K for code CA10 (18 days or more absent).
 - There is an ABC Gain of 5.8 to 8.2 percent lower chronic absenteeism for ABC vs. No Known Pre-K for code CA15 (15 days or more absent).
 - There is an ABC Gain of 9.3 to 12.8 percent lower chronic absenteeism for ABC vs. No Known Pre-K for code CA160 (160 days or fewer present).

Defined by the U.S. Department of Education’s Ed Facts Division, chronic absenteeism is a student with 15 or more absent days in an academic year. Another measure of chronic absenteeism comes from the Office of Civil Rights, where chronic absenteeism is defined as ten percent or more of school days absent. A number of sources report that each state may have varying definitions of chronic absenteeism.

CHRONIC ABSENTEEISM - RESEARCH DATA CODES

To establish a broad view of chronic absenteeism in this analysis for Arkansas, three observations for chronic absenteeism (CA) will be calculated and coded as CA10, CA15, and CA160.

CA10 = Ten percent or more absent, that is, 18 days or more absent (Arkansas 178 day school year)

CA15 = 15 days or more absent

CA160 = 160 or fewer days present

The definitions for CA10 and CA15 are provided in national research, while the definition for CA160 is specific to Arkansas and the identification of the difference between the mandated 178 school days and the number of days reported in Total Days Present and Total Days Absent. Theoretically, 18 days absent in Arkansas would automatically mean 160 days present, however, only 84.4% of reported Total Days Present plus Total Days Absent equal 178 days. As a result, an additional 15.6% of records have a potential difference between the identification of 18 days absent or 160 days present.

CHRONIC ABSENTEEISM - ALL KINDERGARTEN STUDENTS

Kindergarten - Chronic Absenteeism Percentage

FY	Students	CA10	CA15	CA160
10	32,936	16.2%	24.0%	22.9%
11	30,569	14.4%	21.7%	20.2%
12	30,985	11.1%	17.4%	18.8%
13	33,982	13.9%	21.1%	20.1%
14	33,165	13.1%	19.6%	24.3%

15	31,111	13.8%	20.8%	21.5%
16	30,301	13.6%	20.4%	20.3%
17	30,127	14.2%	21.4%	20.8%
18	30,428	16.3%	24.5%	23.1%
19	30,159	15.7%	23.6%	22.0%
20	30,557	8.9%	14.4%	14.9%

The differences between CA10 and CA160 are evident in the calculations, even though theoretically they should be equivalent. In the majority of cases, there is approximately a 6 to 8 percentage point increase of students who are counted present 160 days or fewer (CA160), as opposed to being recorded as absent 18 days or more (CA10). The exception is FY14, where 24.3% of students are present 160 days or fewer, as opposed to 13.1% of students recorded as absent 18 days or more. The FY14 difference of 11.2% is unlike the other differences calculated for the fiscal years and may be indicative of a source data problem specific to FY14.

CORE COMPARISON - CHRONIC ABSENTEEISM - KINDERGARTEN

ABC – Direct Certification plus Free Meals – Chronic Absenteeism Percentage

FY	Students	CA10	CA15	CA160
10	6,429	19.4%	27.7%	25.6%
11	6,809	17.8%	26.3%	23.0%
12	6,625	13.1%	20.2%	20.3%
13	7,320	16.1%	23.9%	21.1%
14	7,113	15.5%	22.9%	26.4%
15	7,319	15.9%	23.6%	22.5%
16	7,844	15.5%	23.2%	21.3%
17	8,430	15.7%	23.7%	21.5%
18	8,075	19.3%	27.9%	26.0%
19	8,022	18.4%	27.1%	24.0%
20	8,512	9.8%	16.2%	15.2%

No Known Pre-K – Direct Certification plus Free Meals – Chronic Absenteeism Percentage

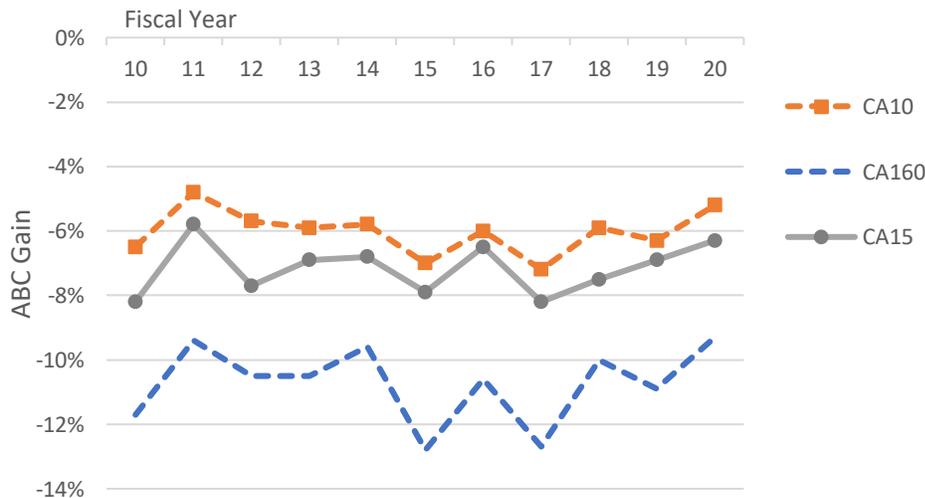
FY	Students	CA10	CA15	CA160
10	5,706	26.0%	35.9%	37.2%
11	4,717	22.6%	32.1%	32.4%
12	5,322	18.8%	27.9%	30.7%
13	6,132	22.0%	30.8%	31.6%
14	6,020	21.3%	29.8%	36.0%
15	5,997	22.9%	31.5%	35.3%
16	5,897	21.5%	29.7%	32.0%
17	5,466	22.9%	31.9%	34.3%
18	5,894	25.1%	35.4%	36.0%

19	6,019	24.6%	34.0%	34.8%
20	6,657	14.9%	22.4%	24.5%

ABC Gain – Chronic Absenteeism Percentage for Direct Certification plus Free Meals vs. No Known Pre-K

FY	CA10	CA15	CA160
10	-6.5%	-8.2%	-11.7%
11	-4.8%	-5.8%	-9.4%
12	-5.7%	-7.7%	-10.5%
13	-5.9%	-6.9%	-10.5%
14	-5.8%	-6.8%	-9.6%
15	-7.0%	-7.9%	-12.8%
16	-6.0%	-6.5%	-10.6%
17	-7.2%	-8.2%	-12.7%
18	-5.9%	-7.5%	-10.0%
19	-6.3%	-6.9%	-10.9%
20	-5.2%	-6.3%	-9.3%

ABC Percentage Gain in Chronic Absenteeism vs. No Known Pre-K (Among Direct Certification plus Free Meals)



The core comparison groups reflect ABC Gain values of 5.2 to 7.2 percent lower chronic absenteeism code CA10 for ABC vs. No Known Pre-K for Direct Certification and Free Meals in kindergarten. The core comparison groups reflect ABC Gain values of 5.8 to 8.2 percent lower chronic absenteeism code CA15 for ABC vs. No Known Pre-K for Direct Certification and Free Meals in kindergarten. The core comparison groups reflect ABC Gain values of 9.3 to 12.8 percent lower chronic absenteeism code CA160 for ABC vs. No Known Pre-K for Direct Certification and Free Meals in kindergarten.

ASSESSMENT AND PROFICIENCY

Section Highlights

- For most years, the core comparison groups reflect ABC Gains for in the form of higher proficiency percentages for reading and language arts, math, and science. These gains are among ABC vs. No Known Pre-K groups with direct certification or free meal status.
- Among direct certification or free meal status students in FY19;
 - The reading and language arts proficiency gains for ABC ranged from 4.9% (Kindergarten FY13) to 0.4% (Kindergarten FY15).
 - The math proficiency gains for ABC ranged from 5.5% (Kindergarten FY16) to 1.2% (Kindergarten FY11).
 - The science proficiency gains for ABC ranged from 2.5% (Kindergarten FY12) to – 0.6%(Kindergarten FY11).
 - Kindergarten FY11 showed some of the lowest gains in all three proficiency categories and was the only cohort to have negative gains for some years.

The calculations for proficiency in this analysis will not match the official proficiency reporting for Arkansas because the kindergarten research data forms the basis of the students selected for longitudinal outcomes. The assessment data provided for this research includes a proficiency level data element with values of L1, L2, L3, and L4. Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations. The assessment vendors vary during the timeframe of FY10 to FY19, and statewide assessments were not administered in FY20 due to COVID19 limitations.

Proficiency percentages for all students from the kindergarten fiscal years are reported to establish statewide rates in this selection of students. More detailed analysis for the core comparison groups of ABC participants and No Known Pre-K students with Direct Certification and Free meal status follow should reflect the proficiency rates with respect to each other and with respect to chronic absenteeism.

RLA Proficiency – Reading Language Arts – All Students

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	82%	81%	62%	55%	55%	46%	43%
11		81%	64%	51%	62%	46%	50%
12			59%	41%	54%	47%	47%
13				42%	48%	42%	47%
14					45%	44%	46%
15						45%	46%
16							45%

Math Proficiency – All Students

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19

10	88%	77%	54%	53%	49%	46%	36%
11		87%	57%	50%	61%	50%	49%
12			67%	55%	53%	56%	49%
13				61%	56%	51%	53%
14					63%	54%	51%
15						64%	55%
16							66%

Science Proficiency – All Students

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	67%	66%	62%	50%	44%	41%	35%
11		50%	74%	40%	50%	45%	44%
12			0%	40%	42%	47%	44%
13				40%	43%	42%	46%
14					42%	43%	42%
15						43%	43%
16							43%

Calculations for proficiency isolating the core comparison groups of ABC participants with Direct Certification and Free meal status may be compared to No Known Pre-K students with Direct Certification and Free meal status.

CORE COMPARISON - READING LANGUAGE ARTS - PROFICIENCY

Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations.

ABC - RLA Proficiency – Reading Language Arts for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	79%	77%	54%	45%	46%	36%	32%
11		75%	55%	39%	52%	34%	39%
12			49%	31%	46%	37%	37%
13				33%	39%	32%	37%
14					35%	33%	35%
15						35%	35%
16							35%

No Known Pre-K - RLA Proficiency – Reading Language Arts for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	72%	71%	48%	42%	43%	33%	31%

11		75%	52%	38%	50%	35%	38%
12			46%	28%	41%	33%	33%
13				29%	35%	29%	32%
14					33%	31%	33%
15						35%	35%
16							33%

ABC Gain - RLA Proficiency for Direct Certification plus Free Meals vs. No Known Pre-K
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	7.0%	6.0%	6.0%	3.0%	2.6%	2.6%	1.4%
11		0.1%	2.8%	1.3%	1.7%	-0.9%	1.0%
12			2.8%	3.2%	4.6%	4.0%	4.2%
13				3.7%	3.9%	3.4%	4.9%
14					1.4%	2.4%	2.0%
15						0.2%	0.4%
16							2.0%

CORE COMPARISON - MATH PROFICIENCY

Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations.

