



The Effects of the Community Eligibility Provision on Educational Outcomes for Students in North Carolina

In this research brief, we examine the Community Eligibility Provision (CEP), a program designed to provide universal free breakfast and lunch at participating schools, and its effect on elementary, middle, and high school students' educational outcomes. We find that 1) school level participation in CEP significantly increases the numbers of school breakfasts and lunches served, 2) students at CEP participating schools tend to have fewer absences and suspensions, 3) high schoolers at CEP participating schools are more likely to be promoted to 10th grade, and 4) schools' CEP participation is associated with higher test scores in some grades and subjects but has no significant impact on other test scores. Positive educational results from CEP suggest that schools and districts should consider participation to increase academic achievement and provide nutritious meals to more students.

Introduction

The National School Lunch Program (NSLP) and the School Breakfast Program (SBP) provide meals to millions of students across the United States every school day. Prior nutrition research indicates that school meals are more nutritious than other meals typically eaten by students during the school day. Students who eat more nutritious meals perform better in school. Under the traditional program structure of the NSLP and the SBP, only students who meet an income eligibility threshold are eligible to receive school meals for free, and other students must pay for school meals. However, beginning in the 2014–15 school year, the CEP allows high poverty schools to choose to offer free breakfast and lunch for *all* students regardless of income.

In this research brief, we examine the effects of CEP participation on school meals served and educational outcomes for CEP participating schools compared to similar schools that are

eligible for CEP but choose not to participate. We answer the following research questions:

1. How does school CEP participation affect the number of school breakfasts and lunches served?
2. Is school CEP participation associated with improvements in educational engagement outcomes, including absences, suspensions, grades, and promotion to 10th grade?
3. Does academic achievement improve for students in CEP participating schools?

This study provides evidence to help schools and districts decide whether CEP participation is beneficial for their schools and students.

Background

Schools in North Carolina became eligible to participate in CEP beginning in the 2014–15 school year. To be eligible to participate, schools must have at least 40 percent of their students automatically certified to receive free school meals¹ or be part of a district or group of schools within a district that is collectively eligible. At CEP participating schools, breakfast and lunch are free to all students, and the school does not collect applications for program participation. CEP participation can lower barriers to receiving school meals by not requiring applications for eligibility, reducing the stigma associated with receiving free meals, and creating flexibility for schools to implement innovative foodservice models.

In our analyses, we focus on the schools that participated in CEP in the first two school years of implementation in North Carolina (2014–15 and 2015–16) compared to schools that were eligible to participate in CEP but chose not to participate². Table 1 shows the number and characteristics of schools participating in CEP compared to the eligible schools that did not participate. Among eligible schools, slightly more than half (55.0 percent) chose to participate, with participation rates highest among elementary schools (56.3 percent) and lowest among middle schools (50.2 percent). A total of 687 schools participated in the first two years of CEP implementation. Compared to non-participating schools,

Table 1. Characteristics of CEP Participating and Non-participating Eligible Schools (2014–15 and 2015–16 school years)

	CEP NON-PARTICIPATING	CEP PARTICIPATING
# of Schools	561	687
# of Elementary	345	444
# of Middle	101	102
# of High	74	84
Rural	64.0%	50.5%
Economically Disadvantaged	77.9%	86.0%
White	44.1%	26.4%
Black	29.7%	44.0%
Hispanic	20.1%	19.4%
Asian	1.4%	2.1%
American Indian	0.8%	4.6%
Multi-Racial	3.9%	3.5%
Male	51.8%	51.8%

¹ Students are automatically certified to receive free school meals if they receive other federal health and food supplements (e.g., SNAP, Cash Assistance, Food and Nutrition Services, TANF) or if they are homeless or in foster care.

² A small number of schools that were not eligible for CEP at the school level participated through district level eligibility, but we restrict our analysis to schools that were eligible and participating.

³ Economically disadvantaged is defined based on whether the student was ever identified as eligible for free or reduced-price meals during a five year panel from 2012–13 to 2015–16.