ABC - Math Proficiency for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	85%	71%	44%	44%	40%	34%	25%
11		82%	47%	40%	51%	37%	37%
12			59%	46%	44%	47%	39%
13				51%	47%	41%	43%
14					53%	44%	40%
15						56%	46%
16							58%

No Known Pre-K - Math Proficiency for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	81%	67%	41%	42%	38%	32%	24%
11		82%	45%	39%	50%	38%	36%
12			55%	43%	41%	43%	36%
13				50%	44%	39%	41%
14					52%	43%	39%

15						52%	44%
16							53%

ABC Gain - Math Proficiency for Direct Certification plus Free Meals vs. No Known Pre-K
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	4.5%	4.3%	2.9%	2.2%	2.2%	2.2%	1.6%
11		-0.4%	2.7%	0.4%	0.3%	-1.0%	1.2%
12			4.0%	2.9%	2.5%	4.2%	2.8%
13				1.6%	3.4%	1.9%	2.1%
14					2.0%	1.5%	1.8%
15						3.3%	1.5%
16							5.5%

CORE COMPARISON - SCIENCE PROFICIENCY

Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations. Science assessment was not administered below fifth grade until FY16.

ABC - Science Proficiency for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			50%	38%	33%	30%	24%
11				28%	36%	32%	31%
12				30%	32%	36%	33%
13				30%	33%	32%	35%
14					31%	33%	31%
15						32%	33%
16							33%

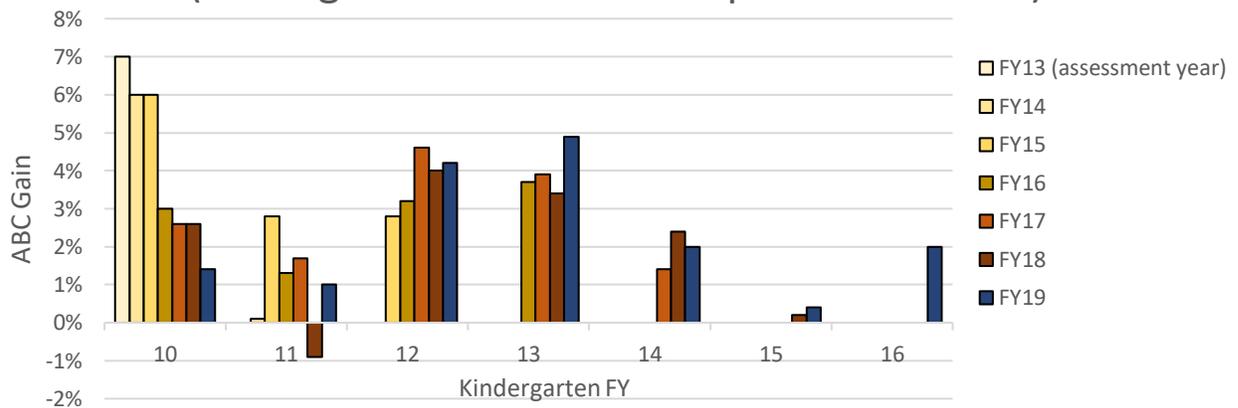
No Known Pre-K - Science Proficiency for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			49%	37%	32%	29%	23%
11				29%	37%	33%	32%
12				26%	29%	31%	31%
13				27%	30%	29%	33%
14					30%	31%	30%
15						31%	31%
16							31%

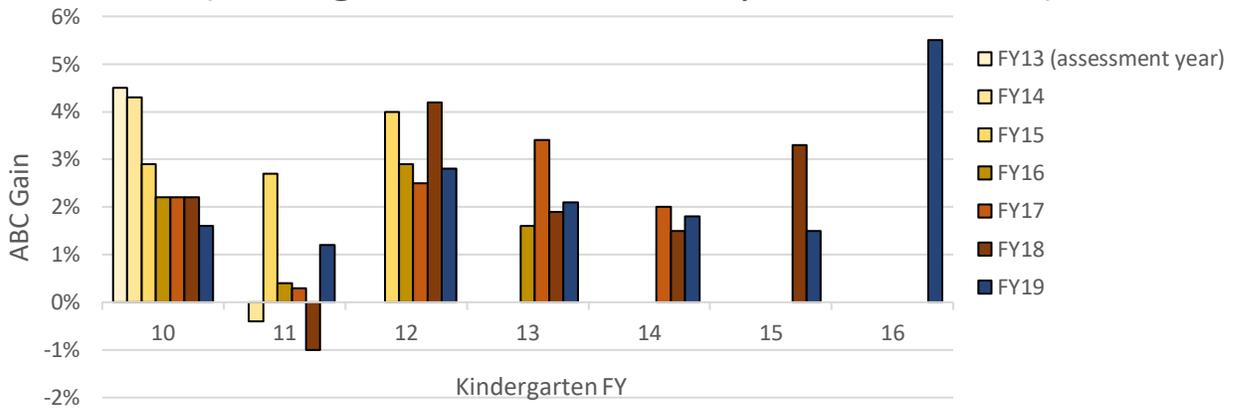
ABC Gain - Science Proficiency for Direct Certification plus Free Meals vs. No Known Pre-K
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			1.6%	1.3%	0.7%	0.9%	1.0%
11				-0.9%	-1.9%	-0.5%	-0.6%
12				3.5%	2.2%	5.0%	2.5%
13				2.5%	3.3%	2.4%	2.4%
14					1.5%	1.5%	0.7%
15						0.8%	2.4%
16							2.2%

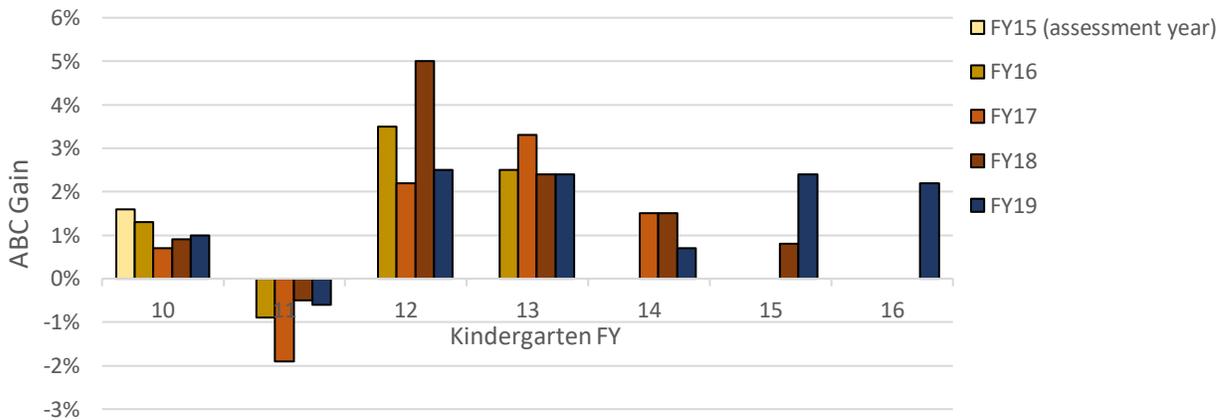
ABC Gain in RLA Proficiency vs. No Known Pre-K
 (Among Direct Certification plus Free Meals)



ABC Gain in Math Proficiency vs. No Known Pre-K (Among Direct Certification plus Free Meals)



ABC Gain in Science Proficiency vs. No Known Pre-K (Among Direct Certification plus Free Meals)



CHRONIC ABSENTEEISM AND PROFICIENCY

Section Highlights

- Students who are chronically absent at least ten percent of the school year (18 or more days) are generally less likely to score proficient on assessments compared to students who are not chronically absent. These chronically absent students are:
 - 10% to 21% less likely to be proficient in Reading Language Arts (RLA) assessments beginning in third grade.
 - 10% to 21% less likely to be proficient in Math assessments beginning in third grade.
 - 10% to 20% less likely to be proficient in Science assessments beginning in third grade.
- The impact of chronic absenteeism on proficiency percentages extends to core ABC participants. ABC students with Direct Certification and Free meal status in kindergarten who are chronically absent are less likely to score proficient on assessments compared to other core ABC students who are not chronically absent. These chronically absent students are:
 - 4% to 16% less likely to be proficient in Reading Language Arts (RLA) assessments beginning in third grade.
 - 8% to 17% less likely to be proficient in Math assessments beginning in third grade.
 - 4% to 14% less likely to be proficient in Science assessments beginning in third grade.

Chronic absenteeism impacts the proficiency rates of students. While students may remain on grade level in enrollment and for assessments administered, the proficiency of those students on grade level testing materials for chronically absent students declines. For the purposes of this section, chronic absenteeism code CA10 has been selected. CA10 represents students with ten percent absences (or more) during the school year, which is 18 or more days absent in Arkansas for 178 days in the school year. Similar proficiency results would be expected for calculations of CA15 and CA160, which have higher chronic absenteeism percentages in Arkansas.

CHRONIC ABSENTEEISM - READING LANGUAGE ARTS (RLA) PROFICIENCY

RLA Proficiency – Reading Language Arts – All Chronically Absent Students (CA10 = “Y”)

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	71%	69%	49%	40%	40%	30%	25%
11		71%	54%	38%	48%	32%	34%
12			47%	30%	42%	35%	30%
13				33%	38%	31%	33%
14					36%	34%	32%
15						37%	35%
16							33%

RLA Proficiency – Reading Language Arts – Not Chronically Absent Students (CA10 = “N”)
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	83%	82%	63%	57%	57%	49%	46%
11		82%	65%	52%	63%	48%	53%
12			60%	42%	56%	49%	49%
13				43%	49%	43%	48%
14					46%	45%	48%
15						47%	47%
16							46%

CA10 Impact - Chronically Absent Comparison – Reading Language Arts (RLA) Proficiency
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	-12%	-13%	-13%	-16%	-18%	-19%	-21%
11		-11%	-11%	-14%	-15%	-16%	-19%
12			-13%	-12%	-14%	-14%	-19%
13				-11%	-12%	-13%	-15%
14					-10%	-12%	-15%
15						-10%	-13%
16							-13%

Students who are chronically absent at least ten percent of the school year (18 or more days) are proficient 10% to 21% less than students who are not chronically absent on Reading Language Arts (RLA) assessments beginning in third grade.

CHRONIC ABSENTEEISM - MATH PROFICIENCY

Math Proficiency – All Chronically Absent Students (CA10=“Y”)
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	78%	64%	38%	38%	32%	28%	18%
11		78%	41%	37%	47%	34%	31%
12			53%	41%	39%	42%	31%
13				48%	43%	36%	36%
14					49%	41%	36%
15						51%	41%
16							49%

Math Proficiency – Not Chronically Absent Students (CA10="N")
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	88%	78%	55%	55%	52%	48%	39%
11		88%	59%	52%	63%	52%	52%
12			68%	56%	55%	59%	52%
13				62%	58%	53%	56%
14					64%	56%	53%
15						65%	57%
16							68%

CA10 Impact - Chronically Absent Comparison – Math Proficiency
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	-11%	-14%	-18%	-16%	-20%	-20%	-21%
11		-10%	-18%	-14%	-16%	-17%	-20%
12			-16%	-15%	-16%	-17%	-21%
13				-14%	-15%	-17%	-19%
14					-15%	-15%	-17%
15						-15%	-16%
16							-19%

Students who are chronically absent at least ten percent of the school year (18 or more days) are proficient 10% to 21% less than students who are not chronically absent on Math assessments beginning in third grade.