⁴ Course grades are measured on a four-point scale where A=4, B=3, C=2, D=1, and F=0. Courses not awarded letter grades (e.g. courses taken pass-fail are excluded from the outcome measure).

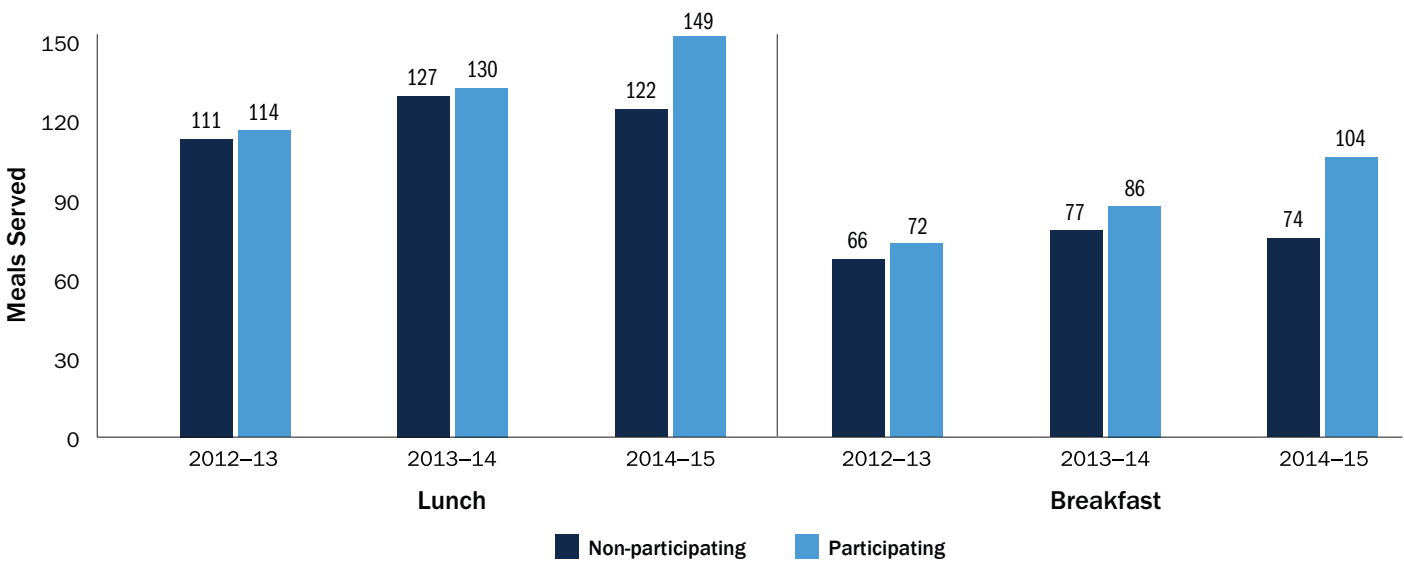
CEP participating schools are less likely to be rural (50.5 percent compared to 64.0 percent), had more economically disadvantaged students³ (86.0 percent compared to 77.9 percent), had fewer White students (26.4 percent compared to 44.1 percent), and more Black students (44.0 percent compared to 29.7 percent).

To examine the effect of CEP participation on the number of school meals served, we use school-level data provided by the North Carolina Department of Public Instruction (NCDPI) on the number of breakfasts and lunches served during the 2012–13 to 2014–15 school years. Using this data, we examined how the number of meals changed in CEP participating schools relative to non-participating eligible schools during the first year of CEP participation (2014–15).

We conduct several analyses to understand how changes in meal take-up associated with CEP participation affect students' school engagement. To explore the effect on engagement, we examined several educational outcomes, including absences, suspensions, course grades, and promotion to 10th grade. We measured absences and suspensions for all students in grades 3 to 12, with absences measured as the total number of days absent and suspension, indicating that the student received at least one out-of-school suspension during the school year. Course grades are measured on a four-point scale⁴ and averaged across all graded courses for students in grades 6 to 12. Promotion to 10th grade is measured as an outcome for 9th grade students and indicates that they were enrolled in 10th grade the next school year (i.e., they did not drop out and were not retained in 9th grade). Absences, suspensions, and course grades are analyzed separately at the elementary (3–5), middle school (6–8), and high school (9–12) levels.