CHRONIC ABSENTEEISM - SCIENCE PROFICIENCY

Science Proficiency – All Chronically Absent Students (CA10="Y")
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			49%	36%	30%	25%	18%
11				29%	36%	31%	28%
12				28%	32%	34%	29%
13				30%	32%	32%	31%
14					32%	34%	31%
15						33%	32%
16							30%

Science Proficiency – Not Chronically Absent Students (CA10="N")
 (Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			64%	52%	46%	44%	37%

11				41%	51%	46%	46%
12				41%	44%	48%	46%
13				41%	44%	43%	48%
14					43%	45%	44%
15						44%	44%
16							44%

CA10 Impact - Chronically Absent Comparison – Science Proficiency
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			-15%	-15%	-16%	-19%	-20%
11				-12%	-15%	-15%	-18%
12				-13%	-11%	-14%	-17%
13				-11%	-12%	-11%	-17%
14					-11%	-11%	-13%
15						-10%	-12%
16							-15%

Students who are chronically absent at least ten percent of the school year (18 or more days) are proficient 10% to 20% less than students who are not chronically absent on Science assessments beginning in third grade.

CHRONIC ABSENTEEISM – ABC CORE – LOWEST SOCIO-ECONOMIC GROUP

Calculations for proficiency isolating the core of ABC participants with Direct Certification and Free meal status may be divided for chronically absent students. Direct Certification and Free meal status represent households with the lowest socio-economic groupings in the research data. For the purposes of this section, chronic absenteeism code CA10 has been selected. CA10 represents students with ten percent absences (or more) during the school year, which is 18 or more days absent in Arkansas for 178 days in the school year. Similar proficiency results would be expected for calculations of CA15 and CA160, which have higher chronic absenteeism percentages in Arkansas.

CHRONIC ABSENTEEISM – ABC CORE - RLA PROFICIENCY

Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations.

ABC Chronically Absent (CA10="Y") - RLA Proficiency – Reading Language Arts for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	75%	71%	47%	36%	37%	26%	21%
11		66%	49%	33%	45%	24%	29%

12			43%	27%	37%	27%	24%
13				25%	33%	26%	28%
14					31%	26%	28%
15						32%	30%
16							29%

ABC Not Chronically Absent (CA10="N") - RLA Proficiency – Reading Language Arts for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	80%	78%	55%	47%	47%	38%	34%
11		76%	56%	40%	52%	35%	41%
12			50%	32%	47%	39%	40%
13				34%	39%	33%	39%
14					35%	35%	36%
15						35%	36%
16							36%

CA10 Impact - ABC Chronically Absent Comparison - RLA Proficiency for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	-5%	-7%	-8%	-11%	-11%	-12%	-14%
11		-9%	-7%	-8%	-7%	-11%	-12%
12			-7%	-5%	-10%	-12%	-16%
13				-9%	-6%	-7%	-10%
14					-4%	-9%	-9%
15						-4%	-7%
16							-8%

ABC participants with Direct Certification and Free meal status in kindergarten who are chronically absent at least ten percent of the school year (18 or more days) are proficient 4% to 16% less than students who are not chronically absent on Reading Language Arts (RLA) assessments beginning in third grade.

CHRONIC ABSENTEEISM – ABC CORE - MATH PROFICIENCY

Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations.

ABC Chronically Absent (CA10="Y") - Math Proficiency for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	78%	62%	34%	32%	28%	23%	14%
11		72%	36%	32%	42%	27%	27%
12			50%	37%	35%	35%	25%
13				41%	38%	30%	31%
14					45%	36%	30%
15						48%	36%
16							45%

ABC Not Chronically Absent (CA10="N") - Math Proficiency for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	86%	72%	45%	46%	42%	37%	27%
11		83%	49%	41%	52%	39%	39%
12			59%	47%	45%	49%	41%
13				52%	48%	43%	46%
14					54%	46%	42%
15						57%	47%
16							60%

CA10 Impact - ABC Chronically Absent Comparison – Math Proficiency for Direct Certification plus Free Meals
(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10	-8%	-10%	-11%	-13%	-14%	-13%	-13%
11		-11%	-13%	-9%	-10%	-12%	-12%
12			-9%	-10%	-10%	-15%	-17%
13				-12%	-11%	-13%	-15%
14					-9%	-9%	-12%
15						-9%	-12%
16							-15%

ABC participants with Direct Certification and Free meal status in kindergarten who are chronically absent at least ten percent of the school year (18 or more days) are proficient 8% to 17% less than students who are not chronically absent on Math assessments beginning in third grade.

CHRONIC ABSENTEEISM – ABC CORE - SCIENCE PROFICIENCY

Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations. Science assessment was not administered below fifth grade until FY16.

ABC Chronically Absent (CA10="Y") - Science Proficiency for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			45%	30%	24%	21%	15%
11				21%	29%	24%	22%
12				23%	28%	28%	21%
13				20%	27%	26%	26%
14					26%	29%	25%
15						28%	27%
16							26%

ABC Not Chronically Absent (CA10="N") - Science Proficiency for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

FY	13	14	15	16	17	18	19
10			51%	39%	34%	32%	26%
11				29%	37%	34%	33%
12				31%	32%	38%	36%
13				31%	34%	32%	37%
14					32%	33%	32%
15						32%	35%
16							34%

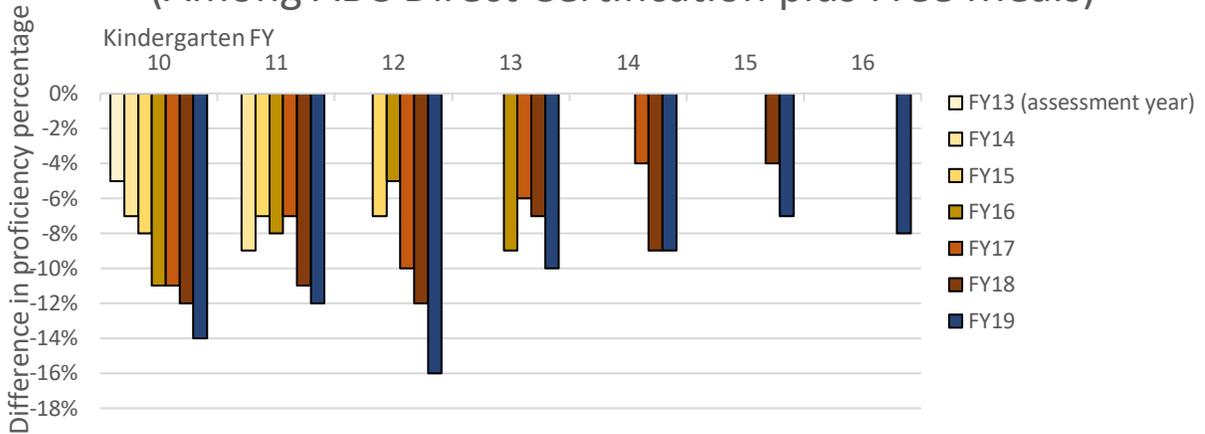
CA10 Impact - ABC Chronically Absent Comparison – Science Proficiency for Direct Certification plus Free Meals

(Rows: Kindergarten year; Columns: subsequent assessment years)

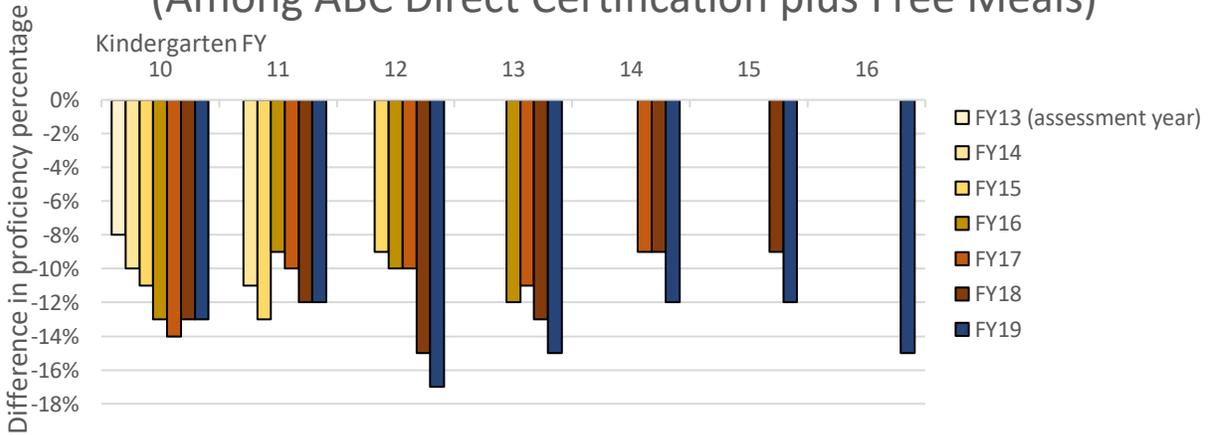
FY	13	14	15	16	17	18	19
10			-6%	-9%	-10%	-10%	-11%
11				-8%	-8%	-10%	-11%
12				-8%	-4%	-10%	-14%
13				-11%	-6%	-7%	-11%
14					-5%	-5%	-7%
15						-4%	-8%
16							-8%

ABC participants with Direct Certification and Free meal status in kindergarten who are chronically absent at least ten percent of the school year (18 or more days) are proficient 4% to 14% less than students who are not chronically absent on Science assessments beginning in third grade (or fifth grade prior to FY16).

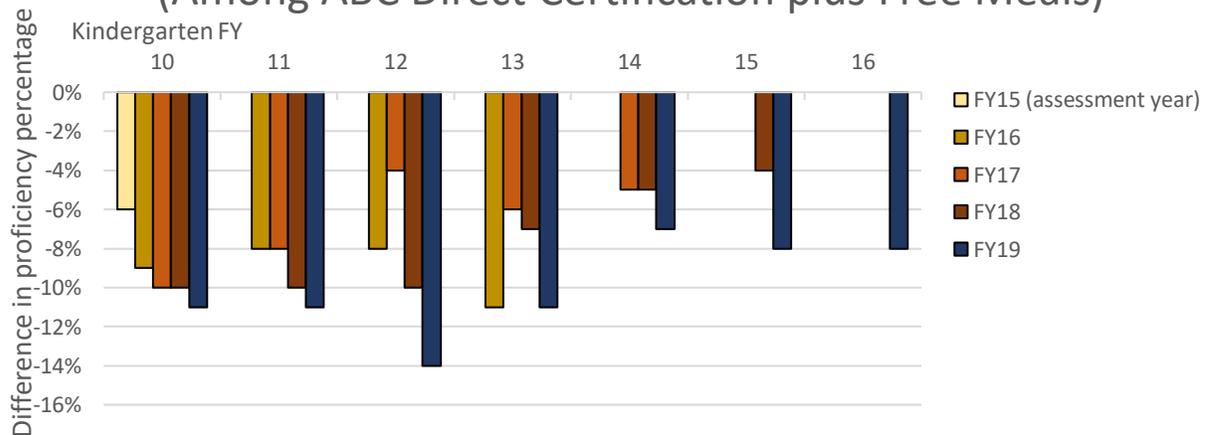
Impact of Chronic Absence on RLA Proficiency (Among ABC Direct Certification plus Free Meals)



Impact of Chronic Absence on Math Proficiency (Among ABC Direct Certification plus Free Meals)



Impact of Chronic Absence on Science Proficiency (Among ABC Direct Certification plus Free Meals)



SPECIAL EDUCATION EARLY CHILDHOOD

Section Highlights

- Among students with early childhood special education designations (Preschool Disabled), the first FY assessed (third grade) shows consistently lower rates of students continuing to receive special education services compared to subsequent years. This is mostly likely attributed to early childhood special education students who do not reach third grade in exactly three years.
- Receipt of special education services can also be broken down by program type. Among ABC students with early childhood special education designations (Preschool Disabled), between 31.6% and 32.7% continued to receive services 3 to 8 years after kindergarten.
- Among ABC students with early childhood special education designations (Speech/Language Impairments), between 26.4% and 17.1% continued to receive services 3 to 8 years after kindergarten.

Special education research data sets for early childhood were provided by DESE for this research. 160,363 records were provided for early childhood services from FY10 to FY20. 62,369 unique research ID values were provided, and 47,152 unique research ID values correspond to a kindergarten enrollment record in FY11 to FY20.

The counts for each Primary Disability Code include two codes (Deaf-Blindness and Traumatic Brain Injury) which occur fewer than ten times in the years examined. These codes are excluded from the 47,152 total.

Primary Disability Code	Total
Autism	578
Deaf-Blindness *	<10
Hearing Impaired	169
Multiple Disabilities	69
Orthopedic Impairments	61
Other Health Impairments	104
Preschool Disabled (Non-categorical)	28,965
Speech/Language Impairments	17,126
Traumatic Brain Injury *	<10
Visual Impairments	68
TOTAL (* excluded)	47,152

Division of Primary Disability Code counts by fiscal year, Pre-kindergarten services, special education program type, or kindergarten meal status would result in additional redacted combinations due to statistical cell size counts of fewer than ten students. The two Primary Disability Codes which are eligible for further division of the data sets are Preschool Disabled (Non-categorical) and Speech/Language Impairments.

Fewer than 4% of students are recorded with multiple Primary Disability Codes and have been counted once for each code value reported. This 4% duplication has only a small statistical significance but allows the

students to be counted among the totals in each code value, rather than assigning a preference of one Primary Disability Code over another.

PRIMARY DISABILITY - FISCAL YEAR PROFILE

Early Childhood Special Education (EC-SPED) students counts with Kindergarten fiscal year

Code	11	12	13	14	15	16	17	18	19	20	Total
Pre-Sch Disable	4,824	3,102	1,390	4,328	248	4,204	2,987	3,006	3,363	1,513	28,965
Speech / Lang.	2,473	1,877	1,051	2,321	276	2,447	1,764	1,912	2,028	977	17,126
TOTALS	7,297	4,979	2,441	6,649	524	6,651	4,751	4,918	5,391	2,490	46,091

Early childhood student counts with FY15 kindergarten enrollment are very low compared to FY11 to FY20.

Continued services in Special Education after early childhood are not identified in the data sets provided by DESE for this research, except for the Special Education indicator in the assessments data sets. As a result, it is possible to identify students noted as Special Education beginning with the third grade assessments.

PRIMARY DISABILITY - ASSESSMENT INDICATORS

Alignment between the research ID of Special Education Early Childhood and assessment data results in approximately half of all Preschool Disabled and Speech/Language Impairment indicators matching to at least one G3 to G8 assessment.

Primary Disability Code	Students	At least one G3-G8 assessment	%
Preschool Disabled (Non-categorical)	28,965	14,236	49.1%
Speech/Language Impairments	17,126	8,203	47.9%

The presence of an assessment record establishes the denominator for a percentage of students which may be identified as Special Education in G3 to G8 after having been in Special Education Early Childhood data.

Primary Disability Code	K FY	At least one G3-G8 Assessment	FY14	FY15	FY16	FY17	FY18	FY19
Preschool Disabled	11	2,668	1,879	2,537	2,518	2,480	2,456	2,402
Preschool Disabled	12	2,774	-	2,029	2,644	2,596	2,593	2,554
Preschool Disabled	13	2,666	-	-	1,997	2,562	2,540	2,516
Preschool Disabled	14	2,682	-	-	-	1,992	2,598	2,567
Preschool Disabled	15	1,463	-	-	-	-	1,157	1,429
Preschool Disabled	16	1,951	-	-	-	-	-	1,951
Speech/Language	11	1,430	1,162	1,347	1,317	1,315	1,306	1,291
Speech/Language	12	1,523	-	1,281	1,457	1,437	1,424	1,414
Speech/Language	13	1,522	-	-	1,291	1,467	1,452	1,436
Speech/Language	14	1,524	-	-	-	1,307	1,470	1,458
Speech/Language	15	859	-	-	-	-	760	839
Speech/Language	16	1,325	-	-	-	-	-	1,325

The numerator is the Special Education indicator within the assessment records.

Primary Disability Code	K FY	SPED FY14	SPED FY15	SPED FY16	SPED FY17	SPED FY18	SPED FY19
Preschool Disabled	11	575	873	856	849	840	804
Preschool Disabled	12	-	670	980	949	951	945
Preschool Disabled	13	-	-	638	923	887	883
Preschool Disabled	14	-	-	-	668	970	953
Preschool Disabled	15	-	-	-	-	449	594
Preschool Disabled	16	-	-	-	-	-	774
Speech/Language	11	296	332	298	258	235	227
Speech/Language	12	-	330	366	309	275	269
Speech/Language	13	-	-	306	340	306	283
Speech/Language	14	-	-	-	345	400	347
Speech/Language	15	-	-	-	-	193	194
Speech/Language	16	-	-	-	-	-	384

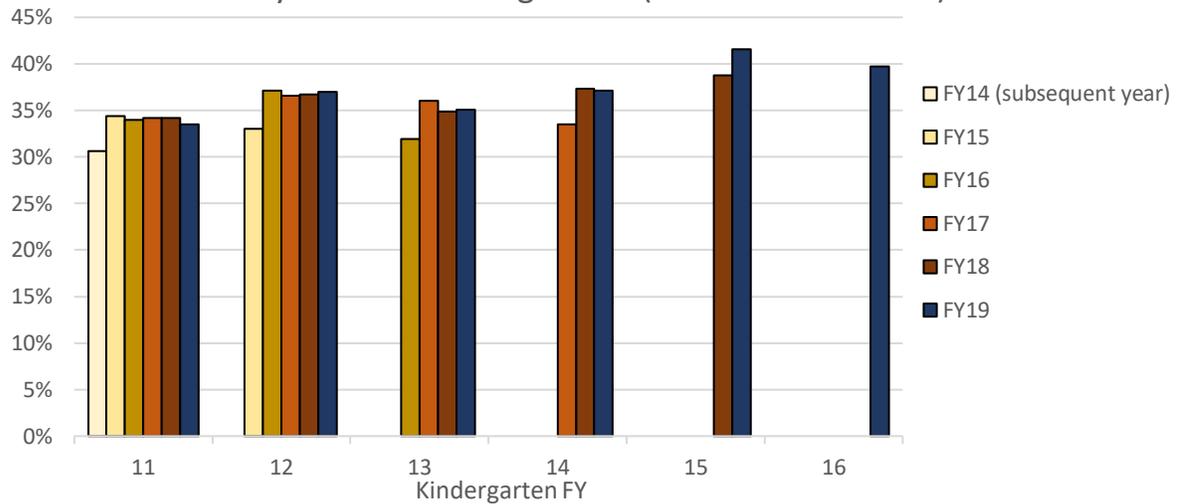
CONTINUED SPECIAL EDUCATION – PRIMARY DISABILITY - FISCAL YEARS

The resulting percentages provide a longitudinal view of students receiving special education services several years after their early childhood designation.

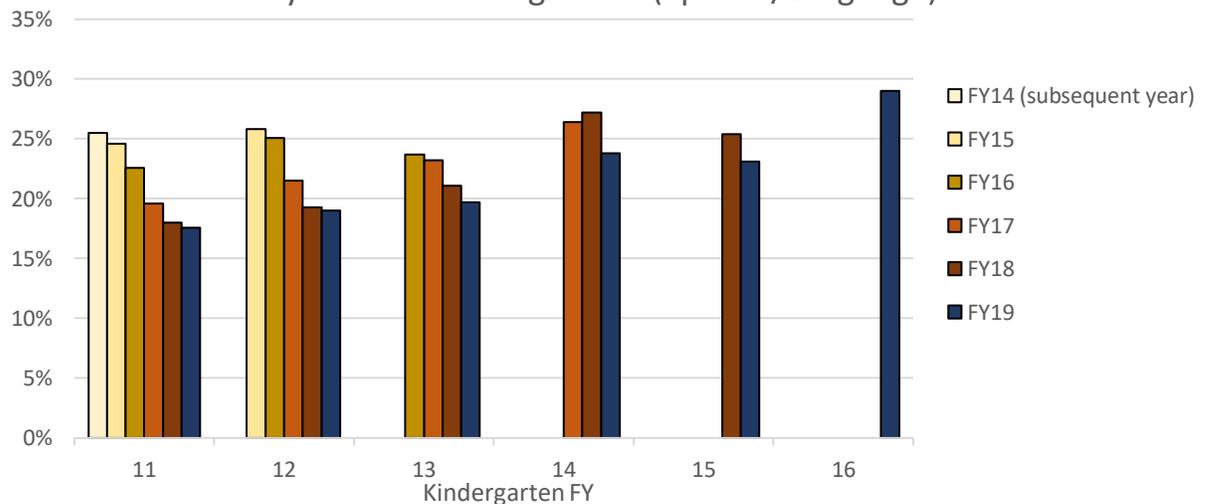
Primary Disability Code	K FY	FY14	FY15	FY16	FY17	FY18	FY19
Preschool Disabled	11	30.6%	34.4%	34.0%	34.2%	34.2%	33.5%
Preschool Disabled	12	-	33.0%	37.1%	36.6%	36.7%	37.0%
Preschool Disabled	13	-	-	31.9%	36.0%	34.9%	35.1%
Preschool Disabled	14	-	-	-	33.5%	37.3%	37.1%
Preschool Disabled	15	-	-	-	-	38.8%	41.6%
Preschool Disabled	16	-	-	-	-	-	39.7%
Speech/Language	11	25.5%	24.6%	22.6%	19.6%	18.0%	17.6%
Speech/Language	12	-	25.8%	25.1%	21.5%	19.3%	19.0%
Speech/Language	13	-	-	23.7%	23.2%	21.1%	19.7%
Speech/Language	14	-	-	-	26.4%	27.2%	23.8%
Speech/Language	15	-	-	-	-	25.4%	23.1%
Speech/Language	16	-	-	-	-	-	29.0%

The first FY assessed (third grade) is consistently lower than subsequent years. This observation is mostly likely attributed to early childhood special education students who do not reach third grade in exactly three years. By the fourth year after kindergarten, it is likely that a greater number of early childhood special education students are assessed either in the fourth grade (on-time) or in the third grade (after one year of retention between kindergarten and third grade). The second year percentages appear to reflect this increase in both the number of students tested and the percentage identified as special education on the assessment record.