Our student achievement analysis focuses on how test scores change in schools that select to participate in CEP compared to schools that chose not to participate. For the analysis of test score outcomes, we use student-level data on test scores on the End-of-Grade (EOG) math and reading tests in grades 4–8, the EOG science exams in grades 5 and 8, and End-of-Course (EOC) test scores in Math 1, English II, and Biology. For EOG test scores, we analyze elementary grades (4–5) separately from middle school grades (6–8). These analyses include data from the 2012–13 to 2015–16 school years to compare the first two years of CEP implementation to the three years before implementation.

Figure 1. Number of School Meals Served in CEP Participating and Non-participating Schools (2012–13 to 2014–15)



Note: This figure displays average meals per student served each school year for CEP participating schools compared to non-participating eligible schools.

How does school CEP participation affect the number of school breakfasts and lunches served?

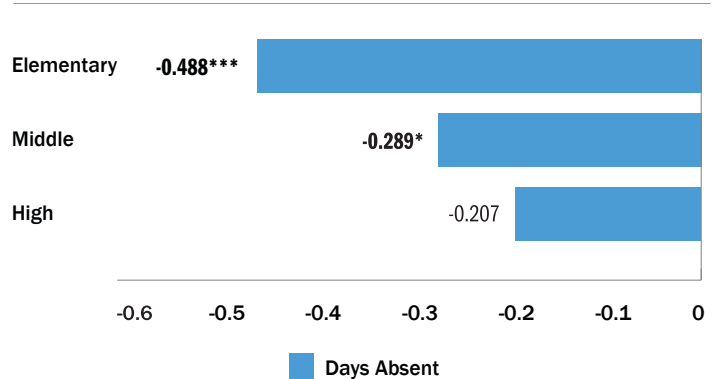
Figure 1 displays the number of breakfasts and lunches per student served during each school year from 2012–13 to 2014–15 for CEP participating and non-participating schools. Before implementing CEP, participating schools served slightly more meals per student than non-participating but eligible schools. With the beginning of CEP participation in 2014–15, CEP participating schools increased the number of breakfasts and lunches served per student significantly compared to non-participating schools. CEP participation was associated with an increase of about 23 lunches and 20 breakfasts per student⁵. Out of a 185 day school year, these increases represent 12.4 percent and 10.8 percent more school days on which the average student receives a school lunch and breakfast, respectively.

Is school CEP participation associated with improvements in educational engagement outcomes, including absences, suspensions, grades, and promotion to 10th grade?

Access to free meals through CEP participation can increase students' school engagement by incentivizing attendance, providing improved

nutrition, and reducing social stigma. Figure 2 shows the effect of CEP participation on the average number of absences for students in CEP participating schools compared to non-participating schools⁶.

Figure 2. Absence Results for CEP Participating Schools



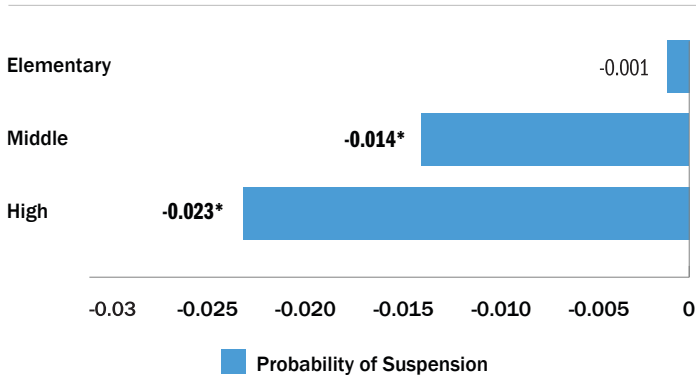
Note: This figure displays absence results for CEP participating schools compared to non-participating eligible schools. Absences are measured as the total days absent in a particular school year. *, **, and *** indicate statistical significance at the 0.05, 0.01, and 0.001 levels, respectively

The number of absences is reduced at all school levels with larger and statistically significant reductions for elementary and middle schoolers. Elementary school students are absent an average of about half a day less due to CEP participation, and middle school students are absent a little more than a quarter of a day less on average.