Percent of students receiving special education services after early childhood designation (Preschool Disabled)



Percent of students receiving special education services after early childhood designation (Speech/Language)



EARLY CHILDHOOD PROGRAM TYPE

The Special Education Early Childhood DESE data table includes Program Type (SZ0135) for the type of program providing services to the student.

Program Type	Preschool Disabled (Non-categorical)	Speech/Language Impairments	Total
ABC	13,871	7,961	21,832
Head Start	6,319	2,883	9,202
HIPPY	178	131	309
Licensed Family Day Care Home	424	340	764

Licensed Preschool	5,049	4,309	9,358
Other (i.e. Itinerant/home)	3,058	1,469	4,527
Unreported	66	33	99
TOTAL	28,965	17,126	46,091

To determine if differences in outcomes may be reported for the different early childhood program types, the same analysis for special education indicator on assessments can be repeated including the program type.

PROGRAM TYPE - ASSESSMENT INDICATORS

The presence of an assessment record establishes the denominator for a percentage of students which may be identified as Special Education in G3 to G8 after having been in Special Education Early Childhood data.

Program Type	Primary Disability Code	At least one G3-G8 Assessment	FY14	FY15	FY16	FY17	FY18	FY19
ABC	Preschool Disabled	6,685	988	2,225	3,445	4,672	5,325	6,334
ABC	Speech/ Language	3,637	565	1,239	1,860	2,504	2,831	3,465
Head Start	Preschool Disabled	3,529	460	1,177	1,815	2,415	2,905	3,351
Head Start	Speech/ Language	1,568	209	477	764	1,058	1,237	1,481
HIPPY	Preschool Disabled	83		20	39	54	69	79
HIPPY	Speech/ Language	73		23	36	50	62	70
Licensed Family Day Care Home	Preschool Disabled	146		28	62	83	110	141
Licensed Family Day Care Home	Speech/ Language	115		21	38	60	79	113
Licensed Preschool	Preschool Disabled	2,565	337	826	1,241	1,646	2,002	2,404
Licensed Preschool	Speech/ Language	2,133	307	686	1,040	1,396	1,658	2,022
Other (i.e. Itinerant/home)	Preschool Disabled	1,318	103	330	603	826	1,008	1,227
Other (i.e. Itinerant/home)	Speech/ Language	752	82	207	354	513	609	700

The numerator is the Special Education indicator within the assessment records. At least ten students are present in the statistical cell size for each of these calculations, while fewer than ten may be reported in the table. Because there is no way to identify which students from the ten or more are indicated, the minimum statistical cell size remains ten or more.

Program Type	Primary Disability Code	SPED FY14	SPED FY15	SPED FY16	SPED FY17	SPED FY18	SPED FY19
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ABC	Preschool Disabled	285	708	1,096	1,534	1,796	2,187
ABC	Speech/ Language	145	317	447	568	627	771
Head Start	Preschool Disabled	115	351	588	795	973	1,172
Head Start	Speech/ Language	47	113	179	237	274	326
HIPPY	Preschool Disabled		8	12	17	27	30
HIPPY	Speech/ Language		3	5	5	10	9
Licensed Family Day Care Home	Preschool Disabled		5	18	28	47	64
Licensed Family Day Care Home	Speech/ Language		5	11	19	16	28
Licensed Preschool	Preschool Disabled	136	333	487	636	788	950
Licensed Preschool	Speech/ Language	82	164	225	288	327	395
Other (i.e. Itinerant/home)	Preschool Disabled	38	139	273	379	466	550
Other (i.e. Itinerant/home)	Speech/ Language	21	60	103	135	155	175

CONTINUED SPECIAL EDUCATION – PROGRAM TYPE - FISCAL YEARS

The resulting percentages provide a longitudinal view of students receiving special education services several years after their early childhood designation.

Program Type	Primary Disability Code	SPED FY14	SPED FY15	SPED FY16	SPED FY17	SPED FY18	SPED FY19
ABC	Preschool Disabled	28.8%	31.8%	31.8%	32.8%	33.7%	34.5%
ABC	Speech/Language	25.7%	25.6%	24.0%	22.7%	22.1%	22.3%
Head Start	Preschool Disabled	25.0%	29.8%	32.4%	32.9%	33.5%	35.0%
Head Start	Speech/Language	22.5%	23.7%	23.4%	22.4%	22.2%	22.0%
HIPPY	Preschool Disabled		40.0%	30.8%	31.5%	39.1%	38.0%
HIPPY	Speech/Language		13.0%	13.9%	10.0%	16.1%	12.9%
Licensed Family Day Care Home	Preschool Disabled		17.9%	29.0%	33.7%	42.7%	45.4%
Licensed Family Day Care Home	Speech/Language		23.8%	28.9%	31.7%	20.3%	24.8%
Licensed Preschool	Preschool Disabled	40.4%	40.3%	39.2%	38.6%	39.4%	39.5%
Licensed Preschool	Speech/Language	26.7%	23.9%	21.6%	20.6%	19.7%	19.5%
Other (i.e. Itinerant/home)	Preschool Disabled	36.9%	42.1%	45.3%	45.9%	46.2%	44.8%
Other (i.e. Itinerant/home)	Speech/Language	25.6%	29.0%	29.1%	26.3%	25.5%	25.0%

Preschool Disabled (Non-categorical) percentages by Program Type and Assessment Fiscal Year

Program Type	Primary Disability Code	SPED FY14	SPED FY15	SPED FY16	SPED FY17	SPED FY18	SPED FY19
ABC	Preschool Disabled	28.8%	31.8%	31.8%	32.8%	33.7%	34.5%
Head Start	Preschool Disabled	25.0%	29.8%	32.4%	32.9%	33.5%	35.0%
HIPPY	Preschool Disabled		40.0%	30.8%	31.5%	39.1%	38.0%
Licensed Family Day Care Home	Preschool Disabled		17.9%	29.0%	33.7%	42.7%	45.4%
Licensed Preschool	Preschool Disabled	40.4%	40.3%	39.2%	38.6%	39.4%	39.5%
Other (i.e. Itinerant/home)	Preschool Disabled	36.9%	42.1%	45.3%	45.9%	46.2%	44.8%

Speech/Language Impairment percentages by Program Type and Assessment Fiscal Year

Program Type	Primary Disability Code	SPED FY14	SPED FY15	SPED FY16	SPED FY17	SPED FY18	SPED FY19
ABC	Preschool Disabled	28.8%	31.8%	31.8%	32.8%	33.7%	34.5%
Head Start	Preschool Disabled	25.0%	29.8%	32.4%	32.9%	33.5%	35.0%
HIPPY	Preschool Disabled		40.0%	30.8%	31.5%	39.1%	38.0%
Licensed Family Day Care Home	Preschool Disabled		17.9%	29.0%	33.7%	42.7%	45.4%
Licensed Preschool	Preschool Disabled	40.4%	40.3%	39.2%	38.6%	39.4%	39.5%
Other (i.e. Itinerant/home)	Preschool Disabled	36.9%	42.1%	45.3%	45.9%	46.2%	44.8%

SPECIAL EDUCATION – PROGRAM TYPE – YEARS SINCE KINDERGARTEN

The fiscal years reported for assessment data combine all grade levels into a single calculation. Because varying numbers of years have passed since the student participated in early childhood special education, an alternative analysis for continued special education services would use the Years Since Kindergarten, rather than the Fiscal Year.

Program Type	Primary Disability Code	At least one G3-G8 Assessment	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
ABC	Preschool Disabled	6,685	5,216	5,500	4,947	3,656	2,420	1,245
ABC	Speech/ Language	3,637	3,138	2,880	2,579	1,937	1,292	637
Head Start	Preschool Disabled	3,529	2,620	3,036	2,586	1,943	1,314	624
Head Start	Speech/ Language	1,568	1,335	1,285	1,077	789	499	241
HIPPY	Preschool Disabled	83	62	72	60	41	24	
HIPPY	Speech/ Language	73	63	64	51	37	24	11

Licensed Family Day Care Home	Preschool Disabled	146	115	114	89	65	35	12
Licensed Family Day Care Home	Speech/Language	115	107	79	62	39	24	
Licensed Preschool	Preschool Disabled	2,565	2,087	2,064	1,728	1,297	880	399
Licensed Preschool	Speech/Language	2,133	1,912	1,712	1,429	1,041	689	325
Other (i.e. Itinerant/home)	Preschool Disabled	1,318	1,003	1,062	882	632	379	139
Other (i.e. Itinerant/home)	Speech/Language	752	655	626	524	360	215	85

The numerator is the Special Education indicator within the assessment records. At least ten students are present in the statistical cell size for each of these calculations, while fewer than ten may be reported in the table. Because there is no way to identify which students from the ten or more are indicated, the minimum statistical cell size remains ten or more.

Program Type	Primary Disability Code	At least one G3-G8 Assessment	SPED Year 3	SPED Year 4	SPED Year 5	SPED Year 6	SPED Year 7	SPED Year 8
ABC	Preschool Disabled	6,685	1,649	1,866	1,653	1,206	823	407
ABC	Speech/Language	3,637	828	721	587	392	236	109
Head Start	Preschool Disabled	3,529	792	1,042	882	660	433	185
Head Start	Speech/Language	1,568	315	307	242	161	104	47
HIPPY	Preschool Disabled	83	19	32	23	13	6	4
HIPPY	Speech/Language	73	8	9	6	4	4	2
Licensed Family Day Care Home	Preschool Disabled	146	39	46	33	25	14	5
Licensed Family Day Care Home	Speech/Language	115	35	18	13	7	5	3
Licensed Preschool	Preschool Disabled	2,565	812	849	663	506	351	148
Licensed Preschool	Speech/Language	2,133	476	390	278	174	113	50
Other (i.e. Itinerant/home)	Preschool Disabled	1,318	463	505	391	273	158	55
Other (i.e. Itinerant/home)	Speech/Language	752	192	187	134	78	42	16

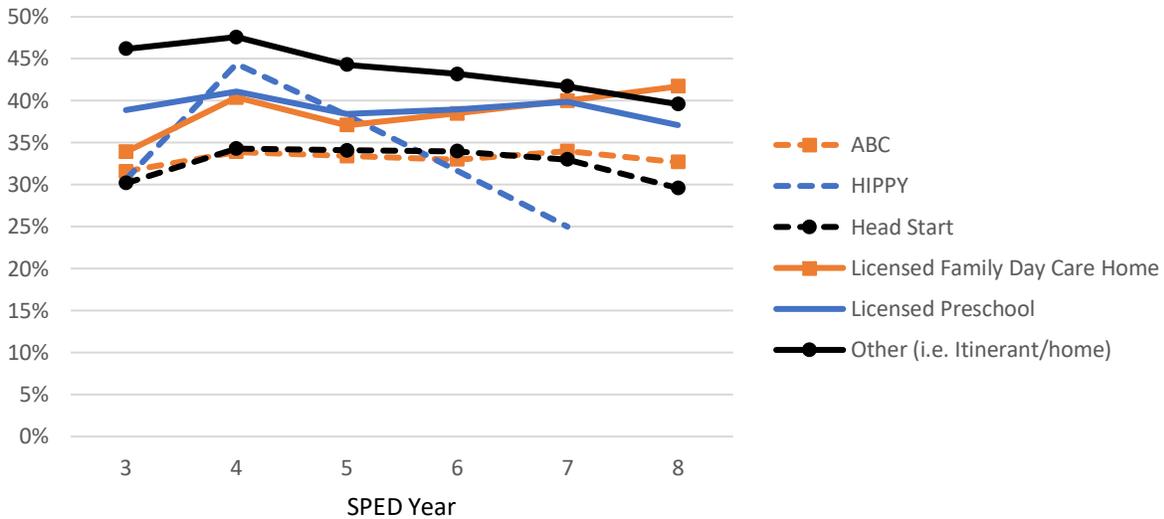
The resulting percentages provide a longitudinal view of students receiving special education services several years after their early childhood designation.

Program Type	Primary Disability Code	SPED Year 3	SPED Year 4	SPED Year 5	SPED Year 6	SPED Year 7	SPED Year 8
ABC	Preschool Disabled	31.6%	33.9%	33.4%	33.0%	34.0%	32.7%
ABC	Speech/ Language	26.4%	25.0%	22.8%	20.2%	18.3%	17.1%
Head Start	Preschool Disabled	30.2%	34.3%	34.1%	34.0%	33.0%	29.6%
Head Start	Speech/ Language	23.6%	23.9%	22.5%	20.4%	20.8%	19.5%
HIPPY	Preschool Disabled	30.6%	44.4%	38.3%	31.7%	25.0%	
HIPPY	Speech/ Language	12.7%	14.1%	11.8%	10.8%	16.7%	18.2%
Licensed Family Day Care Home	Preschool Disabled	33.9%	40.4%	37.1%	38.5%	40.0%	41.7%
Licensed Family Day Care Home	Speech/ Language	32.7%	22.8%	21.0%	17.9%	20.8%	
Licensed Preschool	Preschool Disabled	38.9%	41.1%	38.4%	39.0%	39.9%	37.1%
Licensed Preschool	Speech/ Language	24.9%	22.8%	19.5%	16.7%	16.4%	15.4%
Other (i.e. Itinerant/home)	Preschool Disabled	46.2%	47.6%	44.3%	43.2%	41.7%	39.6%
Other (i.e. Itinerant/home)	Speech/ Language	29.3%	29.9%	25.6%	21.7%	19.5%	18.8%

Preschool Disabled (Non-categorical) percentages by Program Type and Assessment Years Since Kindergarten

Program Type	Primary Disability Code	SPED Year 3	SPED Year 4	SPED Year 5	SPED Year 6	SPED Year 7	SPED Year 8
ABC	Preschool Disabled	31.6%	33.9%	33.4%	33.0%	34.0%	32.7%
Head Start	Preschool Disabled	30.2%	34.3%	34.1%	34.0%	33.0%	29.6%
HIPPY	Preschool Disabled	30.6%	44.4%	38.3%	31.7%	25.0%	
Licensed Family Day Care Home	Preschool Disabled	33.9%	40.4%	37.1%	38.5%	40.0%	41.7%
Licensed Preschool	Preschool Disabled	38.9%	41.1%	38.4%	39.0%	39.9%	37.1%
Other (i.e. Itinerant/home)	Preschool Disabled	46.2%	47.6%	44.3%	43.2%	41.7%	39.6%

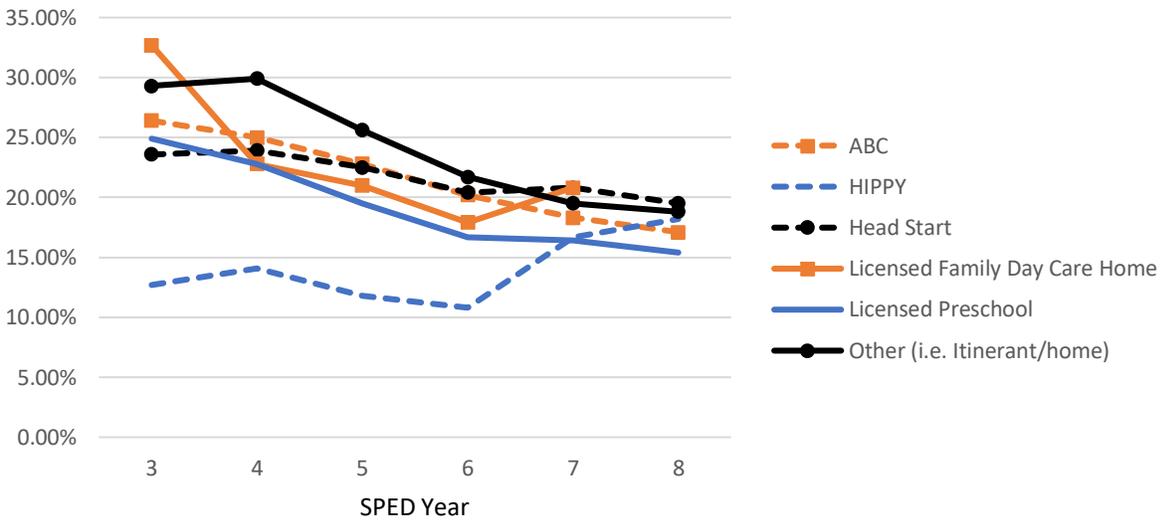
Preschool Disabled (Non-categorical) percentages by Program Type and Assessment Years Since Kindergarten



Speech/Language Impairment percentages by Program Type and Assessment Years Since Kindergarten

Program Type	Primary Disability Code	SPED Year 3	SPED Year 4	SPED Year 5	SPED Year 6	SPED Year 7	SPED Year 8
ABC	Speech/ Language	26.4%	25.0%	22.8%	20.2%	18.3%	17.1%
Head Start	Speech/ Language	23.6%	23.9%	22.5%	20.4%	20.8%	19.5%
HIPPY	Speech/ Language	12.7%	14.1%	11.8%	10.8%	16.7%	18.2%
Licensed Family Day Care Home	Speech/ Language	32.7%	22.8%	21.0%	17.9%	20.8%	
Licensed Preschool	Speech/ Language	24.9%	22.8%	19.5%	16.7%	16.4%	15.4%
Other (i.e. Itinerant/home)	Speech/ Language	29.3%	29.9%	25.6%	21.7%	19.5%	18.8%

Speech/Language Impairment percentages by Program Type and Assessment Years Since Kindergarten



RETENTION

Section Highlights

- Lower rates of retention are observed for ABC for Direct Certification and Free meal status in all years after the first year of kindergarten when compared to No Known Pre-K for Direct Certification and Free meal students.

Retention impacts measurements for attendance and special education indicators identified in assessment data sets. Students who are not promoted from one grade level to the next according to standard annual progress are retained or “held back” to repeat a grade level. This repetition of a grade level removes the student from the majority of his/her classmates, particularly in the data sets of longitudinal research.

CORE COMPARISON – ABC vs. NO KNOWN PRE-K – FREE MEAL STATUS

ABC – Direct Certification plus Free Meals – Retention Percentage

(Rows: Kindergarten year; Columns: subsequent years)

FY	11	12	13	14	15	16	17	18	19	20
10	9.1	14.6	16.9	17.4	17.8	17.8	18.1	18.6	19.2	21.6
11		6.8	11.6	13.9	14.5	14.9	15.4	15.8	16.1	16.6
12			5.5	10.2	12.1	12.6	13.2	13.5	14.2	14.7
13				5.4	9.3	10.5	11.1	11.3	11.5	11.9
14					5.2	8.7	10.1	10.6	11.1	11.2
15						5	8.5	10.1	10.5	10.7
16							4.8	8.3	9.2	9.5
17								4.3	7.8	8.8
18									5	8.2
19										4.3

The value of 0.0 for row FY10 and column FY10 indicates that students are not retained during their kindergarten year, but may be retained in the years that follow, FY11, FY12, etc. Similarly, the percentage of students retained is always 0.0 for the first kindergarten year.

No Known Pre-K – Direct Certification plus Free Meals – Retention Percentage

(Rows: Kindergarten year; Columns: subsequent years)

FY	11	12	13	14	15	16	17	18	19	20
10	11.9	17.4	19	20	20.2	20.9	21.2	22.2	23	25.8
11		11.3	16.6	19	20.4	20.4	21	21.5	21.9	22.3
12			9.6	15.1	17.6	18.6	19.1	19	19.8	20.4
13				9.4	14.7	16.8	17.5	17.9	18	18.3
14					9.4	14	15.8	16.4	16.9	16.8
15						9.2	13.5	14.9	15.6	15.6

16							7.8	11.8	13.3	13.8
17								8.4	12.5	13.5
18									8.1	11.3
19										6.2