⁵ Increases in lunches and breakfasts associated with CEP are calculated using models with year and school fixed effects to control for differences in schools that choose to participate in CEP relative to schools that do not choose to participate.

⁶ Regression analyses include a rich set of student level controls, including prior test scores and absences, as well as school and year fixed effects.

Figure 3. Suspension Results for CEP Participating Schools



Note: This figure displays suspension results for CEP participating schools compared to non-participating eligible schools. Suspensions are measured as an indicator for ever receiving an out-of-school suspension during the specific school year. ‘*’, ‘**’, and ‘***’ indicate statistical significance at the 0.05, 0.01, and 0.001 levels, respectively

Figure 3 displays suspension results comparing students in CEP participating schools to non-participating schools⁷. Middle and high school students are significantly less likely to receive an out-of-school suspension when attending a CEP participating school. Middle school students are approximately 1.4 percentage points less likely to be suspended, and high school students are approximately 2.3 percentage points less likely to be suspended⁸.

In addition to absences and suspensions, we examine course grades for middle and high schoolers, which represent their achievement in their courses and their engagement in day-to-day assignments and participation. We also examine promotion to 10th grade for students currently enrolled in 9th grade. Promotion to 10th grade is an important indicator of progress in high school because 9th grade is a common year for students to be retained in grade or drop out of high school. Table 2 shows the results of analyses comparing students at CEP participating schools to students at non-participating schools on course grades and promotion to 10th grade. CEP participation is not associated with higher course grades in either middle or high school, but 9th graders in CEP participating schools are 2.5 percentage points more likely to be promoted to 10th grade.

Table 2. Other Educational Engagement Outcomes for CEP Participating Schools

	MIDDLE SCHOOL COURSE GRADES	HIGH SCHOOL COURSE GRADES	PROMOTION TO 10TH GRADE
CEP Participation	-0.024	0.008	0.025*

Note: This table displays course grade and promotion to 10th-grade results for CEP participating schools compared to non-participating eligible schools. Course grades are measured on a four-point scale and averaged across all courses for which a student received grades. Promotion to 10th grade is an indicator for whether a specific 9th grader enrolled in 10th grade in the subsequent school year. ‘*’, ‘**’, and ‘***’ indicate statistical significance at the 0.05, 0.01, and 0.001 levels, respectively

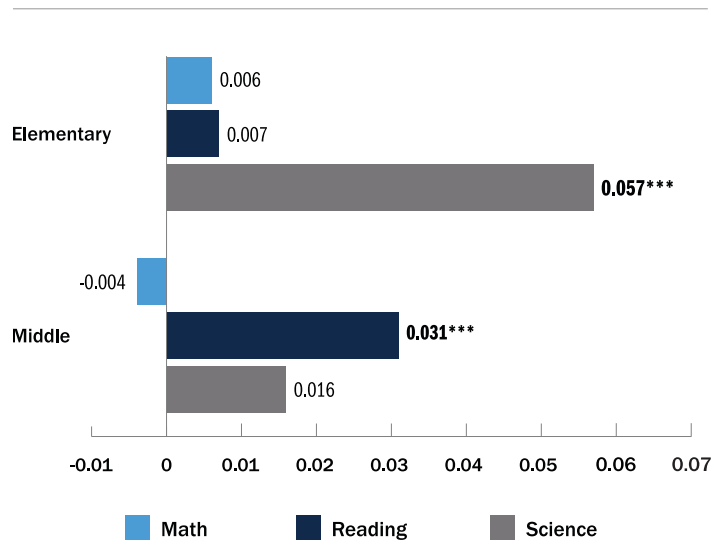
⁷ Regression analyses include a rich set of student level controls, including prior test scores and absences, as well as school and year fixed effects.