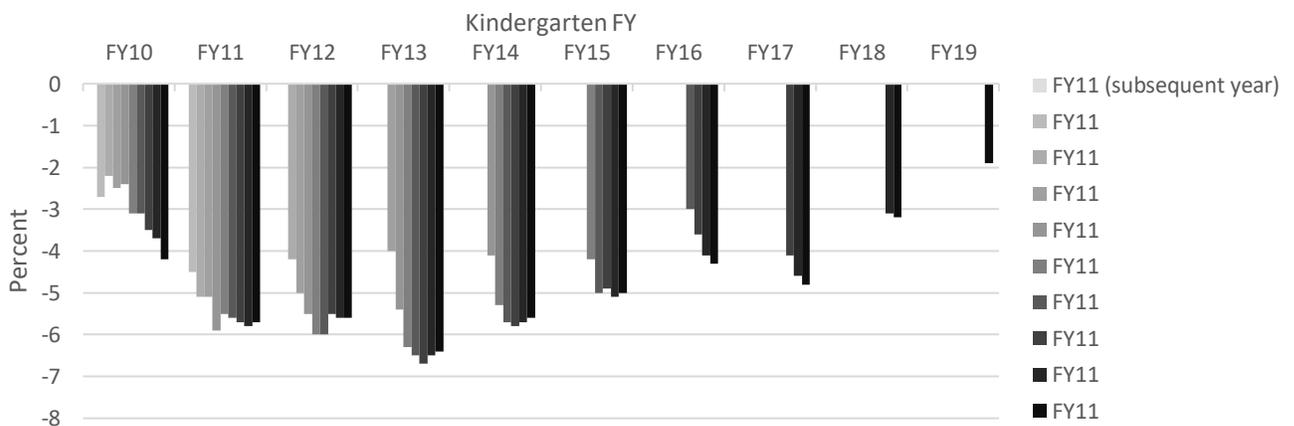
ABC Gain – Yearly Net Retention Percentage for Direct Certification plus Free Meals vs. No Known Pre-K
(Rows: Kindergarten year; Columns: subsequent years)

FY	11	12	13	14	15	16	17	18	19	20
10	-2.8	-2.7	-2.2	-2.5	-2.4	-3.1	-3.1	-3.5	-3.7	-4.2
11		-4.5	-5.1	-5.1	-5.9	-5.5	-5.6	-5.7	-5.8	-5.7
12			-4.2	-5	-5.5	-6	-6	-5.5	-5.6	-5.6
13				-4	-5.4	-6.3	-6.5	-6.7	-6.5	-6.4
14					-4.1	-5.3	-5.7	-5.8	-5.7	-5.6
15						-4.2	-5	-4.9	-5.1	-5
16							-3	-3.6	-4.1	-4.3
17								-4.1	-4.6	-4.8
18									-3.1	-3.2
19										-1.9

Lower rates of retention are observed for ABC for Direct Certification and Free meal status in all years after the first year of kindergarten when compared to No Known Pre-K for Direct Certification and Free meal students. There is not a consistent increase or decrease in the number of students retained year to year because students may not be enrolled in DESE schools in subsequent years.

Students who transfer out of DESE schools are not included in those years without DESE enrollment but may return in future years to be counted again. Formerly retained students are not counted as retained in any year they have been promoted to their on-time grade level, based upon their kindergarten fiscal year.

ABC Gain – Yearly Net Retention Percentage for Direct Certification plus Free Meals vs. No Known Pre-K



PERSISTENCE

Section Highlights

- Among Direct Certification plus Free meals students, those who participated in ABC had 3.2 to 7.4 percentage points higher statewide persistence rates compared to No Known Pre-K Direct Certification plus Free meals. There was no significant difference between all students and ABC Direct Certification plus Free meals calculations for persistence in the state.
- In-county persistence rates followed a similar pattern to in-state persistence. Among Direct Certification plus Free meals students, those who participated in ABC had 3.3 to 6.3 percentage points higher county persistence rates compared to No Known Pre-K Direct Certification plus Free meals. There was no significant difference between all students and ABC Direct Certification plus Free meals calculations for in-county persistence.

Another metric for longitudinal analysis in student attendance may be defined as persistence. The persistence of student enrollment is the consecutive years of enrollment in Arkansas public schools through elementary and secondary grade levels. The percentage of students returning to public school in Arkansas each year varies based upon the needs and capabilities of each household. The core comparison groupings for ABC and No Known Pre-K ensure that the socio-economic characteristics are equivalent for Direct Certification and Free meal status student households in the persistence comparison.

A simple calculation for the percentage of students which remain in Arkansas each year, without having any years absent from the Arkansas public school system, essentially provides the enrollment equivalent of perfect attendance. Rather than requiring that a student is present all days of the school year, the persistence measure only requires that the student is enrolled in the state. Official calculations for dropout rate do not identify students who may not persist through elementary and early secondary grade levels to receive quality education even prior to high school.

There are many valid reasons for transferring out of Arkansas public schools, however, there are also reasons which do not ensure the continued education of the student. Households which are at risk socio-economically may be more likely to fail to provide adequate education, even for elementary students. There is no official dropout rate for elementary school, however, it would be impractical to assume that all students are finishing a quality education elsewhere whenever they are removed from Arkansas public schools at any age.

Enrollment records for all kindergarten students identified in the research data provided have been analyzed to determine the percentage of students who remain enrolled in Arkansas public schools in subsequent years, as well as the percentage who remain in the same county. The calculation for the percentage of students who remain the same school district would require significant effort due to the school LEA updating which occurred throughout the past eleven years. Additionally, school districts which closed, consolidated, or otherwise received a changed district LEA value would need to be accounted separately. The identification of the percentage of students remaining in the same county does not have these limitations because the LEA county digits do not change when the school district is renumbered. The core comparison groups for ABC and No Known Pre-K have been isolated and reported in comparison to each other and to the entire population of kindergarten students in the longitudinal data.

IN-STATE PERSISTENCE

Kindergarten students remaining in Arkansas public schools

K_FY	Years	Students	Persistent	Percentage
10	11	35,684	23,510	65.9%
11	10	32,887	22,316	67.9%
12	9	32,832	23,093	70.3%
13	8	36,138	26,048	72.1%
14	7	35,021	26,093	74.5%
15	6	33,139	25,654	77.4%
16	5	31,999	25,760	80.5%
17	4	31,457	26,376	83.8%
18	3	31,381	27,602	88.0%
19	2	30,786	28,598	92.9%
20	1	30,700	30,700	100.0%

IN-STATE PERSISTENCE – CORE COMPARISON

ABC – Direct Certification and Free Lunch Kindergarten students remaining in Arkansas public schools

K_FY	Years	Students	Persistent	Percentage
10	11	7,102	4,675	65.8%
11	10	7,468	5,031	67.4%
12	9	7,155	5,072	70.9%
13	8	7,920	5,739	72.5%
14	7	7,584	5,741	75.7%
15	6	7,845	6,175	78.7%
16	5	8,418	6,878	81.7%
17	4	8,886	7,541	84.9%
18	3	8,406	7,435	88.4%
19	2	8,206	7,676	93.5%
20	1	8,532	8,532	100.0%

No Known Pre-K – Direct Certification and Free Lunch Kindergarten students remaining in Arkansas public schools

K_FY	Years	Students	Persistent	Percentage
10	11	6,193	3,723	60.1%
11	10	5,062	3,124	61.7%
12	9	5,656	3,647	64.5%
13	8	6,480	4,399	67.9%
14	7	6,400	4,457	69.6%
15	6	6,465	4,632	71.6%

16	5	6,264	4,780	76.3%
17	4	5,828	4,512	77.4%
18	3	6,126	5,119	83.6%
19	2	6,170	5,571	90.3%
20	1	6,706	6,706	100.0%

Persistence In-State - ABC Gain – Direct Certification and Free Lunch Kindergarten students remaining in Arkansas public schools vs. No Known Pre-K

K_FY	Years	All	ABC DC+Free	No Known DC+Free	ABC Gain
10	11	65.9%	65.8%	60.1%	5.7%
11	10	67.9%	67.4%	61.7%	5.7%
12	9	70.3%	70.9%	64.5%	6.4%
13	8	72.1%	72.5%	67.9%	4.6%
14	7	74.5%	75.7%	69.6%	6.1%
15	6	77.4%	78.7%	71.6%	7.1%
16	5	80.5%	81.7%	76.3%	5.4%
17	4	83.8%	84.9%	77.4%	7.4%
18	3	88.0%	88.4%	83.6%	4.9%
19	2	92.9%	93.5%	90.3%	3.2%
20	1	100.0%	100.0%	100.0%	0.0%

While there is no significant difference between all students and ABC Direct Certification plus Free meals calculations for persistence in the state, there is a difference of 3.2 to 7.4 percent for ABC when compared to No Known Pre-K Direct Certification plus Free meals. The difference identified for FY10 to FY20 may correspond to a higher percentage of students continuing to receive quality education within lower socio-economic households.

IN-COUNTY PERSISTENCE

Kindergarten students remaining in Arkansas public schools in the same county

K_FY	Years	Students	Persistent	Percentage
10	11	35,684	23,185	65.0%
11	10	32,887	22,038	67.0%
12	9	32,832	22,731	69.2%
13	8	36,138	25,491	70.5%
14	7	35,021	22,816	65.1%
15	6	33,139	20,881	63.0%
16	5	31,999	21,063	65.8%
17	4	31,457	21,894	69.6%
18	3	31,381	27,036	86.2%

19	2	30,786	28,008	91.0%
20	1	30,700	29,864	97.3%

IN-COUNTY PERSISTENCE – CORE COMPARISON

ABC – Direct Certification and Free Lunch Kindergarten students remaining in the same county for Arkansas public schools

K_FY	Years	Students	Persistent	Percentage
10	11	7,102	4,626	65.1%
11	10	7,468	4,967	66.5%
12	9	7,155	4,983	69.6%
13	8	7,920	5,627	71.0%
14	7	7,584	5,007	66.0%
15	6	7,845	5,053	64.4%
16	5	8,418	5,588	66.4%
17	4	8,886	6,212	69.9%
18	3	8,406	7,266	86.4%
19	2	8,206	7,507	91.5%
20	1	8,532	8,265	96.9%

No Known Pre-K – Direct Certification and Free Lunch Kindergarten students remaining in the same county for Arkansas public schools

K_FY	Years	Students	Persistent	Percentage
10	11	6,193	3,649	58.9%
11	10	5,062	3,094	61.1%
12	9	5,656	3,578	63.3%
13	8	6,480	4,276	66.0%
14	7	6,400	3,927	61.4%
15	6	6,465	3,755	58.1%
16	5	6,264	3,943	62.9%
17	4	5,828	3,747	64.3%
18	3	6,126	4,996	81.6%
19	2	6,170	5,438	88.1%
20	1	6,706	6,528	97.3%

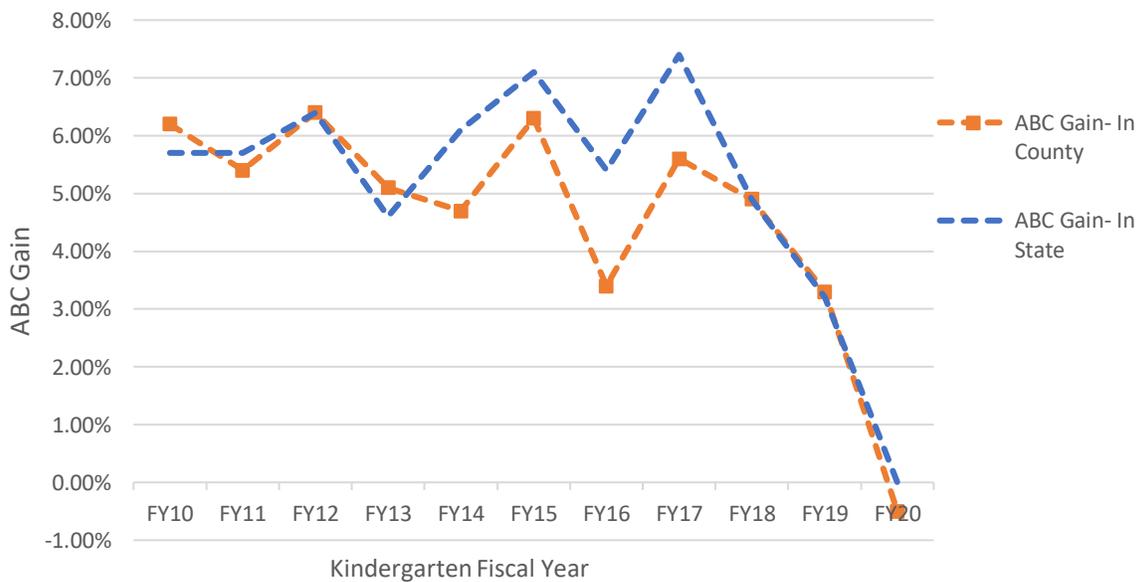
Persistence In-County - ABC Gain – Direct Certification and Free Lunch Kindergarten students remaining in the same county for Arkansas public schools vs. No Known Pre-K

K_FY	Years	All	ABC DC+Free	No Known DC+Free	ABC Gain
10	11	65.0%	65.1%	58.9%	6.2%
11	10	67.0%	66.5%	61.1%	5.4%

12	9	69.2%	69.6%	63.3%	6.4%
13	8	70.5%	71.0%	66.0%	5.1%
14	7	65.1%	66.0%	61.4%	4.7%
15	6	63.0%	64.4%	58.1%	6.3%
16	5	65.8%	66.4%	62.9%	3.4%
17	4	69.6%	69.9%	64.3%	5.6%
18	3	86.2%	86.4%	81.6%	4.9%
19	2	91.0%	91.5%	88.1%	3.3%
20	1	97.3%	96.9%	97.3%	-0.5%

While there is no significant difference between all students and ABC Direct Certification plus Free meals calculations for persistence in the same Arkansas county, there is a difference of 3.3 to 6.3 percent for ABC when compared to No Known Pre-K Direct Certification plus Free meals. The only exception is FY20, which has a slightly lower ABC Gain percentage for persistence within the kindergarten school year. The difference identified for FY10 to FY19 may correspond to a higher percentage of students continuing to receive quality education within lower socio-economic households.

ABC Persistence Gain, County and State
(Among Direct Certification plus Free Meals)



DATA QUALITY NOTES

NOTES ON APPARENT ROUNDING ERRORS

Throughout this analysis, calculations have been rounded to the nearest whole number, percentage, or to the nearest tenth, for smaller calculated values. This rounding produces apparent errors.

ROW	ABC	Non-ABC	ABC Gain
1	10.7	10.7	+0.0
2	10.4	10.1	+0.3
3	9.2	9.2	+0.1
4	10.1	10.1	-0.1

In the table above, the ABC Gain column is a simple difference calculated between the ABC column and the Non-ABC column. For the first two rows of calculations, ABC Gain matches the expected values when subtracting Non-ABC from ABC. In the third row, the reported ABC Gain is +0.1, while the individual values for ABC and Non-ABC are both reported as 9.2. As a result, the expected ABC gain would be 0.0, rather than +0.1. Rounding to the nearest tenth obscures the actual values for ABC of 9.234 and Non-ABC of 9.177. Both of these values do round to 9.2, however, the difference in the actual values is 0.057. Because 9.234 minus 9.177 is 0.057, when rounded to the nearest tenth, is reported as +0.1. Similarly, the fourth row would have an expected ABC Gain of 0.0, rather than -0.1 as reported, because both ABC and Non-ABC are rounded to 10.1. The actual values for ABC and Non-ABC are 10.052 and 10.104, respectively. The calculated difference is -0.052, which, rounded to the nearest tenth, is -0.1.

NOTES ON EXCLUDED DATA

Certain records have been excluded in the analysis when one or more of the following is observed:

- Fiscal years prior to kindergarten when the Research ID is associated with a higher DESE grade level
 - o DESE research ID application may inadvertently combine records for two students under the same research ID.
- Kindergarten students without a corresponding enrollment record in Cycle 2 (Oct. 15), indicating the student was not enrolled before October 1.
- Attendance which exceeds 178 days present per academic year.
 - o Calculated days present is limited to 178, rather than higher values in the data provided.

NOTES ON ATTENDANCE

Only 85% of students enrolled have a corresponding attendance record in an academic year. More than 1,000 different school LEA are present in the data, reporting 400,000+ students.

- 25% of schools have attendance for more than 95% of their students
- 40% of schools have attendance for 85% (average) to 95% of their students
- 15% of schools have attendance for 75% to 85% (average) of their students
- 13% of schools have attendance for 50% to 75% of their students
- 7% of schools have attendance for under 50% of their students

The student academic year is 178 days of instruction in Arkansas. The attendance records for any student should not exceed 178 days, however, students at some charter schools in 2010 – 2013 have more than 500 days present in a single academic year. A data quality error exists for students with overreported days present. A separate data quality error exists for schools reporting no attendance records for students who attended. Additional investigation would be required by DESE to ascertain the nature and potential to mitigate these errors if such investigation has not already been completed.

NOTES ON NET ATTENDANCE

Once the kindergarten count has been established for longitudinal purposes in this analysis, those students may not necessarily attend all subsequent years in DESE schools.

Student Counts By Fiscal Year (Kindergarten in FY10, DESE net attendance counts for FY10 to FY20)

K FY	10	11	12	13	14	15	16	17	18	19	20
20	33,023	31,646	30,961	30,425	30,024	29,265	29,071	28,849	28,813	28,699	28,466

Of the 33,023 research IDs present in FY10 kindergarten, 28,466 (86.2%) can be found ten years later in DESE schools during FY20. Those 28,466 students in FY20 may not have attended all years in DESE schools. The decline from FY10 to FY11 was from 33,023 to 31,646. It is clear that 1,377 kindergarten students in FY10 did not return to DESE schools in FY11. The decline from FY11 to FY12 was from 31,646 to 30,961. It is not clear that 30,961 of those 31,646 FY11 students returned in FY12, even though the FY12 count is 30,961.

The reason for this ambiguity is that some portion of the 1,377 students exiting after FY10 may have returned in FY12. Any, all, or none of the 1,377 students who attended in FY10 but not FY11 could have returned in FY12. The calculation of 685 fewer students between FY11 and FY12 is a net count. Hypothetically, perhaps 800 of the 1,377 FY10 students who did not attend in FY11 returned for FY12. Because the net difference for FY11 to FY12 is 685, the number of students from FY11 who did not return for FY12 would be 1,485. The FY12 count of 30,961 would be the net students from the original FY10 count of 33,023, minus 1,377 who did not return for FY11, adding the 800 students who returned between FY10 and FY12, minus the 1,485 who did not return from FY11. $33,023 - 1,377 + 800 - 1,485 = 30,961$.

The 800 FY10 students who did not attend FY11 but returned for FY12 is just a hypothetical count for illustration of the beginning of the complexity issue. As the longitudinal analysis continues, the number of possible combinations of transfers in and out of DESE schools across the academic years exponentially increases the combinations required for a full accounting of the movements of each student. The requirement of kindergarten attendance in FY10 is followed by a binary (yes/no) answer for each student's attendance in FY11 to FY20.

Beyond FY10 kindergarten attendance, there are ten academic years from FY11 to FY20, each with two possible answers for attendance (yes or no). Two possibilities per year, raised to the tenth power, indicates 1,024 possible attendance year combinations for each student. The next year in the longitudinal analysis would increase from 1,024 possibilities to 2,048. This level of extreme detail is unlikely to be useful in an analysis of this type.

The net count continues to be a single count for each year from FY11 to FY20, always relative to the original kindergarten student count in FY10. This analysis provides the net count, rather than attempting to specify how many students attended each of the 1,024 possible year-to-year combinations for FY10 to FY20. A consistent decline is observed in the net counts presented, even after including students who transferred back into DESE in subsequent years.

exceeds the scope of this analysis, which is focused upon ABC Pre-school participation and comparison groups of Arkansas kindergarteners.

The longitudinal aspect of this analysis extends to proficiency on assessments in later years and grade levels, but this analysis does not extend to Arkansas students beyond the established starting point with kindergarten data.

The assessment data provided for this research includes a proficiency level data element with values of L1, L2, L3, and L4. Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient, in these calculations.

NOTES ON GENERAL CALCULATIONS

As each level of detail and outcome is analyzed when working from provided research data sets, there is a potential for apparent conflicting results of calculations from the same data. More specifically, the denominator in a calculation of percentage may vary, but also remain valid, depending upon the intent of the measure.

For example, suppose 10,000 students attend kindergarten in FY15 with certain characteristics in common. When evaluating FY16 outcomes, the denominator may be 10,000, to indicate what percentage of students have a particular outcome, or the denominator could be 8,500, if 1,500 of the students did not attend schools within the data set during FY16. In both cases, the numerator would remain the same, such as 5,000 positive outcomes identified, but the resulting percentages would have an apparent conflict. If all 10,000 students from the FY15 basis are used in the denominator, the result would be 50% (5,000/10,000). If only those students who also attended in FY16 are used in the denominator, the result would be 58.8% (5,000/8,500). While both calculations use the same data sets, both use 5,000 in the numerator, neither the 50% nor the 58.8% percentage reported is necessarily incorrect, but an apparent conflict exists.

In another example, the calculation for percentage of proficient students may be impacted by traits of the data values. Again suppose 10,000 students attend kindergarten in FY15 with certain characteristics in common. An evaluation of the proficiency of those students in on a third grade assessment in FY18 could reveal 6,000 proficient students, among 8,000 tested. One calculation for proficiency would be 75% (6,000/8,000). However, students who were retained between FY15 and FY18 would not yet be in the third grade and would not have been tested.

It may be appropriate to include retained students in the denominator because they are not proficient at the third grade level, having been retained (held back) and remaining in kindergarten, first grade, or second grade, while their kindergarten peers were tested at the third grade level. If 800 students had been retained between FY15 and FY18, while remaining in schools included in the analysis, the proficiency rate would be 68.2% (6,000/8,800), rather than the 75% previously calculated.

The examples provided demonstrate how the denominator may vary while the numerator remains the same. There are equally valid reasons for the numerator to vary as well. The calculation for percentage of proficient students in third grade in FY18 may also include students who are proficient in the fourth grade, if there are students who advanced (skipped) a grade between FY15 and FY18. Those fourth grade students belong to the same FY15 kindergarten group and are also proficient at the third grade level (because they are proficient above the third grade level).

All these examples do not provide the same answer, but each is correct for the calculation it represents. The appropriateness of the measured result is dependent upon the intention of the analysis, and the reasons should be understood for any differences.



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