⁸ Elementary school students rarely receive out-of-school suspensions, so non-significant findings are common for this outcome.

Do test scores improve for students in CEP participating schools?

Increased nutrition may improve students’ academic achievement through greater school engagement as examined in the previous section or more directly through better attention, memory, and cognitive development. Figure 4 shows EOG test score analyses for elementary and middle school students. Students in CEP participating schools see small but significant improvements in 5th grade science test scores and middle school reading test scores compared to students in non-participating schools. However, test scores in elementary math and reading and middle school math and science are not affected by CEP participation.

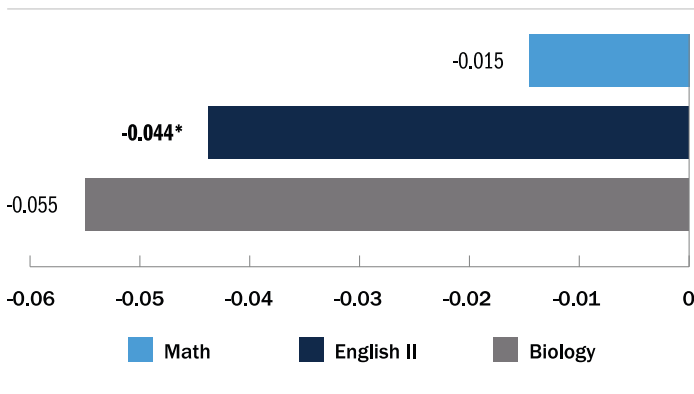
Figure 4. Test Score Outcomes for CEP Participating Schools



Note: This figure displays elementary and middle school EOG test scores results for CEP participating schools compared to non-participating eligible schools. Test scores are standardized within year and test. ‘*’, ‘**’, and ‘***’ indicate statistical significance at the 0.05, 0.01, and 0.001 levels, respectively

Figure 5 shows the results of test score analyses for high school EOC tests in Math I, English II, and Biology. All three test scores appear to be lower for students in CEP schools, but the change is only statistically significant for English II. These negative effects are unexpected, given that research theorizes better nutrition associated with free meals for more students improves academic achievement. However, in the previous section, we find that more students are promoted to 10th grade, the grade at which most students take English II and Biology. Additional students who proceed to 10th grade in CEP participating schools are likely to be at-risk students, who may score lower on EOC tests resulting in lower average test scores.

Figure 5. High School Test Score Outcomes for CEP Participating Schools



Note: This figure displays high school EOC test scores results for CEP participating schools compared to non-participating eligible schools. Test scores are standardized within year and test. ‘*’, ‘**’, and ‘***’ indicate statistical significance at the 0.05, 0.01, and 0.001 levels, respectively

Discussion

Many students across the country rely on school meals for nutritious food during the school day. The CEP allows high-poverty schools to offer free breakfast and lunch to all students rather than just students who meet eligibility requirements. By improving students’ access to school meals and reducing

stigma, CEP participation can increase school engagement and improve academic performance. This study results in three important findings. First, participation in CEP significantly increases the number of meals served. On average, each child in a CEP participating school receives 23 more lunches and 20 more breakfasts at school. However, these increases in meals are probably not spread evenly across all students. Rather the increase in meals may represent an additional two to three kids in each classroom of 20 receiving a free school breakfast and lunch every day of the school year. Second, participation in CEP is associated with improvements in several student engagement outcomes. Students in CEP participating schools are absent for fewer days, are less likely to be suspended, and are more likely to be promoted to 10th grade. However, course grades are unchanged by CEP participation. Third, schools’ CEP participation is associated with students’ test score benefits in some subjects at the elementary and middle school levels, but other subjects are unchanged. In high school, CEP participation is associated with lower test scores, but these counterintuitive changes may be a result of more students taking the test. Overall, schools’ CEP participation leads to improved educational outcomes. In addition to the primary benefit of providing nutritious meals for more students, educational improvements may serve as a reason for schools and districts to consider expanding participation in CEP.

For More Research on This Topic

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